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ANALYSIS OF ALLOTMENT GARDEN AREAS FROM THE ASPECTS OF LANDSCAPE PRESERVATION

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KINGA ALBICZ

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The doctoral school

name:	Hungarian University of Agriculture and Life Sciences Doctoral School of Landscape Architecture and Landscape Ecology
Field of science:	Agricultural Engineering
Head of the doctoral school:	Dr. László Bozó Meteorologist, professor, CSc
Doctoral advisor:	Dr. Nóra Krisztina Hubayné Horváth Landscape architect, Associate Professor, PhD MATE, Institute of Landscape Architecture, Urban Planning and Garden Art

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approval of the Head of the Doctoral School' approval of the Doctoral Advisor

It's called allotment garden, but there's no fence
Around the house. …
The gentry, who I was, who you were,
Lying under the noon canopy, watched,
How the cultivated land becomes untouched. …
Knowledge disappeared with the seed
From the memory of the deep furrows. …
Since then, there's no harvest on the sand, …
Here the Forest and Plain meet:
Neither knows what to do;
…Peace reigns.

(János Térey: Allotment garden)

1. WORK BACKGROUND AND OBJECTIVES

The relevance of the research topic is due to the noticeable and increasing problems of the allotment garden areas, on the one hand, and on the other hand, the studies on allotment gardens found in the literature review (BAZSÓNÉ 2018, CSIRSZKI 2018, 2019, CSORDÁS 1993, 2021, CSURGÓ 2013, ILLYÉS ET AL. 2022, ÓNODI ET AL. 2004, PÓCSI 2009, 2012, 2014, VASÁRUS 2016, 2018, VIGVÁRI 2022, 2023) have so far not, or only partially (e.g. researches of LAPOSA 1982, 1988, 2020 and TÖRŐ 2017) addressed the role of these areas in landscape protection and their value-based approach. This research covering the role and significance of former allotment gardens in nature conservation, landscape protection and cultural history aims to fill this gap by applying spatial and statistical methods.

1. *Housing, social problem:*Due to the economic and social changes of the 1980s and 1990s, living as a primary residence gradually began to appear in allotment garden areas and spread, mainly near large cities. (VIGVÁRI 2022)
   Based on my field observations, the outskirts of Biatorbágy, Solymár and Pilisvörösvár are striking examples. This occurred even though both the building regulations for allotment gardens and the available infrastructure contradicted this phenomenon. The moving-outprocess has been further intensified by the deepening housing crisis since the 2000s and the regional differentiation of real estate prices. Still today, for many families, purchasing and improving aproperty in the allotment garden areas is the only realistic option to have their own home.

2. *Problem of loss offunction:*Since their creation, allotment gardens have undergone a significant change of function. Some have been preserved for traditional small-scale garden farming, while others were integrated into settlements as residential areas, or grassy, neglected, afforested areas.In recent years, an increasing process of abandonment has been taking place, with agricultural land being replaced by scrubland and natural grassland.
   Among other issues, all these changes result in a number of landscape protection and landscape problems.

3. *Problems of landscape change:* the transformation of allotment gardens into holiday and residential areas, the loss of the original kitchen garden and fruit production function, causes permanent and/or long-term changes in the landscape and the landscape character. The former vineyards and orchards have been replaced by built

elements, holiday or housing zones that function as residential areas. In the Balaton Upland vineyard hills, the process of visual landscape degradation has been ongoing for decades as a result of overdevelopment and a continuous migration to the these areas (LAPOSA 1982, 1988). Areas of visual landscape significance are more exposed to the risk of being incorporated into the residential area and built on due to their attractiveness. Therefore, these places are the most vulnerable to reduction of vineyard areas and loss of (visual) landscape value (e.g. also in the case of Esztergom vineyards).

Another reason for the loss of value could be the change from small-scale vineyard cultivation to large-scale monoculture, when the traditional character of the landscape is negatively affected by the merging of several small parcels, and landscape features are disappearing (e.g. old tree species, fruit trees, traditional press houses, retaining walls). A similar problem is caused by planting pine trees for Christmas tree production instead of the usual cultivation in the allotment garden.

Vineyards left uncultivated and abandoned can also suffer a loss of value. The man-made cultural landscape is "rewilding", with abandoned gardens and fruit orchards being replaced by (often degraded) forests or shrub lands. The foot of the hills are being afforested and invasive plant species are increasingly taking over the area.

4. *Built heritage loss, disappearance of natural and cultural landscape features:* in the context of the process described in point 3, the loss and disappearance of our built heritage (related to folk/peasant farming, press houses, cellars) is a major risk factor.

5. *Nature conservation and landscape protection issues:* biodiversity is declining in line with the level of human interference (increase in the number of gardens with holiday or residential functions). With the elimination of traditional orchards, genetic heritage is being lost and landscape types are disappearing.

   Despite regulations restricting building development in the urban plans, there has been a continuous reduction in green spaces and allotment gardens are losing their role as a transitional space/buffer between residential and semi-natural areas.

6. *Legal and regulatory concerns:* the previous legislation on allotment gardens left loopholes in the regulation of the buildability of the area. The amendment of June 13, 2016 to *Government Decree No. 253 of 1997 (XII. 20.) on national urban development and building requirements* (OTÉK) in force at the time of the completion of the research allows 10% site coverage in agricultural areas, which is three times the previously allowed amount. The allotment garden zones have been removed, as

defined in the OTÉK, and are now classified as garden agricultural land (Hungarian abbreviation: Mk), so the regulations for agricultural land (which is a land use unit not to be built on) apply to them. The above-mentioned regulation allowed the construction of large residential buildings on agricultural land. From December 31, 2024, the OTÉK will be repealed and replaced by *Government Decree No. 280/2024 (IX. 30.) on the fundamental rules on zoning and construction requirements* (TÉKA).

Among the aims of my research is to explore the trends and drivers of land-use transformation in allotment gardens, from their establishment (1960s) to the present day, and to support the significance in landscape protection of allotment gardens with numerical data.
A further aim of the research is to determine whether, along the identified land use transformation directions and trends, the functional and spatial changes of the allotment gardens can be linked to the presence and type of values in them, and what is the relation and connection between them. I look for the answer whether the presence of these values (e.g. favourable landscape features) is a contributing or inhibiting factor to transformation.
In my dissertation, I would like to highlight the importance of preserving the values of the allotment gardens and their endangerment, as well as the value of abandoned, declining allotment gardens, by analysing them from a landscape preservation aspect. My goal is to contribute to the professional foundation of strategic, policy and urban planning decision-making related to the future of allotment gardens.

Table 1 is a summary of the research questions that I intend to answer by analyses at national and/or sample area level.

2. MATERIAL AND METHOD

In addition to the analysis of the literature on allotment gardens and land use trends, I used different national scale GIS data sets as the basis for the analysis. As a layer for the allotment garden patches, I used the national allotment garden geographic information dataset produced by the Lechner Knowledge Center Nonprofit Ltd. (Data provider: LECHNER KNOWLEDGE CENTER, 2011), which is the data set derived from the property register, from the 3rd location category.
The analyses of the role of allotment gardens in nature conservation and in the landscape were carried out by using the environmental geographic information database of the data provider Ministry of Agriculture.

Table 1: Research questions by topic and research level

RESEARCH QUESTIONS	Research level	
	National	Sample area
Land-use transformation of allotment garden areas		
1. How have the allotment gardens in the sample area changed in terms of land use function and size from their development to the present day? **What is the direction of the land use transformation?**	**x**	**x**
2. What factors have led to the change in land use?		**x**
Regulatory frameworks as drivers of transformation		
3. What kind of **urban planning regulations** can be observed in the allotment gardens of the sample area? To what extent do the **regulatory frameworks** influence the transformation and preservation of the gardens?		**x**
Conditions and factors influencing the land use transformation		
4. What is the slope category of the sample area's allotment garden patches? How does the steepness of the areas influence their transformation processes?		**x**
5. What is the **typical distance** of the allotment garden areas **from the town centre**? How does this characteristic affect the transformation of the land use functions?		**x**
6. How does the **connection of the allotment garden areas to the urban inner area** effect the transformation of their functions?		**x**
7. How do the transformation processes of allotment gardens being influenced by their possible agglomeration status/location?		**x**
Analysis of the allotment garden areas from the aspects of landscape preservation		
8. Where do traditional vineyard and fruit-producing historical landscape uses exist within the allotment garden areas? Does the **origin of vineyards and orchards** influence the value and transformation processes of the allotment gardens?		**x**
9. What proportion of allotment gardens are listed **as areas of protectedlandscape or of natural conservation significance**? How is the extent and number of protected allotment gardens distributed between the different categories of protection?	**x**	**x**
10. What **protected species of flora and fauna** are present in the allotment garden areas?		**x**
11. To what extent are unique landscape features present in the allotment garden areas? What types of unique landscape features can be found in them?	**x**	**x**
12. To what extent do **areas of visual landscape significance** affects the allotment gardens?		
13. Is ecotourism attraction characteristic of allotment garden areas? Do the tourist routes involving allotment gardens reflect the visual significance of the landscape and the attractiveness for ecotourism?	**x**	**x**

For the analysis of the land use changes, I worked with both the Copernicus CORINE Land Cover database (for the years 1990, 2000, 2006, 2012, 2018) and the CORINE Land Cover Change map layers (CLC1990-2000, CLC2000-2006, CLC2006-2012, CLC2010-2018), which contains the changes in land use and land cover. Along with CORINE Land Cover data, I also used the map dataset of the National Ecosystem Services Mapping and Assessment (NÖSZTÉP) to analyse the current land use of the allotment garden areas, which gives a more detailed picture of the land use ratios. In addition to this, for the analysis of the land use changes in the sample area, I also processed the military topographic maps of 1959 at a scale of 1:25 000, which were obtained from the map library of the Military History Institute and Museum, and were prepared at the time when the creation of allotment gardens started.

For the analysis of the unique landscape features occurring in the allotment gardens, I used the offline national unique landscape feature database TÉKA (Data provider: KOLLÁNYI, 2020) on a national level. For the analysis of the sample area, besides TÉKA and in addition to the observations from the site visits, I used the data provided by the Duna – Ipoly National Park Directorate, using the unique landscape feature data from their register.The chapter on protected and specially protected species in the allotment gardens of the sample area is based on biotic data provided by the Duna – Ipoly National Park Directorate (hereinafter DINPI). The DINPI provided data for the processing of the protected areas of local importance in the sample area. The comparison of the allotment gardens with the zone of visually sensitive landscapes was based on the MATrT national zone of visually sensitive landscapes. For the slope category study I worked with the SRTM digital elevation model. For some analyses (e.g. landscape character), I used the National Ecosystem Services Base Map and the WMTS-accessible layers of the National Geoinformatic Base Map as map base layer.

In the literature review chapter, I present the results of previous researches and publications on the topic in Hungary. I also provide an international overview comparing the situation and characteristics of allotment gardens in Western (such as England, France, Germany, Austria) and Eastern European countries (Czech Republic, Poland), with the ones in Hungary. I review the changes in the regulatory framework over time from the introduction of the term 'allotment garden' (1959) to the present day, as these significantly determine the evolution of allotment gardens. In the chapter "*The Regulatory Framework as a Driver of Transformation*", I present the urban planning tools in effect in the municipalities of the sample area and the relevant zones of the county plans.

To identify the historical land use and the former vineyard origin, I compared the map sections from the Second Military Mapping Survey of the Habsburg Empire (Data Provider: ARCANUM) with the allotment garden areas, dividing the allotment garden patches into four

categories (entirely of vineyard origin, mostly of vineyard origin, partly of vineyard origin, not of vineyard origin).

GIS Analysis

The research is based mainly on GIS analyses at national and sample area level. The data sets were processed and the result maps were prepared using Esri ArcGIS/ArcMap versions 10.4.1 and 10.6. During the analyses, I applied different GIS operations to the national and sample area datasets in the allotment garden areas, such as clip and intersect, selections (select by attributes, select by location), creating buffers, georeferencing, digitization, determining density locations by creating fishnet, slope category analysis from SRTM (Shuttle Radar Topography Mission) digital elevation model. The methods used for spatial data analysis are explained in detail in the chapters on specific results.

Statistical analysis

I evaluated the correlations between the figures obtained from the GIS analyses (including land use changes and slope, distance from settlement and presence of values/protected areas) by means of cross-tabulation statistical analyses using SPSS (Statistical Package for Social Sciences) software.

In the cross-tabulation analysis, the change in land use in the allotment garden patches can be considered as a dependent variable. The rate of change is small, medium and large. The characteristics of the allotment garden patches (slope, connectivity to settlement) are considered as independent variables.

The cross-tabulation shows how many of the allotment garden patches are in the possible intersections of the categories of independent and dependent variables. The bottom rows of the cross-tables show what proportion of all allotment garden patches belong to each category of the dependent variable (e.g. change in land use).

The more "different" these kinds of internal ratios are within each category compared to what we see for the whole population, the more likely it is that the independent variable under study is mathematically related to the dependent variable.

The correlations between the parameters in the cross-tabulations were established partly by visual inspection and partly by calculating Pearson's chi-square statistical measure.

Site visits, field surveys

Field surveys were carried out in the allotment gardens of the sample area to gather information about land use, building types, landscape features, unique landscape features, etc., and documented with photographs. The field surveys from 2018 to 2024 were mainly done in the spring-summer and autumn months, but in some areas (Budapest Agglomeration, Esztergom City) I also visited the allotment garden areas in the winter. Furthermore, I also made field trips to the case study sites (Sopron; Virágvölgy, Győr-Moson-Sopron County, Csörnyeföld; Vörcsöki-hill, ZalaCounty, Balatonakali; vineyard hill, Veszprém County, Lendva; vineyard hill, Slovenia, Vienna; Meidling, Austria).

Interviewing

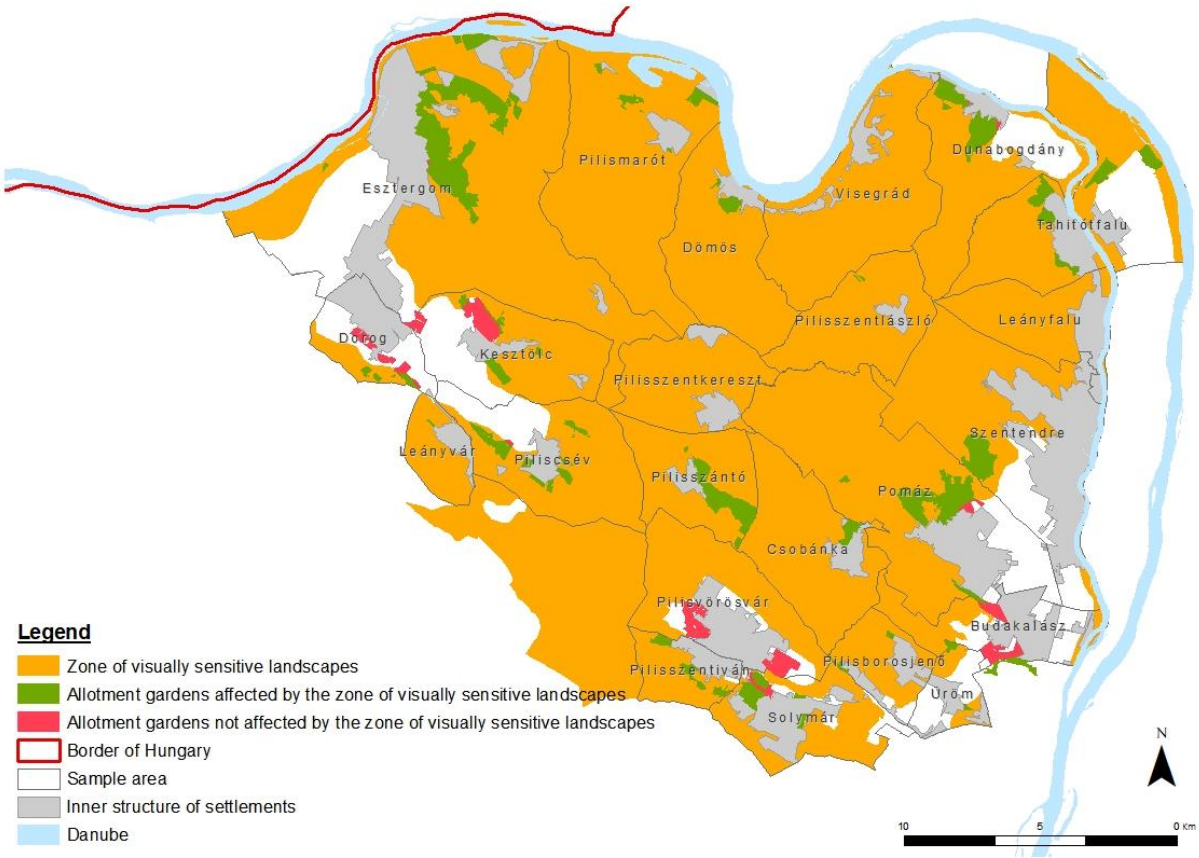
I found interviewing to be an important methodological element in my research because my previous experience shows that conversations provide an opportunity to form a real, up-to-date and at the same time credible picture of the topics addressed. Therefore, I also included this primary research method to provide a foundation for the research. The recorded interviews were analysed and structured in table form. Interviews are one of the most popular and widely used qualitative data collection methods, with one of the advantages being that they provide accurate information relatively quickly (NÉMETH, 2020) and add new, deeper content to previous research data (by the interviewee) that is credible and personal The interviews I recorded during the in-person meetings were guided conversations based on a pre-written set of 16-25 questions adapted to the interviewees' area of expertise.

I tried to record the interviews in a structured but semi-open way, as I assumed that the answers to my questions would depend on the discipline in which the participant had done research on the topic and where they had gained experience. Based on these, I formulated my questions, which I further introduced during the discussion.

The interviews were carried out between 2021 and 2024, after the Covid19 pandemic subsided. I interviewed four people from October to December 2021, one person in 2022 and two people in 2024 (seven in total). The seven interviewees (József Laposa, Gábor Ónodi, Zsuzsa Cros Kárpáti, Károly Jávor, Piroska Pető, Balázs Törő, András Vígvári) were chosen based on the topics I had studied during the research.

The research sample area

The sample area includes 25 settlements in the Pilis –Visegrád Hills. The settlements involved have 100 allotment garden patches covering a total area of 2739 hectares, which is 5.2% of the total area of the sample area.One of the reasons for choosing this location that it has settlements both within and outside the Budapest Agglomeration. It also has a diverse landscape and topographic character, with patches of allotment gardens in the Danube Valley, in a basin location, and in mountainous areas.Additionally, the patches of the allotment gardens show great variation in their "fate" and the scale of their transformation.



3. RESULTS (THESES)

I formulated the following theses based on the results of my research:

1. **I have defined the term 'allotment garden' in relation to its role in the landscape, visual landscape and its nature conservation significance.**

The term “allotment garden” was developed in Hungary under socialism in the early 1960s, but today it is no longer a legally existing concept. . It originally referred to privately owned small parcels of land, traditionally vineyards, orchards and gardens, which offered their owners weekend recreation in addition to the opportunity of backyard farming. Since their creation, allotment gardens have undergone a significant change of function. Some have been preserved for traditional small-scale garden farming, while others were integrated into settlements as residential areas, or grassy, neglected, afforested areas. These factors justify the introduction of a new, modern definition with a landscape architectural approach.
Allotment gardens are among the most transforming areas of settlements, forming a distinct and easily recognisable landscape segment from the residential area, with their characteristic parcel structure and size. The majority of them were developed on the site of former vineyard hills and vineyards. Therefore, they preserve the traditional landscape heritage of small gardens and vineyards, as well as their landscape features, cultural-historical and genetic heritage, and have a significant role in the conservation of the visual landscape and nature conservation. Despite the opposite direction of land-use changes, it can be concluded that allotment gardens represent a significant ecological-natural, landscape-visual landscape, socio-economic value.

2. **Ihave identified the differences and similarities between Hungarian allotment gardens and international small garden areas.**

Based on the international analogies, I found that the purpose of establishing small garden areas in all the European countries analysed was to provide recreational space for the urban population. The gardens were used for subsistence farming/cropping, which also had an economic role in times of famine. The characteristic feature of foreign small garden areas is that, unlike in Hungary, they are usually not privately owned properties, but are or have been under community management or long-term lease. While in Hungary, the allotment gardens are mostly located in the outskirts, in other countries they are often established inside the settlement.
Social demand for small-scale farming has declined in almost all the European countries analysed since the 1990s. As a result, all over Europe, small gardens are declining, with a two-way transformation/functional change, similar to Hungary: they are being built in or

abandoned. Their long-term existence can only be ensured by strict regulation (building and use restrictions) together with the community's willing to preserve them (social demand) like in Germany and France.

3. **I have described the main land use changes that have occurred in the allotment garden areas of Hungary, and the directions and drivers behind their transformation from their creation to the present day.**

The changes in land use in the sample area between 1959 and 2018 showed that the typically large vineyards in the areas of Dunabogdány, Kesztölc, Esztergom, for example, had almost completely disappeared by 1990 (-31.2%).Areas under meadow/pasture cultivation (-24%) and orchards (-9.0%) has decreased significantly and almost completely disappeared. Since the 1990s, the area of allotment gardens transformed into residential and recreational/urban areas has increased by several times (+21.1%), and now represents almost a quarter of all allotment gardens in the sample area.Significant and gradual expansionshave been recorded in the category "primarily agricultural land use with significant natural formations" (+10.2%) as well as in forest and shrubland areas (+13.6%). Combined, these two categories cover one third of all allotment gardens. The share of allotment gardens cultivated as arable land is only marginal. The proportion of allotment gardens with a complex cultivation structure increased by +7.6% to 34.6%.

The numbers of the study show that the allotment gardens of the sample area have undergone a significant land use change over the 65 years since their creation, which has involved a change in land use functions from the initial ones, with a gradual decline in small-scale gardens, vineyards and fruit production.

4. **I have identified the factors influencing and resulting the transformation of allotment garden areas in the Pilis-Visegrád sample area.**

Based on the GIS transformation analyses and cross tabulation statistical analyses carried out on the sample area, I have provided numerical evidence that the land use change of the allotment gardens is related to the slope of the patch, its connection/distance from the settlement and its agglomeration location.

The category of slope type influences the processes of allotment garden transformation. Areas with a slope below 12% are more exposed and more dynamically transforming, while allotment gardens with a slope above 12% are more stable and better preserving their original land use, the small-scale farming.

Allotment garden patches along the settlement boundary, *adjacent to the inner area,* clearly show a higher tendency to transformation.

Being *located in the agglomeration* leads to more dynamic and more significant changes in the size of the allotment garden, according to the results of the area-weighted cross-tabulation analysis.

5. **I have provided data to support the cultural and historical significance of allotment gardens and the presence of unique landscape values at both national and sample area scales. I have determined the historical, vineyard and orchard origins of the allotment garden areas in the Pilis-Visegrád sample area.**

Based on the sample area analyses, I found that the vineyard past as a historical precedent can be detected in a significant part of the total area of the allotment sites. Therefore, the allotment patches were largely formed on the site of former small-plot vineyard and fruit-producing areas. The centuries-old stable cultivation of vineyards, orchards and small parcels of land can be considered as a traditional landscape use. Its characteristic landscape structure and centuries-old landscape features are of landscape value and therefore worth preserving.
The density of unique landscape features in the allotment garden areas is almost five times more than the national average. One third of the country's unique landscape features related to vine and fruit production are concentrated in these areas.
Out of the nearly 120 000 unique landscape features registered in the TÉKA database, 12 231, or 10.2% of the national total, are located in allotment garden areas, despite the fact that the proportion of allotment gardens is only 2.1% of the total area of the country.
The amount of unique landscape features per square kilometre in the allotment garden areas is several times higher than the national value. While the total number of unique landscape features registered in Hungary is only 1.27 per km^2 in relation to the total area of the country, the value for allotment garden areas is 5.99 per km^2. Both of these results demonstrate that there is a significant concentration of unique landscape features in the allotment gardens with a higher density than the national average.
Nearly a third (31.8%) of the unique landscape features in the allotment garden areas are related to vineyards and fruit production, which is three times the national value (9.6%). The proportion of unique landscape features related to water and water management is outstanding in the allotment gardens (44.1%, twice the national reference value), as is the proportion of sacral features (12.5%).

6. **I have identified the role of the allotment garden areas from nature conservation and landscape preservation aspects nationally and in the Pilis-Visegrád sample area, as well as the area's natural values.**

I found through national and sample area analyses that nearly one third of the area of allotment gardens in Hungary protected areas of national significance or under other (spatial)

categories that promote the conservation of our landscape and natural heritage. It is common to see several protection categories in the same allotment garden patch. However, compared to the national conservation reference data, the proportion of the area of the protected allotment gardens in most conservation categories is lower, due to their agricultural character, anthropogenic impacts and the presence of invasive plant species in the abandoned gardens. Despite the lower protection rates than the national average, allotment gardens are areas of landscape protection and nature conservation significance and important buffer zones in the ecological network. Biotic data analyses carried out in the sample area proved that the old varieties, extensive, traditional orchards and vineyards, both cultivated and abandoned, are valuable and rare habitats for many protected species. In a sample area of 24 municipalities, biotic data registered the occurrence of 165 protected and 10 specially protected plant and animal species in the area of the allotment garden patches.

7. **I have demonstrated that 59.83% of the total national area of allotment gardens are affected by areas of visual landscape significance, which means that it has landscape features worth to be preserved from visual landscape point of view.**

59.83% of the total national area of allotment gardens is affected by areas of visual landscape significance, which means that it has landscape features worth to be preserved from visual landscape point of view. The visual landscape significance of the allotment garden areas is supported by the fact that the area ratio of the allotment garden patches in the zone of visually sensitive landscapes is almost one and a half times the national area ratio of the areas of visual landscape significance. The allotment gardens affected by the zone are concentrated in the Pilis-Visegrád Hills, in the Bükk, around Tokaj, in the Balaton-Highlands, in the Zala Hills and in the Mecsek area. Results of the spatial analysis of the sample area indicate that this proportion is much higher in the Pilis-Visegrád Hills, where 80% of the areas of visual landscape significance of the allotment garden patches are affected by zone of visually sensitive landscapes.

4. CONCLUSIONS AND PROPOSALS

In this dissertation, I have reviewed *the changes and trends in the land use of allotment gardens* (3) from the time of their creation to the present day through the methods of literature research, GIS and statistical cross tabulation analysis and interviews. These analyses have led to the identification of the factors influencing the size and functions of the allotment garden areas, which have changed land use over the last 65 years. As a result of a combination of factors, which are not equally significant, small-scale vineyards and small-scale orchards with fruit and vegetable production are increasingly disappearing and being transformed. Based on the national and sample area analyses, the direction of the transformation is twofold: on one hand, it is shifting towards residential use, while on the other, it is transforming to grassland, or undergoingafforestation and/or invasive plant species spreading due to abandonment. However, the sample area analyses also revealed that, despite the agglomeration situation, traditional small-scale farming is still present in almost half of the allotment gardens.

The results of the analysis of the landscape features in allotment gardens and their role in the system of protected natural areas proved that almost a third of the former allotment gardens are under protection or a nature protection area of high priority. In several locations, different categories of protection can overlap and multiple can be present. However, compared to the national averages, the proportion of protected allotment gardens is lower in most protection categories. The high number of cultural and historical values can be related to the fact that the allotment gardens were already under vineyard cultivation before they were classified in that category, and the majority of them (three quarters of their total area) have historical roots, either partially, or in their entire extent. Given the controversial legal status and the transitional area character, a multi-directional trend of transformation is expected in the future.

According to the National Landscape Strategy 2017-2026 projections for allotment gardens, the conversion of them to uncultivated land and the increase in the amount of targeted investment areas are likely to lead to a further decline in agricultural lands. The strategic goals of the Landscape Strategy do not include solving the problems of the allotment gardens areas, but it states that "*there are already existing principles and partial results of a more environment- and landscape-aware support policy, such as ... Allotment Garden Revitalisation Programmes* ..." The spread of urban areas and the commuting and mobilisation between home and workplace have led to the need for new infrastructure developments, the fragmenting effect of which may cause further damage in the future. Green

spaces are becoming fragmented, their functional relationship is being lost, the resulting negative impacts are increasing, and the landscape structure is being significantly transformed, especially at the outskirts of settlements. The transition zone between the outskirts and the residential area, and between areas to be built-up and not to be built-up, is constantly changing in settlements with a growing population. Disturbing facilities, plants and industrial areas are settled here, while at the same time small patches of still semi-natural areas, former stream beds, meanders, former garden areas, which are the last shelters for wildlife between the intensively cultivated agricultural areas and the city, are preserved. (TÁJSTRATÉGIA 2017-2026)

The spatial plans restrict the designation of new settlement areas (indirectly new built-up areas) only in the Budapest Agglomeration. In other parts of the country they only forbid or condition the designation of settlement areas in zones under protection, without any quantitative limit.

The preservation and the way in which the land is used is essentially determined by the intentions of the municipalities and the population, so urban planning can only accomodate this process. (TÁJSTRATÉGIA 2017-2026)

Based on the results of my analyses, it can be concluded that despite the transformation and degradation, a significant part of the allotment garden areas still contain landscape features: they more or less preserve the characteristics of the conscious landscape shaping activities of humans, the landscape structure, the natural and landscape features, and in many cases the heritage of historical landscape use, the remaining traces of small-scale farming. As such they are worth preserving. Its landscape value is mainly based on the architectural and cultural heritage creations (former vineyard cellars, chapels, roadside crosses, locally significant old trees with pictures or statues, etc.), resulting from historical land use, and its landscape appearance is a distinct and characteristic entity. Their character, spatial and land-use transformation trends differ in the various regions of the country.

The practical and societal applicability of the research is described in the following thematic groups.

One of the outcomes of the research is to **raise awareness and shape attitudes**, and to bring the results to the attention of professionals and decision-makers. The disappearance of allotment gardens, in particular vineyard cellars, traditional orchards and other cultural landscape features, represents a serious loss of landscape and ecology. In order to conserve allotment gardens and the traditional landscape use, it is important to draw the attention of the population and municipalities to the protection of these areas**. Involving local communities**

and decision-makers, forums, conferences and interactive workshops can be organised for municipal decision-makers and local gardeners. Attitude-shaping could include the production of **educational materials**, such as publications and educational booklets, highlighting their role and importance in nature protection and landscape conservation, their history, and sustainable use, including international examples. By assessing the landscape features of the allotment gardens associated with individual settlements, especially those with a rich historical past, the presence of cultural-historical and natural values can be demonstrated through the production of landscape feature maps.

Municipalities are crucial in promoting the sustainable use of allotment gardens.

The results of the research can also be used to provide the basis and to support spatial development strategies and settlement plans. It is recommended to **revise the zoning and regulations of the allotment garden areas**, with urban planning tools aimed at maintaining cultivation, preserving fruit trees, preventing illegal constructions and landscape character-destroying land uses (e.g. Christmas tree plantations). **The support of the municipalities** could be important, possibly by launching advisory programmes to assist them in developing local regulations.

Model projects/farms can be established on the model of the Allotment Garden Revitalisation Programmes, such as the development of a 'Sustainable Allotment Garden Area' concept, which will demonstrate good practices on a local or even national scale. The **expansion of the application opportunities** related to the Allotment Garden Revitalisation Programme (e.g. support for the replanting of orchards and vineyards) and their increased effectiveness and accessibility would be useful not only for municipalities but also for individuals.

The **unique landscape feature surveys** carried out by national park directorates are often incomplete or the unique landscape features in allotment garden areas are not fully registered. There may be a need for a **detailed survey** in these areas and an expansion of the inventory to include historical architectural features, natural areas, and landscape structure characteristics. All this could be accompanied by the development of a **GIS-based monitoring system**, in the framework of which the transformation process of the allotment gardens, the occurrence and current state of landscape features can be observed using digital mapping and data analysis methods.

Development of legal and economic incentives and **support schemes for the protection of allotment gardens** may be needed: e.g. tax allowance for sustainable cultivation, application opportunities for small-scale agricultural management. Emphasis should be placed on

initiating ongoing discussions with legislators to clarify the transitional status of allotment gardens and to strengthen their protected status in the long term.

The National Landscape Strategy (2017-2026) does not prioritise the protection of allotment gardens, so it is necessary to propose the inclusion of this issue. **Making additions to the landscape strategy and proposing amendments** could provide an example of **how landscape strategy aspects can be applied in practice**, for example by **introducing various pilot projects** to ensure that allotment gardens becoming abandoned are properly managed.

Allotment gardens are not only a remnant land use of the socialist era, but can also be a key element of sustainable landscape use in the future. Proper regulation, conscious landscape management and community engagement can ensure their long-term preservation and sustainable use.

5. PUBLICATIONS CONNECTED TO THE TOPIC

Journal articles

1. MOLNÁRNÉ ALBICZ K.,VASZÓCSIK V. (2019): Esztergom zártkertjeinek történeti területhasználati vizsgálata a 19. századtól napjainkig. In: Tájökológiai Lapok/ Journal of Landscape Ecology 17(1) pp. 107-120. 14 p. DOI: 10.56617/tl.3470
2. ALBICZ K.,HUBAYNÉ HORVÁTH N. (2023): Az egykori zártkertek tájértékei és tájképvédelmi jelentősége/Unique landscape features and significance of former allotment gardens in the protection of the visual landscape. In: 4D Tájépítészeti és Kertművészeti Folyóirat. 69. sz. pp. 42-53. 12 p. DOI: 10.36249/4d.69.4437
3. MOLNÁRNÉ ALBICZ K. (2020): Zártkertek földhasználati változásának vizsgálata a Dunakanyar pilisi településein / Analysis of Land-Use Changes in the Settlements of the Pilis Sample Area on the Danube Bend Section pp. 35-45. In*: Acta Scientiarum Transylvanica (Múzeumi Füzetek) Chimica* 28(3) 68p. 10p ISSN 1842–5070 https://eda.eme.ro/items/ee723407-50d1-49a9-8bc6-6886405e8829

Conference publications

4. ALBICZ K.,HUBAYNÉ HORVÁTH N. (2024): Hajdani zártkertek, a tájértékek hordozói Magyarországon. In: Fodor Marietta, Bodor-Pesti Péter, Deák Tamás (szerk): *A 2023. évi Lippay János – Ormos Imre – Vas Károly (LOV) Tudományos Ülésszak tanulmányai*. Magyar Agrár- és Élettudományi Egyetem, Budai Campus, Budapest. 334 p. pp. 15-22. 8 p. https://press.mater.uni-mate.hu/234/
5. ALBICZ K. (2022): Zártkertek átalakulása a településrendezési és területrendezési tervek tükrében a Pilis és Visegrádi-hegység egyes településein In: Kiss, Emőke; Balla, Dániel (szerk.) Tájökológiai kihívások, adaptációs lehetőségek. MTA DTB Földtudományi Szakbizottság, Debrecen 212 p.pp. 113-119, 7 p. ISBN: 9789637064432https://geo.unideb.hu/sites/default/files/file_uploads/kiss_emoke_-_balla_daniel_-_tajokologia_kotet_formazott.pdf
6. ALBICZ K., HUBAYNÉ HORVÁTH N. (2022): Former enclosed gardens as a part of greenways in Hungary: Correlation between protected natural areas and slow tourism. In: Keszthelyi Á. B., Jombach S., Valánszki I., Filepné Kovács, K., Kollányi L., Ryan R. L., Ahern J., Eisenman T., Lindhult M. S., Fábos J. Gy. (szerk.*): Moving Towards Health and Resilience in the Public Realm, 7th Fábos Conference on Landscape and Greenway Planning.* Hungarian University of Agriculture and Life Sciences,

Institution of Landscape Architecture, Urban Planning and Garden Art, Budapest. Volume 7 • Issue 1 Paper 31. 13 p. DOI DOI: 10.7275/v436-wh34

7. ALBICZ K., VASZÓCSIK V. (2019): Historical Study of the garden plots in the Danube Bend from the 19th century to the present, In: Fábos, Julius Gy. – Ahern, Jack - Breger, Benjamin – Eisenmann, Theodore S. –Jombach Sándor – Kollányi László – Lindhult, Mark S. – Ryan, Robert L. – Valánszki István (ed.) *Proceedings of the Fábos Conference on Landscape and Greenway Planning*: [online] 6th Fábos Conference on Landscape and Greenway Planning, adapting to Expanding and Contracting Cities, Amherst, MA. USA March 28-30, Vol. 6 , Article 8. 14 p. DOI: DOI: 10.7275/de1w-2j46

Book, excerpt of book

8. KOTSIS I., ILLYÉS ZS., VARGA D., FÖLDI ZS., HUBAYNÉ H. N., ALBICZ K., BÁTHORYNÉ NAGY I. R., KÖRMENDY I. (2022): Zártkerti területek fejlesztése – Oktatási és tervezési segédlet. Ormos Imre Alapítvány, Budapest. ISBN: 9786158162869. 51 p.