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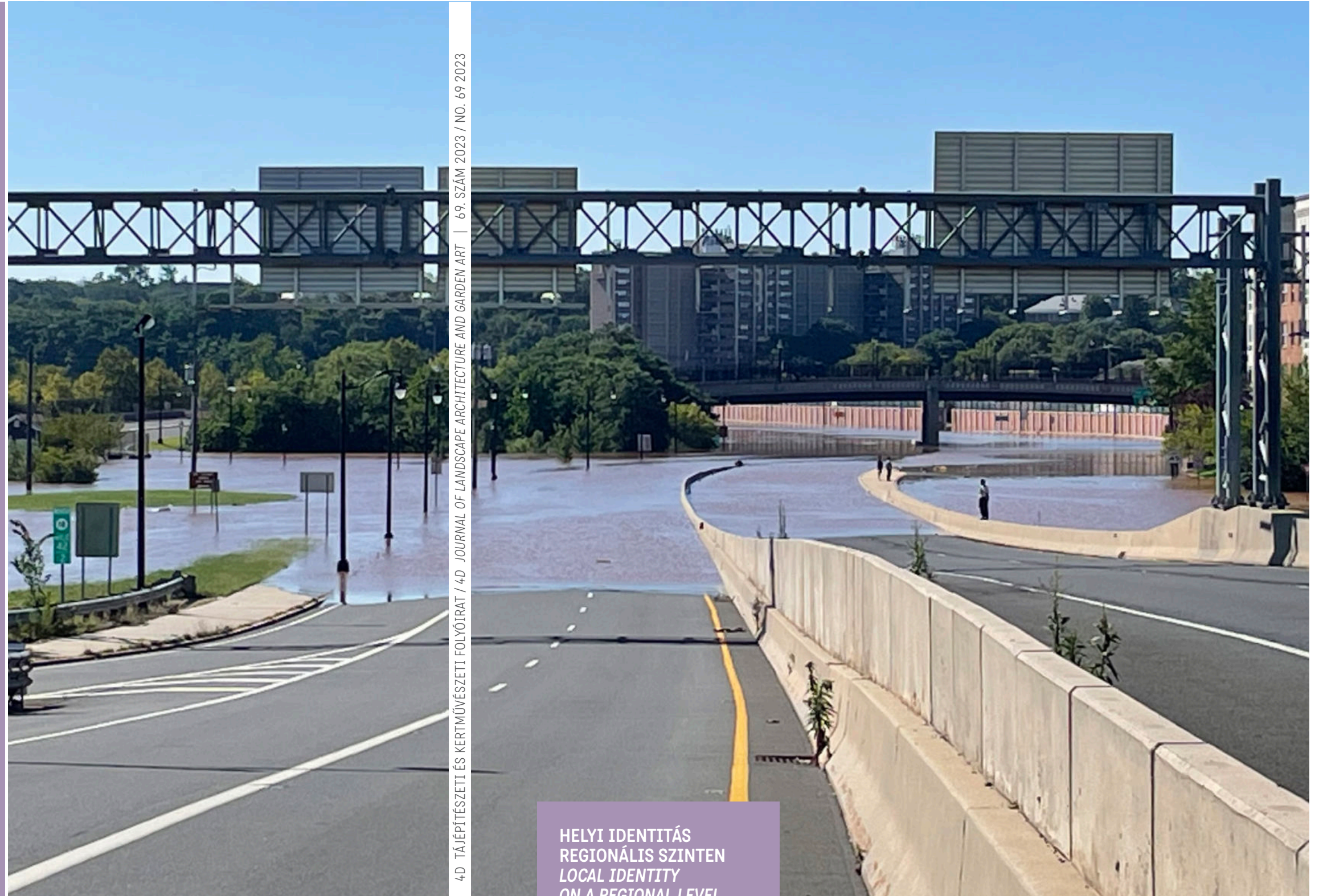
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Tájépítészeti, Településtervezési és Díszkertészeti Intézet
H-1118 Budapest, Villányi út 35-43.
Telefon: +36 1 305 7291
E-mail: tajepiteszet@uni-mate.hu
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4D/69

4D
TÁJÉPÍTÉSZETI ÉS KERTMŰVÉSZETI FOLYÓIRAT
4D
JOURNAL OF LANDSCAPE ARCHITECTURE AND GARDEN ART

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Egyetem Tájépítészeti
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University of Budapest,
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Architecture, 2005**

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NYOMDA/PRESS:
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SZOLGÁLTATÓ
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IssN 1787-6613
DOI: 10.36249/4d.69

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HELYI IDENTITÁS REGIONÁLIS SZINTEN

Városkörnyéki tájak kezelésének lehetőségei New Jersey példáján

LOCAL IDENTITY ON A REGIONAL LEVEL

Approaches and methodology of managing suburban cultural landscapes in New Jersey

HÖFER, WOLFRAM

ABSZTRAKT

Az ember és a hely kölcsönhatása helyi identitást teremt, amely eligazodást nyújt bonyolult világunkban, és kötődést, valahová való tartozást biztosít a lakosok számára. Idővel, ahogy egy közösség kulturális kölcsönhatásai kapcsolatot teremtenek a narratívák és a helyek között, a helyi identitás alakul, fejlődik. A városi terjeszkedés hatással van a helyi identitásra: a városok terjeszkedése következtében a jelentőséggel, jelentéssel bíró helyek megváltoznak, újak jönnek létre, míg mások teljesen eltűnnek. Emellett a népességen belüli változások is eredményezhetnek elhalványuló narratívát, mivel a narratívát eredetileg létrehozó csoport elköltözik. A helyhez kötődő kulturális történetek változását az USA városkörnyéki, agglomerációs fejlődésének összefüggésében tárgyaljuk, ahol a külvárosi területek növekedését gazdasági célok vezérlik és a területrendezés irányítja. A New Jersey állambeli Middlesex megye a New York-i metropolisz területén helyezkedik el. A mintaterületen arra a kérdésre keressük a választ, hogy a regionális szintű területi tervezés hogyan támogathatja a helyi identitás megőrzését, kialakulását egy változó környezetben. A New Brunswick-i magyar közösség története példaként szolgál, mint egy olyan csoport, amely a huszadik század első felében erős helyi identitással rendelkezett a mintaterületen, ugyanakkor ez napjainkra elhalványult.

Kulcsszavak: helyi identitás, kultúrtáj, környezettervezés, városkörnyék ©



Figure 1: Middlesex County is located in central New Jersey, New Brunswick is the County Seat and has a Hungarian heritage

ABSTRACT

The interaction of people and place creates local identity, providing orientation in a complex world and a sense of place for residents. Over time, as the cultural interactions of a group creates links between narratives and places, local identities evolve. These identities are impacted by urban expansion: meaningful places are included, changed or completely built over completely by urban sprawl. Additionally, changes within the population may result in a fading narrative, because the group that originally created the narrative moved away. The flux of place-related cultural stories will be discussed in the context of suburban development in the US, where growth in suburban areas is driven by economic goals and guided by land-use planning. Middlesex County, New Jersey, is situated in the New York metropolitan area and will serve as a case study for the question of how environmental planning on a regional scale can support local identity within a changing environment. This includes the story of the Hungarian community of New Brunswick as an example of a sense of place that was strong in the first half of the twentieth century, but that faded over time.

Keywords: sense of place, cultural landscape, environmental planning, suburbia

INTRODUCTION

Place attachment of individuals and the local identities of communities are closely intertwined. These place bonds help people to navigate their environment and establish a sense of belonging in an ever-changing world. A missing connection between meaning and place is among the numerous criticisms of suburban living in North America. Suburbia and its associated sprawl stand for a condition of “placelessness”, with repetitive, single-family housing and white middle-class families living in neighborhoods of low-density. Airgood-Obrycki, Hanlon & Rieger (2021) make it clear that this “image is, of course, no more than an imaginary” ([1], 1263). However, the uniform character of suburbs makes it easier for people to settle into new locations. The psychological science research of Oishi et al. [2] explains that the uniformity of malls and homes provides familiarity in a highly mobile society. This is among the reasons why the highly individualistic US has a highly uniform suburban landscape, in addition to the advent of the car and the post-World War II building boom [3].

On the other hand, a local identity along with a sense of place helps people to navigate a complex environment and fosters social interaction [4]. The question is how can environmental planning support local identity on a regional scale? Our case study will be New Jersey, the most suburbanized state in the United States with a strong home-rule tradition (municipalities have the final say in land-use decisions, regional planning is weak). We will zoom in on Middlesex County in central New Jersey, which has close transportation links to New York City (figure 1). The county includes characteristics that reflect the overall state: the north and center are highly (sub-)urbanized with two primary cities of New Brunswick and Perth Amboy, while the southern section contains rural fragments of forest and farmland. New Brunswick is the county seat, and hosts the main campus of Rutgers University and the international headquarters of the Johnson & Johnson corporation. The county’s economic strength attracted immigrants, including a significant Hungarian community. Our team developed flexible regional planning tools for the county, suitable for home-rule, that acknowledge the link between cultural heritage, green infrastructure and ecosystem services [5].

SUBURBS AND IDENTITY

The sprawling expansion of metropolitan areas is a global problem. Today, more than one-half the world’s population lives in urban areas; by 2050, this is projected to be more than two-thirds. Most of this population growth will result in further expansion of urban and urbanized areas. Suburban areas will have increased density, and land – currently used for forestry or agriculture at the urban fringe – will become suburbanized [6]. The scientific community of urban scholars, geographers and planners has not yet found consensus on a definition of suburbs. Forsyth [7] sees as a common thread the “outer locations in the metropolis and their relative newness” (ibid, 14). Airgood-Obrycki [1] et al. develop a discussion that explores geographic delineations of suburbs and identifies data that support these boundaries, revealing much about our understanding of both cities and the suburban space. He points out that the US federal Office of Budget and Management (OMB) made the deliberate decision not to develop a definition of suburban zones.

To my knowledge, central European statistics also do not identify suburban zones as a particular census category. In American English, the term suburb identifies



◀◀ **Figure 2:** Neo-colonial townhouse development, Highland Park, NJ
◀◀ **Figure 3:** Magyar Reformed Church, New Brunswick, NJ
Figure 4: Monument for the Victims of 1956
Figure 5: 2023 Hungarian Festival in New Brunswick

one area while suburbia describes the overall cultural phenomenon, however, both terms are commonly used in planning and design discussions, along with the original German terms *Vorstadt* (before-city) and *Zwischenstadt* (in-between city). Recently the term peri-urban areas gained relevance in the context of the integrated European Union research project PLUREL. [8] A significant difference between these terms and the term suburbia is that they have almost exclusively remained within the field of professional and scholarly discussions while suburbia made it into the realm of US popular culture [9]. The geographer Donald W. Meinig [10] even includes the suburbs in his description of three American Symbolic Landscapes: New England, Main Street America and the California Suburb. I put forward the hypothesis that America's prosperity and success in the 20th century is closely linked to the growing cultural importance of its suburbs.

In the American boom years after WW II, suburbs became the place to fulfil the American Dream. At a time when inner cities were burdened by conflict and decline, the single family home with eye-level oven and white picket fence was the desirable place to bring up a baby boom-era family; all made possible by the automobile and the expanding highway system [3]. Emerging post-modernist discussions criticized the resulting expanse of uniform residential areas of cul-de-sac and strip malls as assemblages of cookie-cutter homes without any local character [11]. New Urbanist architects made numerous

field trips to Europe, admiring the walkable towns and the smaller role of the automobile. The outcomes of these trips produced historic looking homes, malls, and town centers intended to replicate the feel of Main Street America. These residential developments are still commercially very successful. The curb-side appeal of most new residential developments in New Jersey follows a neo-colonial design language, decorated with ornamental, low-maintenance landscaping, with little distinctive character (figure 2). Charles Waldheim criticized this development as “reactionary cultural politics” and “nostalgic sentiments” of New Urbanism, and suggested a more process-oriented landscape thinking [12].

To explore the question of how suburbia can gain a sense of place without the repetition of historic replicas, a brief consideration of the genesis of sense of place is helpful – and how it relates to the term “cultural landscape”.

CULTURAL LANDSCAPES AND SENSE OF PLACE

The distinction of a cultural landscape has become an object of administrative preservation procedures – sense of place has not, although both terms are intrinsically linked. Raymond et al.[4] describes two possible approaches to sense of place. The first is a relatively new, relational perspective, that puts a focus on how a sense of place is forged nowadays, “how we can conceptually or empirically understand how people go about fashioning their world into meaningful places” (ibid, 3). This provides

the tools to explore a shifting sense of place when long-time residents move out and newcomers take their place.

The second, humanistic-phenomenological approach asserts a stable essence of a place, a clear meaning that has evolved over centuries, and that should be protected against changes; these places can also be identified as cultural landscapes. In a rapidly changing world, meaningful places need the support of government intervention through planning and investment. The US National Park Service (NPS) has an important role in protecting cultural landscapes. Originally an outcome of the National Park Movement, geared towards the preservation of the natural beauty of the American West, the NPS owns and manages 941 cultural landscapes. [13] The NPS is doing important work that preserves and provides access to historic cultural sites. The New Jersey State Historic Preservation Office (SHPO) oversees more than 1,700 historic sites, all of them considered relevant to the narrative of the state. Many of these places are further supported by friends' groups or other non-governmental organizations (NGOs).

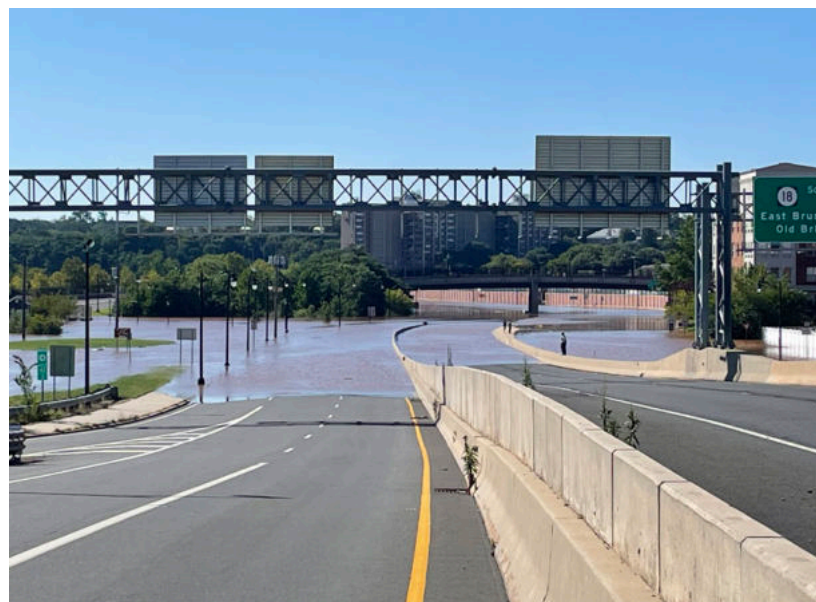
Traditional cultural landscapes are important components that can enhance the local identity of suburban neighborhoods. At the same time, everyday spaces, which do not “deserve” a dedication as a cultural landscape, can provide valuable contributions to local identity.

Landscape scholars, such as J.B. Jackson [14], [15], [16], place a focus on exploring ordinary spaces, as do Jon Stilgoe [17], [18], Chris Wilson, and Paul Growth [19], just to name a few. These authors claim that ordinary spaces

have value for social interactions within a community and that they create a sense of place that can be experienced every day. This ties back to the above-mentioned relational perspective on sense of place.

The Hungarian community in New Brunswick may serve as an example for developing a sense of place under a relational perspective, which became known to subsequent immigrant waves, by creating institutions and landmarks which were later transformed into objects of historic preservation. In the late 19th century, recruiters from Johnson & Johnson were touring central Europe to attract workers for the booming company. Tamas [20] describes job advertisements that were placed in Hungarian newspapers and recruiters who went from door to door in Hungarian villages. In addition, new arrivals from Hungary were recruited when they arrived in New York Harbor. So it happened that by 1915, 20% of New Brunswick's population was Hungarian. During its peak in the interwar period, the Hungarian population reached 6,500 members. These immigrants were here to stay, establishing a community with churches and other institutions, and at the same time living the American Dream of slowly assimilating within American society and participating in urban “white flight” after WWII.

The second wave of Hungarian immigrants came around the end of WWII, as displaced persons fleeing Soviet occupation. The already existing Hungarian community was an attractive anchor point. Although well educated, these new immigrants experienced difficulties



settling in because Hungarian degrees were not accepted. Many considered themselves temporary political exiles, hoping to return to their homeland when the iron curtain was pushed back.

The third immigrant wave followed the 1956 revolution, when more than a thousand refugees, called the 56-ers, came to New Brunswick. Because of cold-war US sympathy for victims of Soviet oppression, numerous immigrant students received scholarships. Among them was Julius Fábos, who received a bachelor's degree in plant sciences from Rutgers University in 1961. Fábos went on to teach landscape architecture at the University of Massachusetts and established the *Hungarian American Fábos Conference on Greenway Planning*.

Today, most Hungarians have moved from the City of New Brunswick to the suburbs, blending into the growing white middle class [20], but still patronizing local Hungarian institutions that include the American Hungarian Foundation, Hungarian American Athletic Club, the Hungarian Scout Home, the St. Ladislaus Catholic Church and the Magyar Reformed Church (figure 3). The Monument for the Victims of 1956 adds to the historic narrative (figure 4), while an annual Hungarian festival brings the dispersed community together (figure 5). However, Tamas [20] sees a bleak future: "It is unlikely that cultural heritage, personal friendship, the ideologies of sacrifice and mutual responsibility, and even the high status of "old values" will be able to maintain a cohesive force strong enough to hold the community together" (ibid., 632 pp.).

Today, New Brunswick has a majority of Hispanic and Latinx population with 46%, the Caucasian population is the second largest group (27%), followed by the African American or Black population (15%), while the smallest significant group is Asian alone population (10%). [21]

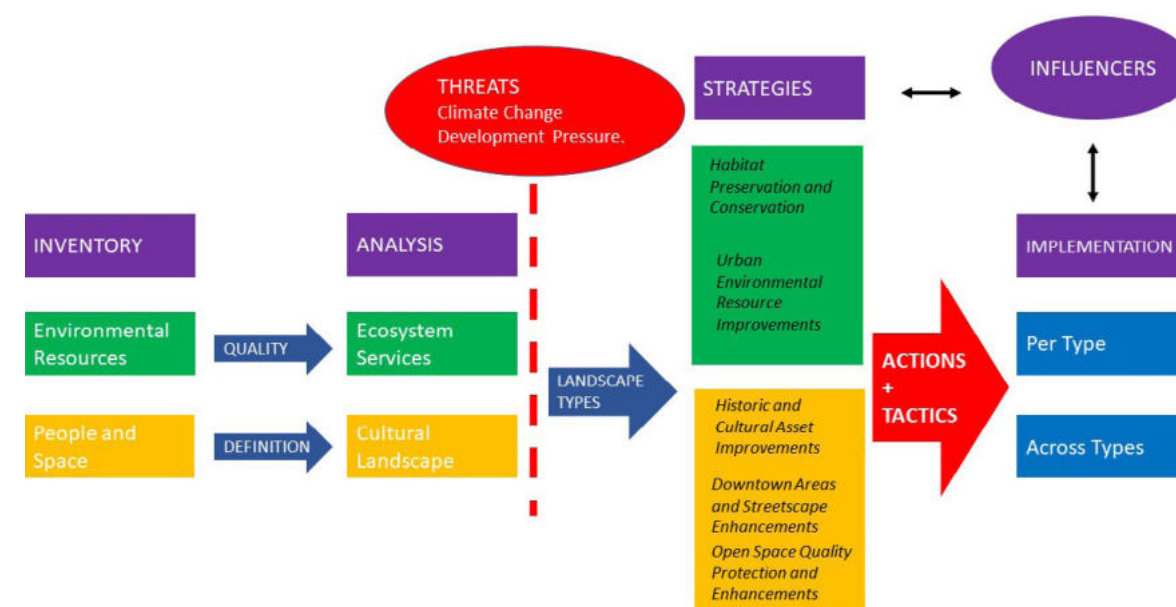
The Hungarian community in New Brunswick is one of many examples of shifting local identities within Middlesex County. Therefore, regional scale planning tools that support local identity must be flexible and considerate of the two approaches to sense of place outlined above. The humanistic-phenomenological approach is reflected through addressing established historic and cultural assets. The relational approach places an emphasis on the newly emerging sense of place.

The flux of place-related cultural stories will be discussed in the context of suburban development in the US, where growth in suburban areas is driven by economic goals and guided by land use planning.

NEW JERSEY PLANNING EXPERIMENT ON SUBURBAN CULTURAL LANDSCAPE

Middlesex County is currently undergoing a mandatory update of the Masterplan, led by the Rutgers Voorhees Transportation Center (VTC). This project "Destination 2040" will provide local governments with a decision-making framework developed through various functional plans focused on smart development, environmental planning, pedestrian and bicyclist safety, housing, transportation,

◀◀ **Figure 6:** Flooding on Route 18 in New Brunswick
Figure 7: Process Diagram



etc. The collaborative contribution of our CUES team is a planning experiment because there is no precedent of a Cultural Landscape and Ecosystem Services Plan within the US, where growth in suburban areas is driven by economic goals and guided by land-use planning.

In line with the relational approach to *sense of place*, we conducted a survey and found that the relationship of residents with their environment is formed by stories and experiences of individuals or groups that add to the meaning of place. The interaction between people and place forms a cultural landscape that is not limited to critical historic sites or spectacular natural scenes. This landscape approach may also include the strip mall and the parking lot, the retention basin of the warehouse, the industrial waterfront, the charming main street and the picturesque park. People can expect these diverse locations to become a sequence of places, a suburban story worth telling. Because these narratives very often include cultural landscape features and assets, the relational approaches must be accompanied by the humanistic-phenomenological approach. That approach places an emphasis on the sense of place of established meaningful places, including downtown character, viewsheds and historic areas.

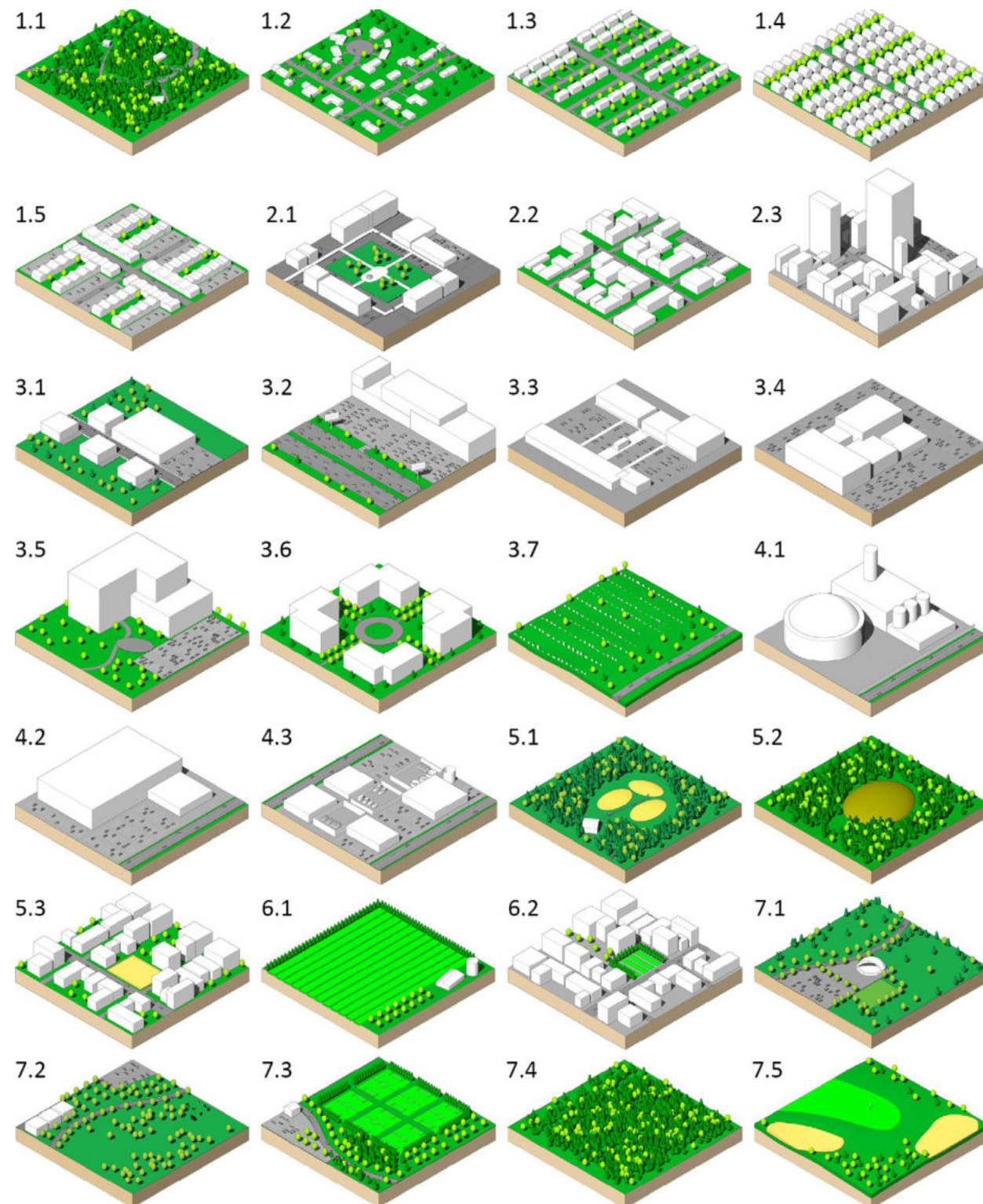
The overall cultural landscape findings were combined with a demographic and land-use analysis, a GIS-based inventory of environmental resources and an analysis of habitat quality and ecosystem services. For a more in-depth discussion of the project, see [22]. We found that the current main threats are the ongoing development

pressure and climate change. The negative impacts of rapid suburban expansion (habitat loss, shrinking cultural landscapes, increasing impervious surface, etc.) are making the already negative impacts of climate change (heat island effect, increased torrential rain and coastal flooding, etc.) even more severe (figure 6). These inventory findings of environmental resources informed the process of developing the flexible planning tool (figure 7).

In addition, understanding the relationship between people and space helped us to develop a working definition of the suburban cultural landscape and guided the definition of landscape types. These types were developed as a refinement of land-use categories used by New Jersey planners (New Jersey Tax Assessors' tax-parcel classifications and NJDEP's land-use zoning), while adding a spatial, cultural and environmental component (figure 8). 3-dimensional axonometric drawings were an important tool to capture the spatial characteristics that are comparable with the current planning system. The iterative process of drawing, developing numerous versions, was an integral part of the analysis.

Our study developed detailed suggestions for action and tactics (tree plantings, reduce impervious surfaces, green infrastructure, solar roofs, etc.) and how each could be applied to all land-use types. Because of the home-rule situation, we described the significant role that the municipalities, the County, State and Federal agencies, property owners and NGOs would have in implementation. Proposed actions for each type are coordinated, and

Figure 8: Landscape Types. Single, Low-Density Rural 1.1, Single, Lower-Density Suburban 1.2, Single, Medium-Density Suburban 1.3, Single, High-Density Suburban 1.4, Multi-Dwelling, High-Density Suburban 1.5, Rural Village Center 2.1, Suburban Town Center 2.2, Urban City Center 2.3, Single Neighborhood Building 3.1, Strip Mall 3.2, Plaza Shopping Center 3.3, Indoor Mall 3.4, Office Park 3.5, Campus 3.6, Burial Ground 3.7, Heavy Industry 4.1, Warehouse 4.2, Small Yard Or Other Light Industry 4.3, Active Landfill 5.1, Closed Landfill 5.2, Vacant 5.3, Rural Farmland 6.1, Urban Agriculture 6.2, Social Parks 7.1, Neighborhood Parks 7.2, Sports Parks 7.3, Nature Parks 7.4, Golf Courses 7.5

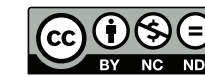


create built corridors and natural connections that support both people through ecosystem services and wildlife with uninterrupted quality habitats. These actions form a contiguous cultural landscape, fostering emotional responses that evoke a place's memory, identity or spiritual connection.

One example for an action to be implemented across multiple land use types is the proposed County-wide greenway network that follows the spirit of Julius Fábos's legacy. The greenway consists of linear natural or human-made corridors that provide ecological habitat and/or recreational qualities linked by a continuous path system. 41 greenway opportunity segments guide the implementation process encompassing over 300 miles of potential trails.

Overall, "Integrated Ecosystem Services and Cultural Landscape Plan for Middlesex County" provides flexible

and dynamic decision-making tools to strengthen existing efforts and enable municipalities to make environmentally and culturally conscious additions to their planning regimes that allow, support and may even create local identity on a regional scale. Because the implementation of the tool is happening while this article is written, the success of the planning experiment cannot yet be determined. However, it is already a contribution to the discussion of addressing the placelessness of the American suburbs through a flexible planning tool. The link to the European planning context is the topic of future research. ©



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HAZAI KIS FOLYÓK VÁROSI SZAKASZAIN A REHABILITÁCIÓS POTENCIÁL MEGHATÁROZÁSA

DETERMINATION OF RESTORATION POTENTIAL ON SMALL RIVER REACHES IN URBAN ENVIRONMENT IN HUNGARY

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ABSZTRAKT

A városi folyószakaszok a települési zöldfelületi rendszer fontos részét képezik, azonban jellemzően rosszabb állapotúak, mint a vidéki folyószakaszok, rehabilitációjuk ezért fontos feladat. Jelen tanulmány célja a hazai kis folyók városi szakaszain a rehabilitációs potenciál meghatározása a rehabilitációs feladatok megvalósításának elősegítésére. Pontozással értékeltük a rehabilitáció szükségességét és lehetőségét három rehabilitációs célra vonatkozóan: ① vízminőség javítása, ② ökológiai és hidromorfológiai adottságok javítása, ③ rekreációs és tájképi adottságok javítása. A rehabilitáció szükségességének és lehetőségének összevetésével kaptuk meg a vizsgált folyószakaszok rehabilitációs potenciálját. Az eredmények alapján feltártuk a vizsgált folyószakaszok legfőbb problémáit, amelyek a rehabilitáció szükségességére reflektálnak. Vízminőségi szempontból több esetben problémát okoznak a pontszerű szennyező források és a folyómederhez közeli mezőgazdasági területek. Ökológiai és hidromorfológiai adottságok esetében kedvezőtlen állapothoz járul hozzá a hullámtéri fás vegetáció hiánya, a meder módosíthatósága, valamint a partbiztosítással rendelkező szakaszok nagy aránya. Rekreációs és tájképi adottságok

szempontjából a rehabilitáció szükségességét növeli, ha a folyó a belterület központi elemét képezi, azonban rekreációs funkciókkal jelenleg csak kis mértékben rendelkeznek. A rehabilitáció lehetőségeit legtöbb esetben a hullámtér szélessége befolyásolja, mivel ez korlátozhatja a nagyobb területigényű beavatkozások megvalósítását. Az eredmények alapján vannak települések, amelyek több rehabilitációs cél szempontjából is jó rehabilitációs potenciállal rendelkeznek, így ezeken a településeken az összetett célokat kitűző rehabilitációk megvalósítására is jó adottságok vannak. Ilyen például Nagyecséd, Hatvan, Jászberény és Szolnok települése. A kialakított módszer segítségével feltárhatók a vizsgált települések közötti fő különbségek és prioritizálhatók az egyes rehabilitációs célok, amelyek elősegíthetik a rehabilitációs feladatok tervezését és előkészítését.

Kulcsszavak: vízfolyás, folyó, értékelés, rehabilitáció szükségessége, rehabilitáció lehetősége ①

ABSTRACT

Urban river reaches are important element in green infrastructure, but they are typically in worse condition than rural river reaches, so their restoration is an important task. The purpose of this study was to determine the restoration potential of small river reaches in urban environments in Hungary. We evaluated the necessity and possibility of restoration in terms of three restoration goals: ① improvement of water quality; ② improvement of ecological and hydromorphological characteristics; and ③ improvement of recreational and landscape characteristics. We determined the restoration potential of the examined river reaches by comparing the need and possibility of restoration. Based on the results, we revealed the main problems of the examined rivers, which reflect the need for restoration. In terms of water quality, the presence of polluting sources and the effects of agricultural areas along the river were found to cause problems in several cases. Regarding the ecological and hydromorphological characteristics, the lack of woody vegetation on the floodplain, the modified riverbed, and the large proportion of sections with bank protection all contribute to an unfavourable condition. In terms of recreational and landscape characteristic aspects, the need for restoration increases if the small river forms a central element of the urban environment, but currently has few recreational functions. In most cases, the possibility for restoration is limited by the width of the floodplain, as this can hinder the implementation of interventions that require a larger area. Based on the results, there are settlements with good restoration potential from the point of view of several restoration goals, so these settlements are also suitable for implementing restorations with complex goals (e.g., Nagyecséd, Hatvan, Jászberény, or Szolnok). Using the developed method, the main difference between the examined river reaches can be revealed and the restoration goals can be prioritized, which can sustain the planning process and preparation of river restorations.

Keywords: watercourse, river, assessment, need for restoration, possibility of restoration

INTRODUCTION

Restoring rivers to ensure a more natural condition appears as a common goal among environmental and conservation agencies in most European countries [1]. The importance of river restoration is emphasized by many plans and strategies, including the EU Water Framework Directive [2], the EU Biodiversity Strategy until 2030 [3], the European Green Deal [4], the second revision of Hungary's river basin management plan (RBMP3) [5] and the National Landscape Strategy [6]. Urban river reaches are generally in worse ecological condition than rural river reaches [7]. The UN Biodiversity Conference held in 2022 [8] formulated a sub-goal about the sustainable increase of the quality, connectivity, and accessibility of urban green and blue areas, including the aim of improving people's relationship with nature. The proper preparation of restoration projects, the development of assessment and evaluation methods for rivers, and the determination of their restoration potential are becoming more important.

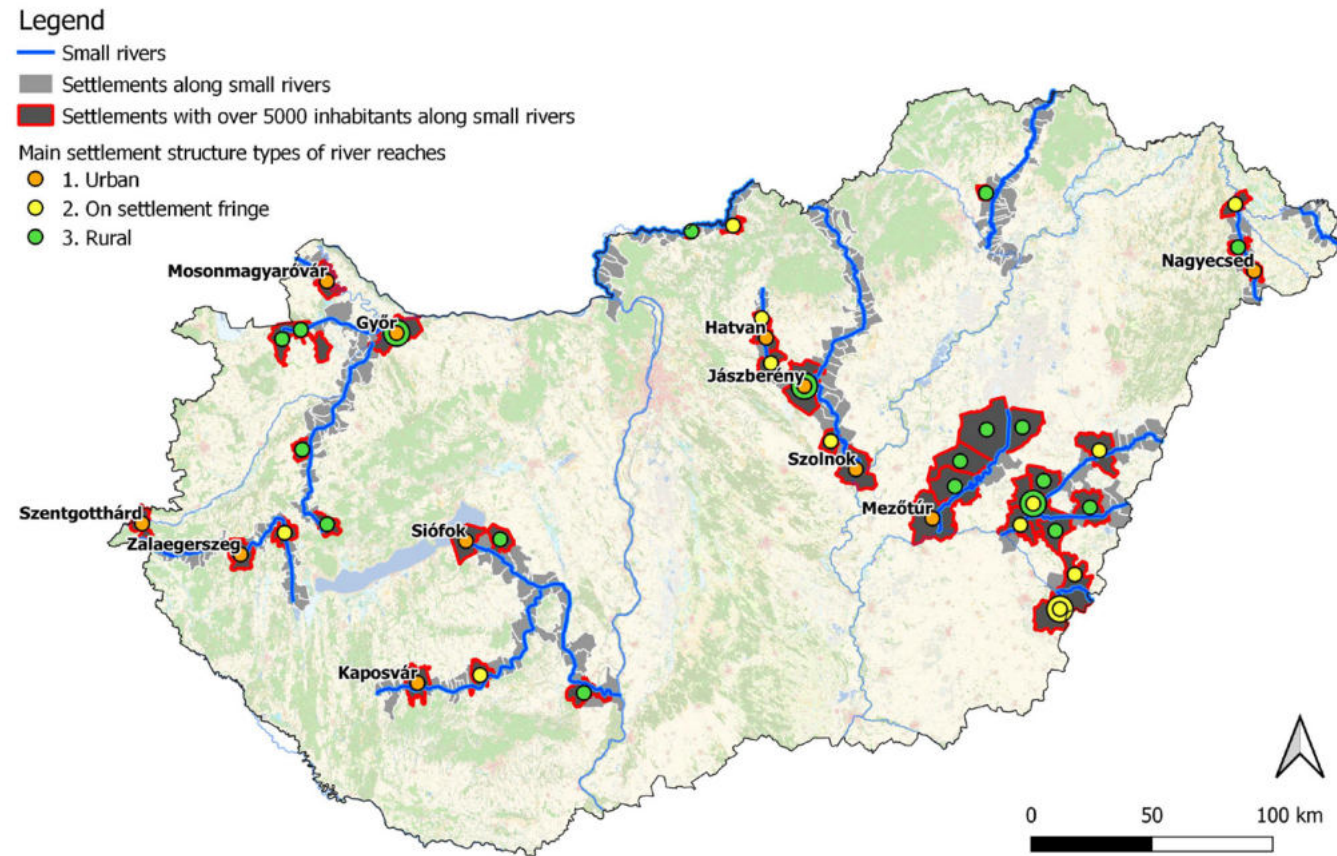
Most research projects about the restoration potential of rivers aimed to evaluate sections outside of urban areas, but little research [9-13] used methods that were or can be applied on urban river reaches. From the Hungarian literature, publications on the planning principles of landscape rehabilitation of creeks [14], hydromorphological and landscape ecological assessment of floodplains [15], or the improvement of connectivity [16] can be highlighted.

In addition to determining the restoration potential of rural river reaches, it is also important to place greater emphasis on the restoration of urban river reaches. The purpose of this research is to examine how the restoration potential of urban river reaches can be determined on a national scale, using the example of small riverside cities in Hungary.

MATERIALS AND METHODS

The research history related to this publication, including methodological details, was presented in previous publications [17, 18]. Below, we present the most important methodological elements from the point of view of the national level part of the research.

Figure 1: Settlements that are the subject of research (urban river reaches – orange dots)
Figure 2: Method of determining restoration potential
Table 1: Evaluation of the necessity and possibility of restoration



Subject of the research

The subjects of the nationwide study were small river reaches in urban environments (towns and cities with a population of over 5,000 people). Rivers were divided into three categories by size: large, medium, and small rivers. Small rivers were part of the research. Of the 28 watercourses, which are listed in the Act CXCVI of 2011 on national assets [19] and in the RBMP3 [5] as rivers, 64% belong to the analysed small river category. Small rivers have the following parameters: 50-250 km length, 500-10,000 km² catchment area, and 5-50 m³/sec annual average water flow [20].

The settlements with the chosen criteria along the 18 small rivers were selected with the help of QGIS 3.16.6 software. Based on the administrative settlement area, 329 settlements in Hungary are located along small rivers, of which a total of 39 have a population of over 5,000

people. Of these, 11 are directly linked to the river with urban river reaches, and these were the subject of the research (Figure 1).

Delineation of the evaluated river reaches

We have delineated river reaches with land use like urban areas or areas with recreational functions on the floodplain or near the floodplain. We used the CORINE 2018 land cover database [21] but updated based on Google Earth 2022 satellite images [22] to examine real land uses. From the CORINE database, we have selected land use patches typically showing residential, holiday, recreational, or community functions, as well as industrial-economic functions. We did not divide the river reaches of individual settlements into further sub-sections.



Need for restoration

	Evaluation criteria	Data source	Goal
1.	water quality (informative environmental rating index)	OKIR [23]	1
2.	presence and effect of polluting sources	RBMP3 [6]	1
3.	distance of arable land from the riverbed	CORINE [21]	1
4.	presence of water quality protection area	OTrT [28]	1
5.	ecological continuity regarding artificial structures in the channel	GDWM [29]	2
6.	hydromorphological impact of artificial structures in the channel	GDWM [29]	2
7.	degree of planform modification	GDWM [29], Arcanum [30]	2
8.	proportion of river sections affected by bank reinforcement	GDWM [29]	2
9.	proportion of riparian woody vegetation	NÖSZTÉP [24]	2, 3
10.	proportion of areas with nature conservation importance	TIR [27], N2000 [31]	2
11.	proportion of areas affected by human activity	NÖSZTÉP [24]	2, 3
12.	existing linear recreation infrastructure	OpenStreetMap [25]	3
13.	proximity and density of attraction factors	OpenStreetMap [25]	3
14.	intensity of human presence	Strava heatmap [26]	3
15.	protected areas with regard to landscape visual aspects	OTrT [28]	3
16.	river's position in the settlement structure	CORINE [21], GDWM [29]	3

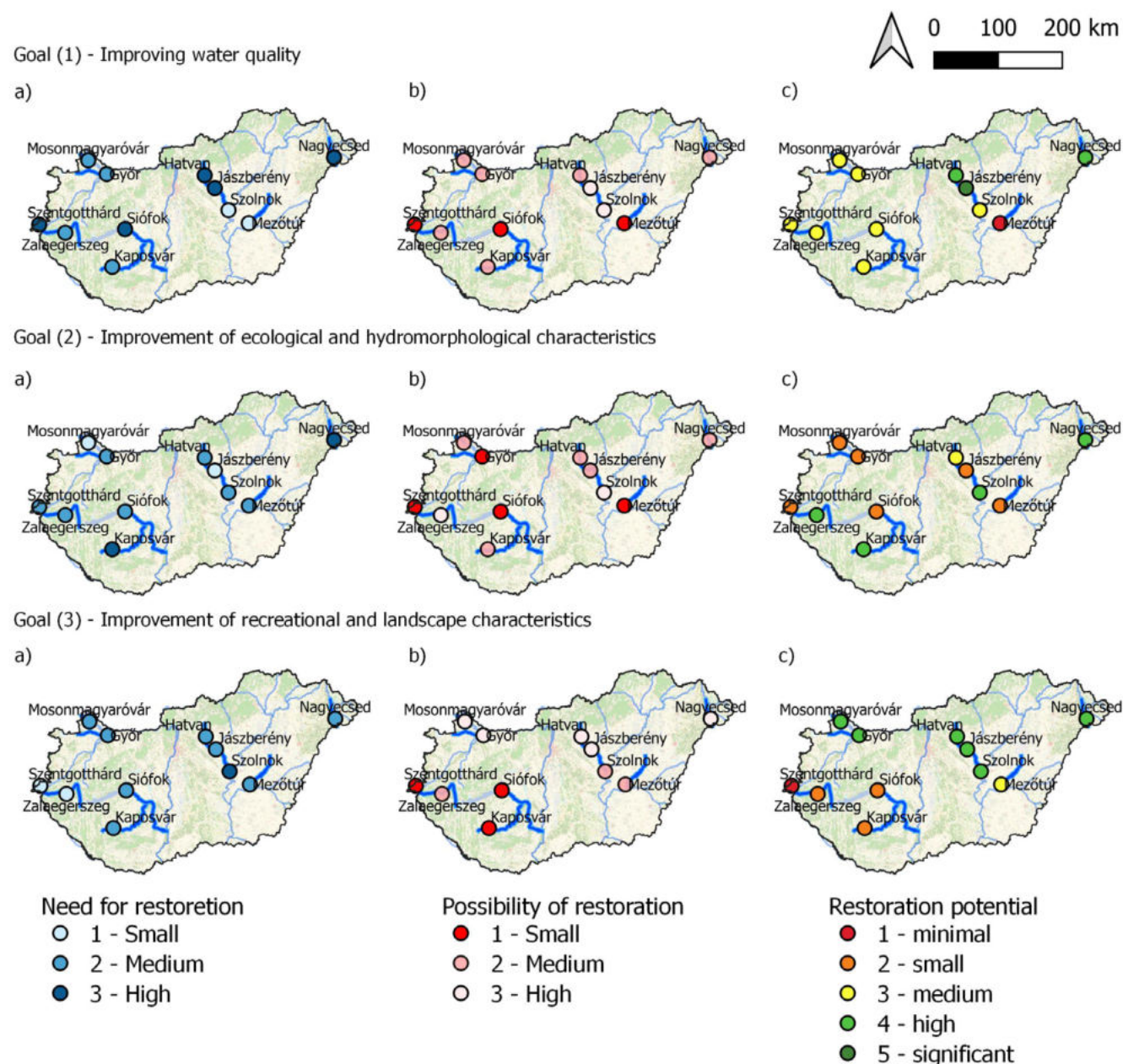
Possibility of restoration

	Evaluation criteria	Data source	Goal
1.	width of the floodplain	GDWM [29]/ OTrT [28]	1, 2, 3
2.	reduction options for the impacts of artificial structures	GDWM [29]	2
3.	proportion of areas with nature conservation importance	TIR [27], N2000 [31]	3

Table 2. Determining restoration potential based on the need and possibility of restoration

Figure 3: Evaluation results – a) need for restoration, b) possibility of restoration, c) restoration potential

		Possibility of restoration		
		High	Medium	Small
Need of restoration	High	5 (significant)	4 (high)	3 (medium)
	Medium	4 (high)	3 (medium)	2 (small)
	Small	3 (medium)	2 (small)	1 (minimal)



Assessment process

In evaluating restoration potential, our goal was to compare the extent of the need and possibility of restoration in the examined river reaches. Figure 2 shows the evaluation process.

Restoration goals and criteria system of evaluation

The data sources of the evaluation were databases available at a national level, which made it possible to work with the same level of detail, thereby making the evaluation results of the examined settlements mutually comparable. The most important databases used (Table 1) contain data from between 2018 and 2023. Based on the CORINE database, data from 2018 could be evaluated [21]. The water quality data of OKIR [23] were not available from 2022 in the vicinity of all investigated settlements, so in some cases, we also considered data from 2019. The NÖSZTÉP database presents 2019 land cover data [24], which were also considered during the evaluation. The OpenStreetMap [25] and the Strava database [26] contain regularly updated data. In addition, data were used from the TIR [27], the zones of the OTrT [28], the RBMP3 [5], and the data provided by the General Directorate of Water Management (GDWM) [29].

During the analyses at the national level, three main goals were designated to evaluate restoration potential: ⊕ improvement of water quality, ⊕ improvement of ecological and hydromorphological characteristics, ⊕ improvement of recreational and landscape characteristics. In the case of these three goals, the restoration potential of the given river reaches was evaluated based on a different criteria system, which is summarized in Table 1.

Determining rehabilitation potential

The criteria were evaluated using a scoring method based on a 5-scale rating. Based on the evaluation results of the individual criteria, we aggregated the scores separately to determine the need for and possibility of restoration. This was followed by calculating the average with the number of criteria (weighting was done in some cases), so that both the need for and the possibility of restoration were given a score on a basis of a 5-scale rating. A higher score means a greater necessity or possibility of achieving the restoration goal. During the evaluation, we considered the need to realize the restoration goal of "improvement of water quality" and "improvement of ecological

and hydromorphological characteristics" to be greater, the more unfavourable the given section is. In the case of the restoration goal "improvement of recreational and landscape characteristics", the sections with better properties but fewer existing recreational opportunities received a higher score, so a greater need for rehabilitation. We considered the possibility of achieving the given restoration goal to be greater, the fewer limiting factors affect the given river reach. The necessity and possibility of restoration were compared according to Table 2.

RESULTS AND DISCUSSION

In case of the 11 analysed settlements, we separately evaluated the need and possibility of restoration based on the available national databases for the three main objectives defined in advance. The results are summarized below by goals.

Goal (1) – Improving water quality

Based on the results of the evaluation, the restoration potential is significant in the case of Jászberény (the Zagyva River), and high in the case of the cities Hatvan (the Zagyva River) and Nagyecsed (the Kraszna River) (Figure 3 – goal 1). In Jászberény and Hatvan, the presence of pollution sources contributes to the great need for restoration. In the case of all three settlements, there are also agricultural areas near the river (Figure 4). The possibility of restoration is high in Jászberény and medium in Hatvan and Nagyecsed due to the limited intervention possibilities on the narrow floodplain (e.g. buffer forest strips or the creation of wetlands along the river need a larger area).

In case of the other assessed settlements, the restoration potential is medium, except for Mezőtúr (the Hortobágy-Berettyó River), where it is minimal (here, the small restoration need is combined with limited restoration opportunities). In case of Siófok (Sió Canal) and Szentgotthárd (the Rába River), the need for restoration is great, but the narrow floodplain limits the possibilities of intervention.

Goal (2) – Improvement of ecological and hydromorphological characteristics

Four settlements – Kaposvár (the Kapos River), Nagyecsed, Szolnok (the Zagyva River), and Zalaegerszeg (the Zala River) – have great restoration potential in terms of goal 2 (Figure 3 – goal 2). The main reason for this in case of

Figure 4: Agricultural areas near the river (Hatvan, Zagyva River)
Figure 5: Temporary ecological continuity caused by an artificial structure in the riverbed (Jászberény, Zagyva River)
Figure 6: Recreational activities on the floodplain, e.g. fishing and dog walking (Szolnok, Zagyva River)

Kaposvár and Nagyecsed is the great need for restoration due to the lack of woody vegetation on the floodplain or modification of the river's course, and in Kaposvár there is also a significant degree of bank protection. In Nagyecsed, the proportion of areas of nature conservation importance increases the need for restoration.

In Szolnok and Zalaegerszeg, the need for restoration is medium. The main reasons are the temporary ecological continuity caused by an artificial structure (Figure 5), the modified planform, the small proportion of woody vegetation on the floodplain or the presence of areas affected by human use (built-up, paved, or agricultural areas) on the floodplain. The medium need in these settlements is combined with great restoration possibilities, because of the wider floodplain and the transformability of the artificial structures.

Except for Hatvan, the towns and cities all have low restoration potential, which results from either the medium restoration needs and low restoration opportunities, or the low restoration need and medium restoration opportunities. However, in the case of towns and cities with medium restoration needs, it is worth checking whether it is possible to improve the condition of the river reach through interventions with limited space requirements.

Goal (3) - Improvement of recreational and landscape characteristics

From the point of view of goal 3, the restoration potential is high in several cities: Győr and Mosonmagyaróvár (along both the Moson-Danube River), Hatvan, Jászberény, Nagyecsed and Szolnok (Figure 3 - goal 3). The assessed river reaches are central elements of the urban area in these settlements, so the rivers form an important part of the settlement's green infrastructure system. In Szolnok (Figure 6), the high need for restoration is combined with medium restoration opportunities. In Győr, Hatvan, Jászberény, Mosonmagyaróvár, and Nagyecsed, the medium restoration need is combined with good opportunities, due to the width of the floodplain and the

more limited presence of areas of nature conservation importance.

In Mezőtúr, the need and possibility for restoration is medium, and thus the restoration potential is also medium. Here, fewer people make a use of the river neighbourhood. In the case of Kaposvár and Siófok (the Sió Canal), the need for restoration is medium but the possibility of restoration is small, due to the narrow floodplain and the presence of areas of nature conservation importance. Based on these, the restoration potential is also small. Due to the medium need for restoration, it may be worth further investigating opportunities to improve the recreational and landscape characteristics which have limited space requirements.

In Szentgotthárd and Zalaegerszeg, the need for restoration is small, which is combined with small restoration opportunities, therefore the restoration potential is also small. These examined river reaches are less centrally located in the settlement, and people do not currently use riverside areas for sports.

CONCLUSIONS

The results show the settlements with the greatest potential for the different restoration goals. Settlements with high restoration potential can be highlighted, for example in Nagyecsed, Hatvan, or Szolnok, several rehabilitation goals have high potential. Among the examined goals, the improvement of water quality may depend on upstream effects, but certain measures can be taken to reduce local impacts. In the case of the other two assessed goals, the restoration possibilities are better at the settlement scale.

In terms of improving water quality, the most common reason why restoration is necessary is the presence of polluting sources, so by reducing their effects the condition of the examined river reaches could be improved. In terms of ecological and hydromorphological characteristics, one of the main reasons for the unfavourable condition is the small proportion of woody vegetation on the floodplain, the modified planform, or the unfavourable ecological connectivity because of artificial structures on the reach. The last few aspects are difficult to improve in



many cases due to the narrowed floodplain, but woody vegetation could be increased in several cases. In terms of recreational and landscape characteristics, restoration would be most impactful in those cities where the examined river section is in the central part of the urban area, people actively use the areas along the river, and there are only a few recreational functions in the area.

Few data sources are available on a national scale to examine the possibilities of restoration or the limiting factors. Based on the databases that can be used, the main reason for the limited possibilities in the analysed settlements are the narrowed floodplain. However, in several cases it is also possible to implement measures with a small area requirement, so it is important to explore these intervention options.

During the research, we explored the scope of the data that is available nationally, so that the restoration potential of the given river reach can be evaluated with the same data detail in the case of several settlements. These contain data from different dates, with different update intervals, but since they can be suitable for drawing conclusions about the restoration potential of rivers (e.g., for prioritizing restoration goals), this also draws attention to the importance of updating them at regular intervals. The results do not provide the same level of detail as if we were working with data on a study area scale, at the settlement level, but the main conclusions can still be drawn about the state of the examined river sections and the importance of the individual restoration goals. However, for the detailed preparation of river restorations, it is necessary to carry out investigations at a settlement scale, supplemented by field surveys. In addition, as a continuation of the research, by involving the locals and mapping their opinion, the developed method can be further specified and made more objective. ©

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IDŐSBARÁT VÁROSI TÁJAK

Esettanulmány a szenior lakosság preferenciájáról és használati szokásairól
Koppenhága (Dánia) közhasználatra szánt zöldfelületein

AGE-FRIENDLY URBAN LANDSCAPES

*A case study analysis of senior residents' usage behaviour and preferences
regarding open green spaces in Copenhagen (Denmark)*

CARONTE-VEISZ ADRIENN | PICCINNO, MATTEO | GIULIANI, CHIARA

ABSZTRAKT

A világ népességének öregedésével párhuzamosan a városokat adaptálni kell az eltérő igényekkel és képességekkel rendelkező öregedő lakosság befogadására. Egy idősbárát városi táj akadálymentes, ergonomikus, "inclusive" kialakítású, azonban nem elegendő a fizikai kényelem megteremtése, hiszen az emberi jólét szubjektív dimenziója is jelentősen befolyásolja az életminőséget.

Tanulmányok bizonyították, hogy a mindennapjainkban megjelenő minőségi városi zöldkörnyezet képes többek között csökkenteni a fájdalmat, a verbális izgatottságot, a kognitív hanyatlást, és növelheti az élettartamot. A kutatások azt is igazolták, hogy sokkal szívesebben és gyakrabban használunk olyan tájakat, amelyeket preferálunk, hiszen ilyenkor az agy és a test tudatalatti és azonnali pozitív választ ad már ezen tájak látványára is. Ennek ellenére kevés kutatás foglalkozik annak felméréssel, hogy a 60 év feletti lakosság milyen típusú városi zöldfelületet részesít előnyben. Az esettanulmány célja, hogy felmérje az idősök preferenciáit és használati szokásait Koppenhága városi és elővárosi (17 település), közhasználatra szánt zöldfelületein.

A kutatást a metropolisz zöldfelületeinek mennyiségi elemzésével kezdtük, ami segített a típusokba sorolásban is. Ezután egy kérdőíves felméréssel meghatároztuk, hogy a 60 év feletti lakosság mely típusú városi vagy elővárosi zöldterületet részesíti előnyben, azt milyen módon használja, és milyen messze található otthonuktól. Az utolsó lépés egy megfigyelésen alapuló vizsgálat volt. Húsz

különböző típusú városi és elővárosi zöldfelület használatát és népszerűségét mértük fel az idősödő lakosság körében Koppenhága metropolis nyolc településén. Vizsgáltuk továbbá a zöldfelületek idősbárát jellemzőit is.

Mind Koppenhága városát, mind a metropoliszt gazdag kék-zöld infrastruktúra jellemez, amely egyenletesen oszlik szét a vizsgált területen. A kérdőíves felmérés alapján – amelyre 80 válasz érkezett – a legkedveltebb zöldterület típus a történelmi villa, főként ha városi környezetben található, biodiverz, különleges látványokkal és szervezett tevékenységekkel várja látogatóit. Ennek ellenére az otthonról 5-10 percnyi sétával elérhető zöldterületek a leglátogatottabbak. A megfigyelésen alapuló vizsgálat szerint az idős lakosság körében a legnépszerűbbek a lakóhelyről jól megközelíthető kisebb kék-zöld infrastruktúra elemek, különösen a városi szövetben található tavak, vagy helyi parkok, amelyek lehetővé teszik minden koppenhágai lakos számára, hogy "kapcsolódjon" a zöldkörnyezettel.

Kulcsszavak: idősbárát, városi táj, egészségtáj, élhető város, jóllét ☺

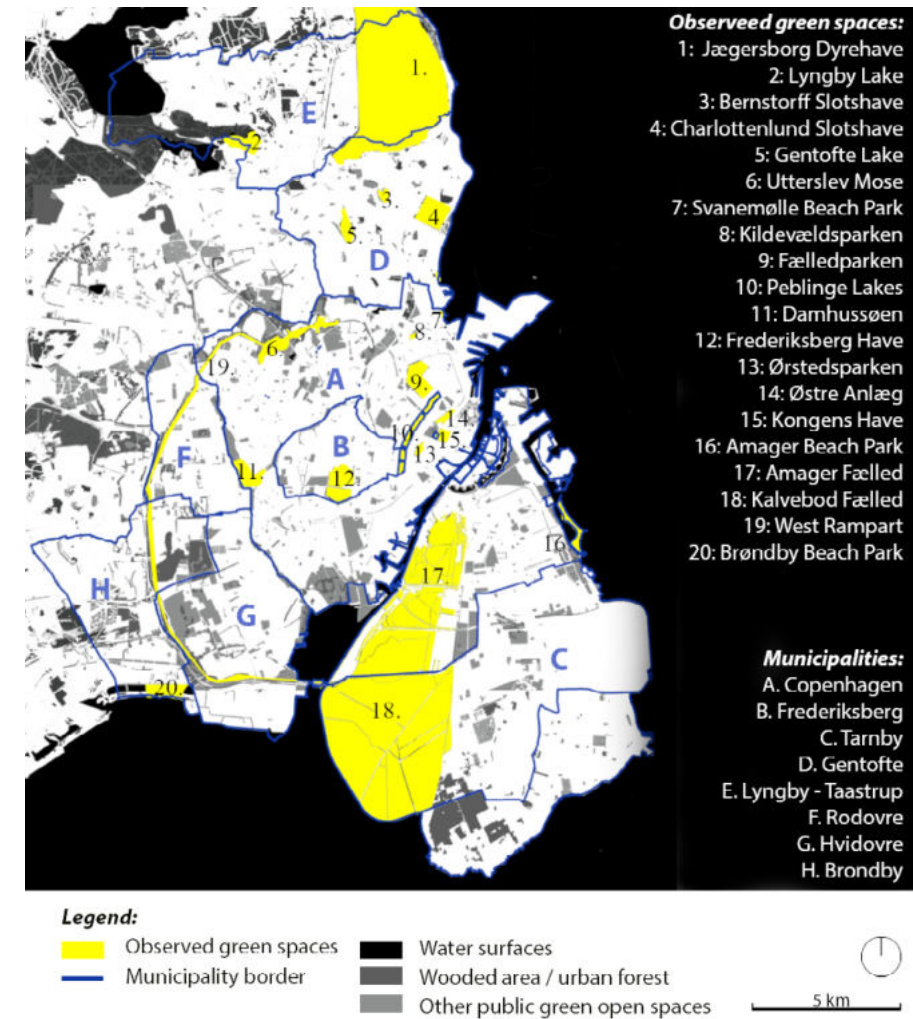


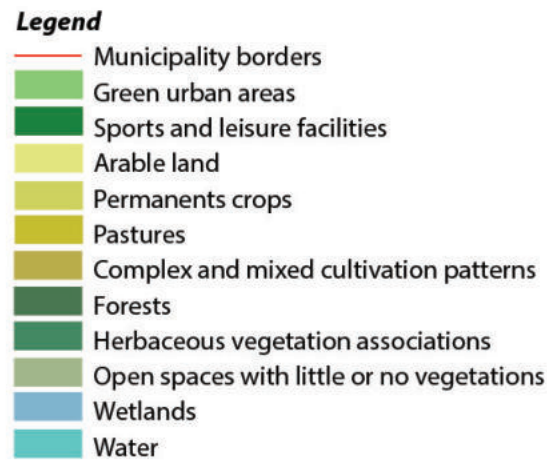
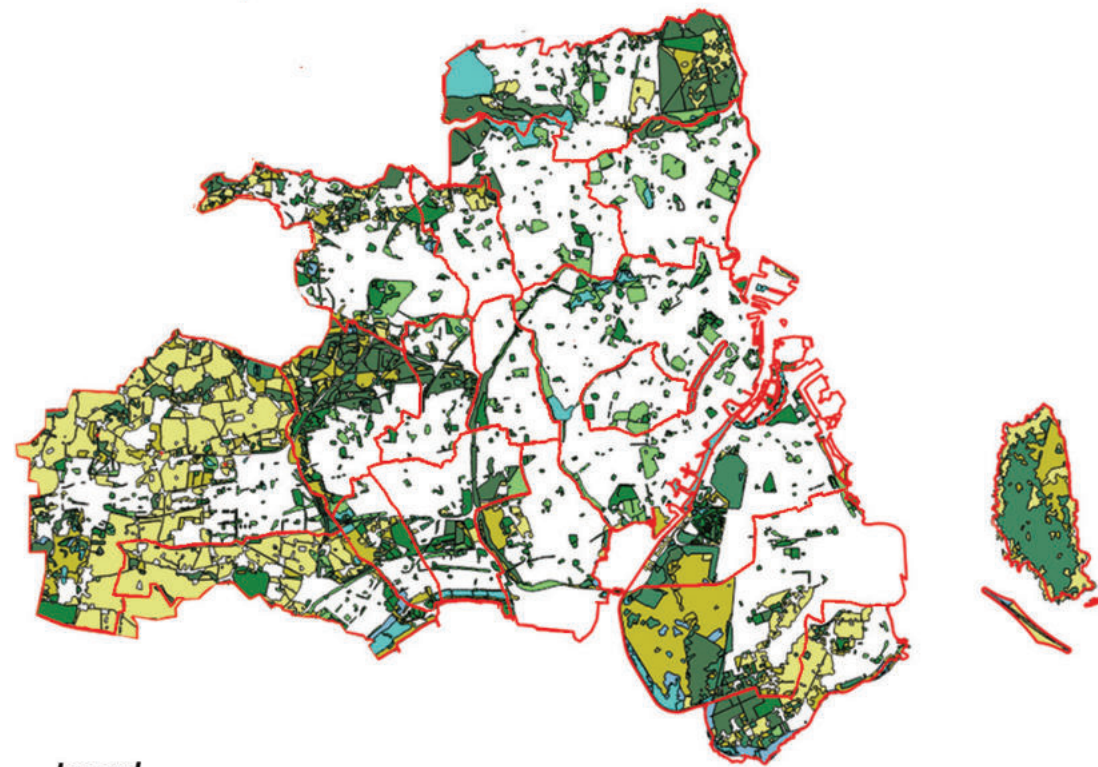
Figure 1: The location of the observed green spaces. Based on the University of Copenhagen database, 2018

ABSTRACT

As the world's population ages, cities must be prepared to adapt their urban forms, to become inclusive for elderly people with different needs and capacities. Studies have shown that exposure to qualitative natural urban settings may reduce pain, verbal agitation and cognitive decline, accelerate recovery from certain disabilities and increase longevity. Research has also proved that people are more likely to make use of the landscapes they like the most, while brains and bodies give a subconscious and immediate positive response to these landscapes. However, very little research has been conducted on seniors' preferences regarding nature-based urban or suburban recreation. The aim of this study is to assess elderly people's preferences and usage behaviour regarding urban and suburban public green spaces in Copenhagen. The research started with a quantitative green space analysis of the metropolis, which also helped me to divide the green spaces into types. A questionnaire was distributed to obtain information from elderly citizens (over 60 years' old) about their preferences and usage of urban or suburban parks and the proximity of these spaces to their homes. An observation

study was conducted to evaluate the popularity among older adults of different types of urban or suburban green spaces in the Danish capital and to examine the characteristics of those parks nominated as the most popular in the questionnaire. Copenhagen is rich in green and blue spaces, which are evenly distributed across the region. According to the questionnaire, in which 80 elderly citizens took part, the favourite park type is the historical villa, located in urban areas or with special attractions, nice natural areas, organised activities and biodiverse. These villas also remind elderly people of their childhood. Nevertheless, parks that are within a 5–10 minute walk of their homes are more frequented. Based on the observation study, the most popular and most used by fragile elderly people are the smaller green and blue spaces, especially the urban parks with lakes or neighbourhood parks, located all around the region, which give every citizen, no matter where they live, easy access to green and blue spaces.

Keywords: age-friendly, healthscape, well-being, urban public green spaces, preferences, usage behaviour



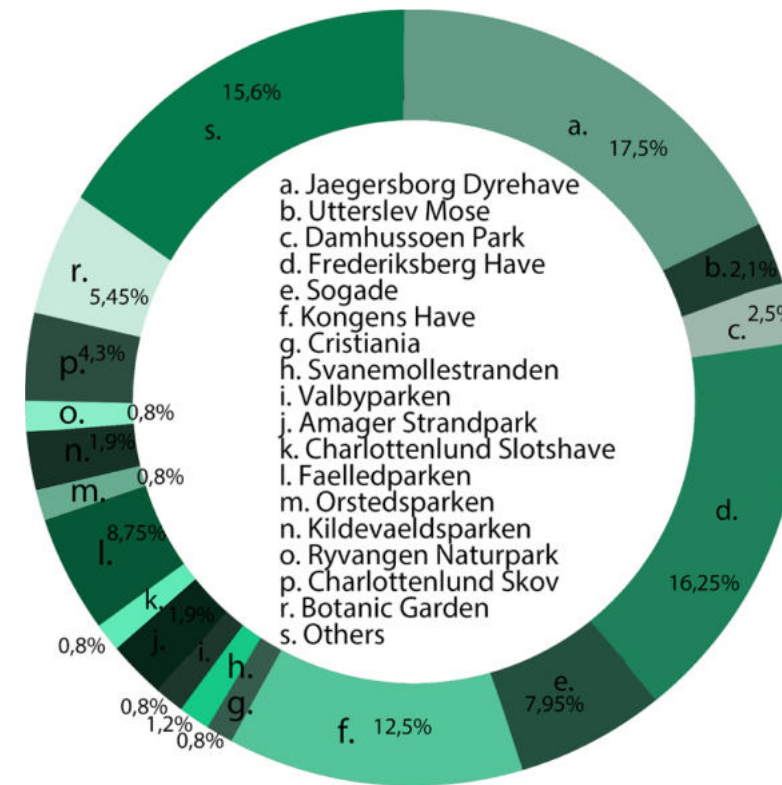
INTRODUCTION

The world is both urbanising and ageing. Cities must become inclusive for elderly people with different needs and capacities. I strongly believe that redesigning the ever-changing urban landscape with the elderly in mind might be the key to urban regeneration [1]. Although age-friendly urban outdoor design must be accessible, ergonomic and inclusive, the subjective dimension of human well-being, which affects “quality of life”, should also be considered [5].

Exposure to high-quality natural urban settings has been demonstrated to reduce pain, verbal agitation, cognitive decline [2] and cardiovascular morbidity [3] as well as increasing longevity [4]. The relationship between landscape preference and human well-being has also been evidenced [6]. Preferred spaces have often restorative qualities, aid stress recovery [7], provide attention and

restoration and improve pro-social behaviour [8]. People are also more likely to make use of the landscapes they like the most [9]. Some studies suggest that many landscape elements are universally preferred – savannah-like landscapes, water, squares, openness of the landscape [10], while the importance of certain levels of human involvement and higher levels of biodiversity have also been highlighted [11] (pp. 16-18). Some pieces of research argues that landscape preference varies according to age, socioeconomic factors [12] and cultural background [13]. Unfortunately, very so little research has been conducted on senior citizens’ perceptions and preferences regarding urban landscapes.

The aim of this study is to assess elderly people’s preferences and usage behaviour regarding different types of urban and suburban public green spaces. The main goal is to support urban and landscape planners by improving



Why do you like your favourite park more than others?

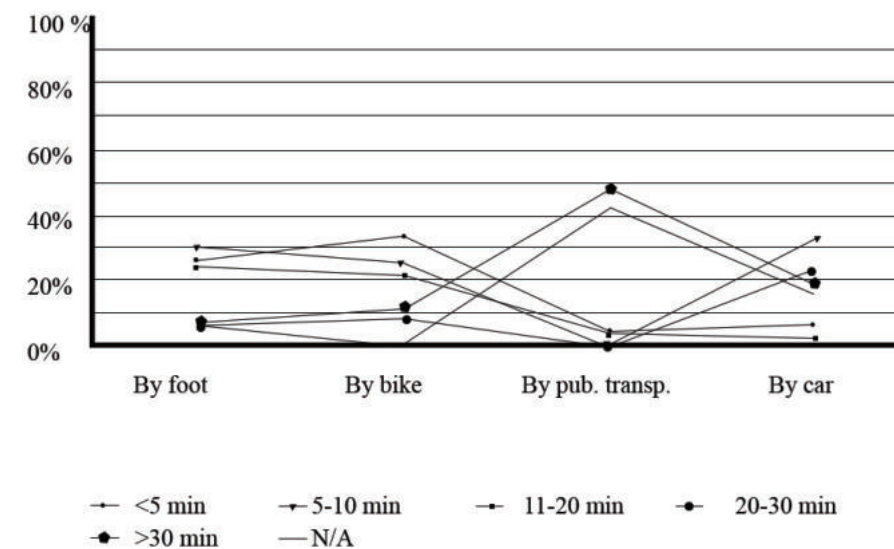
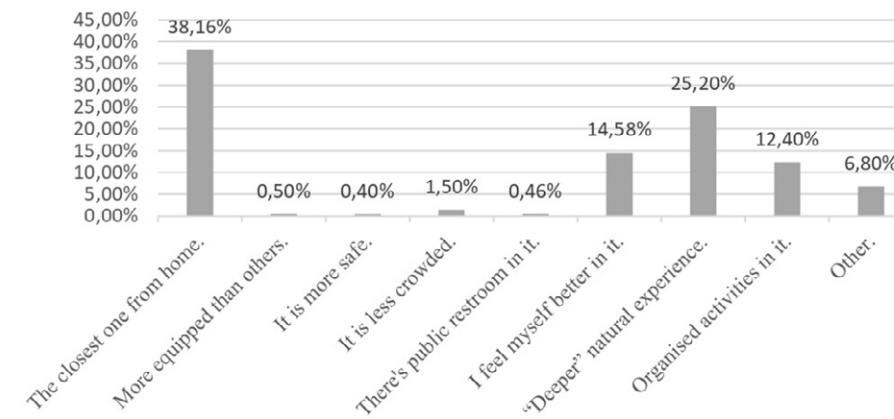


Figure 2: Green and blue spaces of the Metropolis of Copenhagen (17 municipalities included). Based on Copernicus Atlas, 2018
Graph 1: Park popularity among participants, %. Based on questionnaire
Graph 2: Reasons why the elderly choose a park as their favourite. Based on questionnaire
Graph 3: Analysis of accessibility of preferred parks. Based on questionnaire



Figure 3: Naturepark Amager

PHOTO: ADRIENN CARONTE-VEISZ, 2018

Figure 4: Gentofte Lake, with the nursing home Plejehjemmet Salem in the background.

PHOTO: ADRIENN CARONTE-VEISZ, 2018

Figure 5: Charlottenlund Castle Park

PHOTO: ADRIENN CARONTE-VEISZ, 2018

their understanding and enabling them to adopt an approach that takes into account older citizens' needs and therefore promotes inhabitants' health and well-being. The null research hypothesis supposes that the small neighbourhood parks closest to seniors' homes are the most favoured and frequented. As the Danish capital is well known for being one of the world's greenest, most cycle-friendly and healthiest cities, I used it as a Living Laboratory.

MATERIALS AND METHODS

I began the research by analysing the quantity and accessibility of urban green spaces in the Metropolis of Copenhagen – including 17 municipalities – with a focus on the city of the Danish capital. I examined the urban planning tools, the spatial green space planning system, and the quantity, type and distribution of green spaces. Examined sources were: “Urban Nature in Copenhagen; Strategy 2015-2025”, Municipality Plan 2019, Copenhagen Green Accounts, Copenhagen's Green Structure Plan, official statistical data on green spaces in Copenhagen [14], Copernicus Urban Atlas, 2018. This in-depth study helped me gain an overview of the green space system and also to divide the green spaces into types.

As a second step, I distributed a questionnaire to obtain information from older citizens (over 60 years' old) about their usage behaviour and preferences regarding urban or suburban parks and the proximity of these spaces to their homes. The questionnaire contained ten

questions with multiple choice, checkboxes or rating scale questions, with the "Other" answer option for comments. Respondents were asked about their favourite parks and the way they use them (Questions 1-5), if their favourite park is the one closest to their home (Questions 6-7), where they live (Questions 8-9) and how old they are (Question 10). In order to overcome language difficulties, the questionnaire is written in both English and Danish (translated by Dorthe Djernis – Ph.D. student at University of Copenhagen, Danish mother tongue). The survey was first conducted on-site and respondents were encouraged to ask for explanations if questions were unclear. The online version of the survey was created with SurveyMonkey®, and I shared it with associations and social housing organisations working with seniors in Greater Copenhagen. Data were gathered from May-September 2018. Data were also processed with cluster analysis to identify seniors' preferences in terms of green space types.

Moreover, a naturalistic, covert observation study was conducted to evaluate the usage and the popularity among older adults of different types of urban or suburban green spaces in the Danish capital (eight municipalities were included) and to examine the age-friendly characteristics of those parks nominated as the most popular in the questionnaire. During this study, 20 green and blue spaces from Greater Copenhagen were selected (1-6 representative cases for each green space type), from which data were collected (Figure 1). Observations were

conducted between May-July 2018. During this period, each selected place was visited at least on two occasions at different times of the day. I gathered data about the age-friendly characteristics of the place, the number of elderly users in 30 minutes and the way they use these green spaces. The following age-friendly characteristics were determined: type, size, accessibility, presence of toilets and benches or other age-friendly amenities, signage and maintenance [1]. Green space usage was classified with the following categories: low- (e.g. sitting, eating, observing), moderate- (e.g. walking small distances), or high-intensity (e.g. running, swimming, gardening) usage.

RESULTS

Overall analysis: the quantity and accessibility of urban green spaces

The Metropolis of Copenhagen is rich in green and blue spaces, which are evenly distributed across the region. Not including agricultural fields, the surface area of the forests, green urban areas, areas with herbaceous vegetation associations, wetlands and areas covered with water (which may function as recreational areas) amounts to 107.3 km², that is 20.4% of the total surface area, of which 62% are green urban areas and forests (Figure 2). Thanks to Copenhagen's Green Structure Plan (Finger Plan) – the last version came into force in 2019, and related to 34 municipalities in the region –, uncontrolled sprawling development has not occurred in the metropolis, and

people are always able to access open spaces, parks and undeveloped, natural areas on a regional scale.

Thanks to green space planning in the City of Copenhagen, which ensures the city's green structure is incorporated into every phase of urban planning, the amount and distribution of public urban green spaces are appropriate. In the municipality of Copenhagen, the overall green space per person was 31.91 square metres in 2018, of which 15.54 square metres per person related to park and 6.22 to forest & woodland [15]. With the City Council recognising the importance of green space in terms of health, climate and biodiversity [16] (p. 15), access to green areas (measured as recreational areas within walking distance) became a top priority. With the availability of smaller green spaces and pocket parks, the percentage of the population that may benefit from green areas rises to almost 90% [17].

Questionnaire survey

During the questionnaire, I collected 80 responses, of which 34 participants live in the municipality of Copenhagen, eight in Frederiksberg, 12 in Gentofte municipality and 26 in other municipalities in the metropolitan area. Respondents aged between 70-80 seem to be over-represented (32.5%) in this study, 28.75% of the participants are aged 60-65, 22.5% are aged between 65-70, and just 7.5% are over 80. Most participants live in private homes without home care (72%), but 10% live in cohousing units. Given that older elderly people are considered



hard-to-reach populations, I consider this survey as representative, even if the number of elderly people (over 60) in Greater Copenhagen was 253,546 in 2018 [18].

The four most popular parks were (Graph 1): Deer Park (17.5%), Frederiksberg Have (16.25%), Kongens Have (12.5%) and Amager Fælledparken (8.75%). The first three are historical villas, of which respondents may have nice memories from childhood. The fourth is an expansive agricultural/natural area, which may be popular because the neighbourhood lacks other urban parks and because it hosts some organised activities. Seniors' preference for urban or suburban parks depends on their location (the closest to home, 44.16%), whether it offers a "deeper" natural experience (29.16%), organised activities (16.4%), and whether they simply feel better in it (14.58%). No association was found between preference and the presence of equipment (Graph 2). Moderate- (take a walk: 50.6%) and low- (simply enjoy the weather and get some fresh air: 44.3%) intensity usage is predominant. Most participants cycle or walk to the park if it can be reached within a maximum of 20 minutes from their home (Graph 3). If I filter the answers for those who frequent their favourite park at least once a week in the summer, we can analyse

the habits of the more active older adults. They like the parks of Jægersborg Dyrehave (20.41%), Amager Fælledparken (10.2%) – suburban green spaces – the most, as these are the closest to their homes (58.33%), they can walk there in a maximum of 10 minutes (79.59%) and it is the one they visit more often than others (85.42%). They go there to take a walk (53.06%), do sport (34.69%) or simply to get some fresh air (40.82%). It means, that elderly people living in the suburbs probably remain more active in later life than those who live more centrally.

Observation study

The western side of Greater Copenhagen and a large part of the city's Amager district are covered with *agricultural fields*. Most of these areas do not serve any recreational purpose, but some are still often visited by people living close by and have great potential to become leisure parks or sport fields, like Naturepark Amager - Kalvebod Fælled (Figure 3). Nonetheless, these green spaces are extensive, located at less urbanised sites, difficult to access, have neither signage nor age-friendly amenities, and can be used mainly for high-intensity workouts, so they do not contribute directly to the quality of life of fragile senior citizens.

Figure 6: Jægersborg Dyrehave, The deer population

PHOTO: ADRIENN CARONTE-VEISZ, 2018

Figure 7: Jægersborg Dyrehave, Jægersborg castle and a group of senior cyclists

PHOTO: ADRIENN CARONTE-VEISZ, 2018

Figure 8: Seniors with their grandchildren at Hellerup Beach Park

PHOTO: ADRIENN CARONTE-VEISZ, 2018



Expansive *natural areas* – like the area of Lyngby Lake, Bagsværd lake and Furesø in the north of the region – host several activities, offer a calm, healthy and natural environment with rich biodiversity. However, most of these areas are less frequented by older adults. This could be because of their marginal location, as they are moderately accessible, have neither signage nor age-friendly amenities and because elderly people do not like jungle-like atmospheres. Nevertheless, some alluring natural areas, located in urbanised areas – like Utterslev Mose Park or Gentofte Lake (Figure 4) – are popular among seniors. Older adults are attracted by water surfaces and frequented natural spaces where they can observe others in a quiet environment.

There are several *historical villas* with recreational functions. Many of them are in the northern suburbs, like Charlottenlund Castle Park (Figure 5) and Bernstorff Castle Park. Everyone, including elderly people, likes these villas, especially those located in urban areas, like Kongens Have and Frederiksberg Have. Most of them are accessible, small-scale, easily walkable, offer a wide range of activities, support social cohesion while contributing to biodiversity, have age-friendly amenities (benches, rest

rooms, etc.) and signs that indicate attractions, and are well-maintained. They may therefore be considered age-friendly. Based on my questionnaire, the favourite villa is Jægersborg Dyrehave (Figure 6-7). The Deer Park is used for several interesting activities (golf, adventure park, old castle, etc.), has signage and age-friendly amenities. Despite its vastness and peripheral location, it can be considered as partially accessible, as most services and many attractions are located in marginal areas, close to the train station or parking places. Nonetheless, I did not observe it as being popular among the elderly, but due to its scale, it is difficult to quantify the number of visitors with the observation method.

Furthermore, there are several *green corridors* in the region. One of the longest is the almost 15 km-long West Rampart, part of Copenhagen's Fortifications, which passes through the suburbs of Copenhagen, providing a large recreational area but mainly used for soft mobility. Several *urban beach parks* are located along the coastline, and even in the city centre, offer citizens closer contact with the sea, to swim or sunbathe. These waterfronts are very popular spots among seniors (Figure 8), especially if they are equipped with bars, cafés and rest rooms (most



Figure 9: An elderly couple walking on the shore of the Lakes in Copenhagen – Peblinge Lake

PHOTO: ADRIENN CARONTE-VEISZ, 2018

have these facilities). One of the most famous and large-scale urban beaches is Amager Strandpark, which is considered wheelchair-friendly.

Based on my observations, the most popular and most used among fragile elderly people are the smaller green and blue spaces, especially the *urban parks with lakes* or *neighbourhood parks* (Figure 9), located all around the region. These give every citizen, no matter where they live, easy access to green and blue spaces. They are often characterised by well-maintained tree-covered areas, benches, accessible walking paths, public areas for barbecuing with benches. Even if pocket parks could be considered age-friendly (accessible, equipped, small in size), I did not notice that they were popular among the elderly, which may be because of their limited possibilities of use.

Limitations and further research

The limitations of this study offer opportunities for further research. First, I examined the preference among elderly people for urban or suburban green space types, but informal street greenery and tree canopies were not analysed. Second, even if the questionnaire sought to overcome language barriers, onsite data collection by Danish

mother-tongue volunteers might reach a bigger sample size. Third, during the observation study, I found it difficult to quantify the number of elderly visitors in expansive green spaces. Furthermore, the age of the visitors was defined based on visual inspection, which may not be sufficiently objective.

Overall, the three-step, mixed method of this study could be considered effective, and provides a verified, objective and comprehensive picture of elderly citizens' usage behaviour and preference regarding open green spaces. ©



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KONCEPCIONÁLIS KERET- RENDSZER KIDOLGOZÁSA AZ EMBER-HELY KAPCSOLAT ÉRTELMEZÉSÉHEZ


DEVELOPING A CONCEPTUAL FRAMEWORK FOR STUDYING PEOPLE-PLACE RELATIONSHIP

YOUSEF, RAHAF | VALÁNSZKI ISTVÁN

ABSZTRAKT

Ember és hely közötti kapcsolatok kutatása összetett és multidiszciplináris terület, és az idők során a különböző tudományágakban eltérő módon fejlődött. Ennek ellenére még mindig hiányoznak a földrajzi és kulturális kontextusnak az ember-hely kapcsolatokra gyakorolt hatását vizsgáló kutatások. A cikk a földrajzi helyzetnek az ezen ember-hely kapcsolatokra gyakorolt hatásának vizsgálatával kíván hozzájárulni a helyhez való kötődés koncepcionális keretrendszerének kidolgozásához a közel-keleti városok kulturális-földrajzi kontextusában. A tanulmány áttekinti a korábbi területi kutatásokat, és szisztematikusan elemzi e tanulmányok földrajzi kontextusát annak megértése érdekében, hogy az hogyan befolyásolja olyan helyalapú megközelítések koncepcionalizálását, mint például a helyérzet és a helyhez való kötődés. Az elemzés magában foglalja a korábbi tanulmányok kritikai értékelését és esettanulmány-elemzését, a tanulmányok földrajzi kontextusának, a koncepcionális keretnek, az alkalmazott módszereknek és eszközöknek, valamint az eredmények alkalmazásának összehasonlító elemzésével. Eredményeink azt mutatják, hogy a földrajzi kontextus sajátos jellemzői jelentéktelen mértékben befolyásolják e fogalmak

használatát és jelentését, és csak néhány kísérlet történt a mérési modellek érvényességének és megbízhatóságának különböző kontextusokban történő értékelésére. A tanulmány arra is rávilágít, hogy több kutatásra van szükség az ember-hely kapcsolatok kulturális-földrajzi kontextusával kapcsolatban, mivel ez segíthet jobban megérteni, hogy a földrajzi és kulturális tényezők hogyan segíthetnek teljesebb képet alkotni arról, hogy az emberek hogyan kötődnek a helyekhez, és ezek a kötődések hogyan befolyásolják viselkedésüket és jólétüket.

Kulcsszavak: helyérzet, helyhez való kötődés, operacionalizálás, koncepcionális keretrendszer, esettanulmány-elemzés 

ABSTRACT

The development of research on people-place relationships is a complex and multi-disciplinary field, and over time has evolved in different ways across different disciplines. Despite this development, research on the impact of geographical and cultural context on the conceptualization and management of people-place relationships is still lacking. The article seeks to contribute to the development of a conceptual framework for place-based constructs of attachment by investigating the impact of geographical context on the conceptualization and operationalization of people-place relationships. The study reviews previous research on spatial studies and systematically analyses the geographical context of those studies to comprehend how it affects the conceptualization and operationalization of place-based constructs such as sense of place (SOP) and place attachment (PA). The analysis includes a critical assessment and case study analysis of previous studies, with a comparative analysis of the geographical context of the study, the conceptualizing framework, the methods, and tools used, and the application of the results. Our findings show insignificant influences of the special characteristics of geographical context on the conceptualization and operationalization of these concepts, with only a few attempts to assess the validity and reliability of measurement models across different contexts. The study also highlights the need for more research on the cultural-geographical context of people-place relationships, as it provides a better understanding of how geographical and cultural factors can provide a more complete picture of how people form attachments to places and how these attachments influence their behaviour and well-being.

Keywords: sense of place, place attachment, operationalization, conceptual framework, case study analysis

INTRODUCTION

People-place relationships are a complex and multi-disciplinary field that has evolved over the years. One of the main schools of thought in people-place literature is phenomenology, which focuses on the subjective experience of place. Tuan and Relph were pioneers in this field, and their books *Topophilia* and *Place and Placelessness* are considered classics in the field, contributing to the development of key concepts and theories and providing important insights into how people interact with and understand their physical surroundings. Geography, sociology, and anthropology have all traditionally been involved in the study of people-place relationships. The focus of social sciences is on how one understands a place and one's existence in that place [1]. However, over the years, the field has grown to encompass other disciplines such

as architecture and urban planning, psychology, environmental science, and landscape architecture. Landscape architecture, urban cognition, and the image of the city are other significant aspects that facilitate the connection between people and the visual qualities and elements [2]. People-place relationships are studied in design and planning disciplines to better understand how human activities shape and are shaped by physical environments. Studies on the emotional connection between people and urban objects have revealed deep connections between social psychology, attitudes, visual perception, and presented urban objects [2]. Despite multifaceted understandings of this relationship, the disciplines of design and planning often remain focused on the physical aspects of the concept because of the spatial focus of the professions [3].

Research on people-place relationships relevant to this study has been conducted primarily in environmental psychology, architecture, planning, and geography. The two major concepts that recur in these domains are sense of place (SOP), and place attachment (PA). Sense of place, as a contemporary concept, can be derived from the field of geography, where scholars presented a holistic concept combining place attachment, place identity, and place dependence. According to [4], place attachment is made up of emotional elements (affect, feeling, emotions), cognitive elements (thoughts, knowledge, beliefs), and practices (actions and behaviour). Another concepts frequently used in literature is place identity (PI) which is defined by [5] as the part of our identity that relates to place. Studies on people-place relationships are mired in definitional questions and attempts to fit various place-related concepts together [6]. In this study, the focus is on SOP and PA as they provide a wider representation of research on people-place relationship in related fields.

Many researchers have attempted to develop a conceptual understanding of place-based concepts by reviewing earlier research in the domain and identifying niches and significant gaps. This was done due to the diversity of terminologies and approaches used to describe the relationship between people and place, as well as the topic's multi-disciplinary nature. Table 1 displays some of these reviewed papers and their key conclusions. These papers indicate that the most significant gap in the domain is the unclear relationship between place-related concepts, the heterogeneity in terms and their spatial extension [7, 8, 9, 1], and the weakness in delivering a theory due to a large literature focusing on the individual level [6, 8, 10]. Professional theories in spatial sciences have largely focused on the physical aspects of place, with few studies focusing on understanding the meaning, value, characteristics, and psychology of sense of place [2], and as [3] emphasis that this lack of a coherent understanding makes it difficult to study and consistently operationalize

Table 1: List of reviewed papers on place-based constructs of attachment. (the papers are listed in chronological order)
►► Figure 1: The different stages in screening literature
►► Table 2: The analytical aspects used in reviewing selected papers in accordance with research questions

Author	Review Focus	Main Findings
Lalli, 1992	Overview of the psychological literature on place identity in an urban context.	Measuring instrument (the 'Urban Identity Scale') as a model for operationalizing the theoretical idea.
Lewicka, 2011	Review of research in place attachment until 2010.	Emphasis on individual differences has probably inhibited the development of a theory of place attachment.
Ghasemi et al. 2014	Comprehensive literature review on place attachment dimensions.	The study determined 23 dimensions within three clusters: physical/environmental, personal, and psychological.
Beidler et al. 2015	Review of academic and professional theories regarding the development of a sense of place in design and planning disciplines until 2011.	Individual interpretations, environmental understandings, sociocultural encounters, and temporal experiences are ultimately intertwined in the transformation of space into place.
A. Hausmann et al. 2015	Identifying the potential contributions of sense of place to both human well-being and biodiversity conservation.	Conceptual framework incorporating sense of place in conservation decision-making; pathways outline potential ways to mitigate threats to biodiversity conservation.
Acedo et al. 2017	Examining sense of place and social capital in an urban context.	Conceptualizing and formalizing for the first time the spatial relationship between SOP and SC.
Kienast et al. 2018	Literature review on the development and application of place attachment in landscape science.	Proposal for a research agenda with three main pillars and proposed research methods.
Swapan et al. 2020	Theoretical and conceptual overview on how PA has featured in disaster research focusing on migration in developing countries.	The PA-MB matrix for developing countries.
Nelson et al. 2020	Use of publication data and citation data to clarify how sense of place has been defined and applied in the research domain.	SOP research evolution over time in terms of dimensions and measurement methods.
Erfani et al. 2022	Critical review of the literature on sense of place and place-based constructs of attachment, identity, and satisfaction.	This study develops a three-theme conceptual framework articulating individual-community-place interrelationships.
Duggan et al. 2023	Exploration of the environmental literature for studies that measure Sop in social-ecological contexts.	Overview of literature, the methods used, and the focus of studies; group and environment.

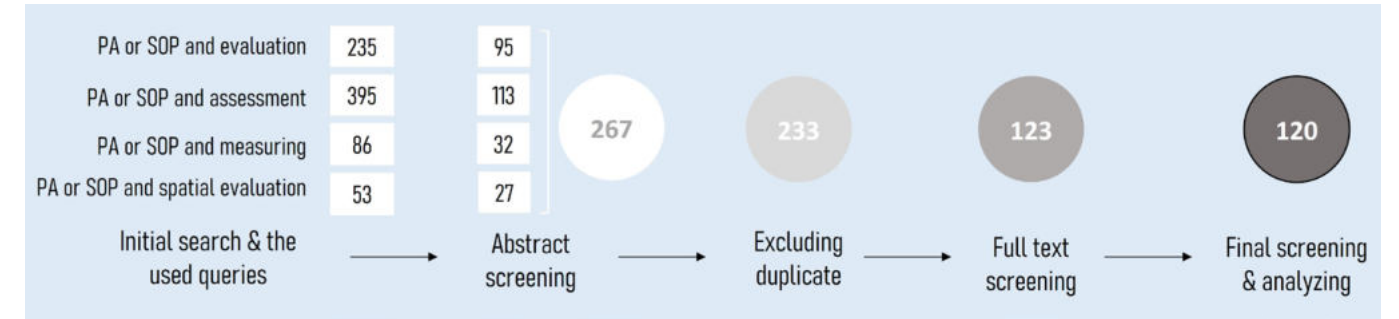
these concepts. Additionally, less attention has been paid to the concept of place concerning the specific objects or features in a place or landscape to which people are attached [11]. The attempt to develop a framework to study this relationship in a particular cultural and geographical context is more challenging due to the lack of studies on the influence of geographical and cultural context on the conceptualization and operation of people-place relationships.

The purpose of this article is to investigate the impact of geographical context on the conceptualization and operationalization of people-place relationships. By conducting a critical assessment and case study analysis of previous studies on SOP and PA in fields relevant to spatial studies it is possible to systematically review the geographical context of studies, and to understand how it affects the conceptualization and operationalization of

these concepts. The analysis seeks to provide answers to the following questions: Is there any geographical reference or significance to the conceptual frameworks? What are the methods used to study the concepts of PA and SOP, and which dimensions were considered? What is the relevance and application of operationalizing PA and SOP in a planning context?

MATERIALS & METHODS

A systematic literature review approach was adopted to gain insight into published case studies on the conceptualization and operationalization of SOP and PA. The review was conducted in the Scopus database on 7 February 2023. We chose Scopus because of its broad multidisciplinary database that focusses on traditional academic literature [12]. We looked for papers that include SOP or PA in the title/abstract/keywords. We used these terms in



Research questions	Analytical aspects
Is there any geographical reference/significance to the conceptual frameworks?	Geographical context of study
	Study location
	Scale of place
What are the methods used to study the concepts PA and SOP, and which dimensions were considered?	Context of interest
	Conceptual framework
	Methods/ tools
What is the relevance and application of operationalizing PA and SOP in a planning context?	Concept used in the study
	Application

search queries in our examination of people-place relationship, since these keywords are the most frequently used in planning literature and relevant disciplines [13]. To include only empirical papers on the operationalization of the concept, we added one of the following keywords to the queries: assessment, evaluation, measuring, and spatial assessment. The results of our search presented in Figure 1.

Three stages of screening were performed on the results of initial search; the first was an abstract screening to exclude papers that were not relevant to our study focus. Then, after excluding the duplicate papers, the second screening of papers was a full-text evaluation to exclude those that did not have a case study application directly focused on PA or SOP. The third evaluation of the remaining papers aimed to answer the three research questions, by conducting a comparative analysis

investigating four aspects: i) geographical context of study; ii) conceptualizing framework; iii) methods/ tools used; and iv) application of results. The analytical framework is shown in detail in Table 2.

RESULTS AND DISCUSSION

The significance of geographical context in the study of the people-place relationship

The results of this study show that more than 50% of studies on SOP and PA are from Asian and European countries, with more than half of the studies in Asia coming from China. In the Middle East, the focus of the study was on Turkey, and Iran, while Arabian countries are the least represented in this region. This distribution of studies, shown in Figure 2, aligns with findings from other research that indicates a focus of research in this field on privileged populations (the Global North) [14, 15, 16].

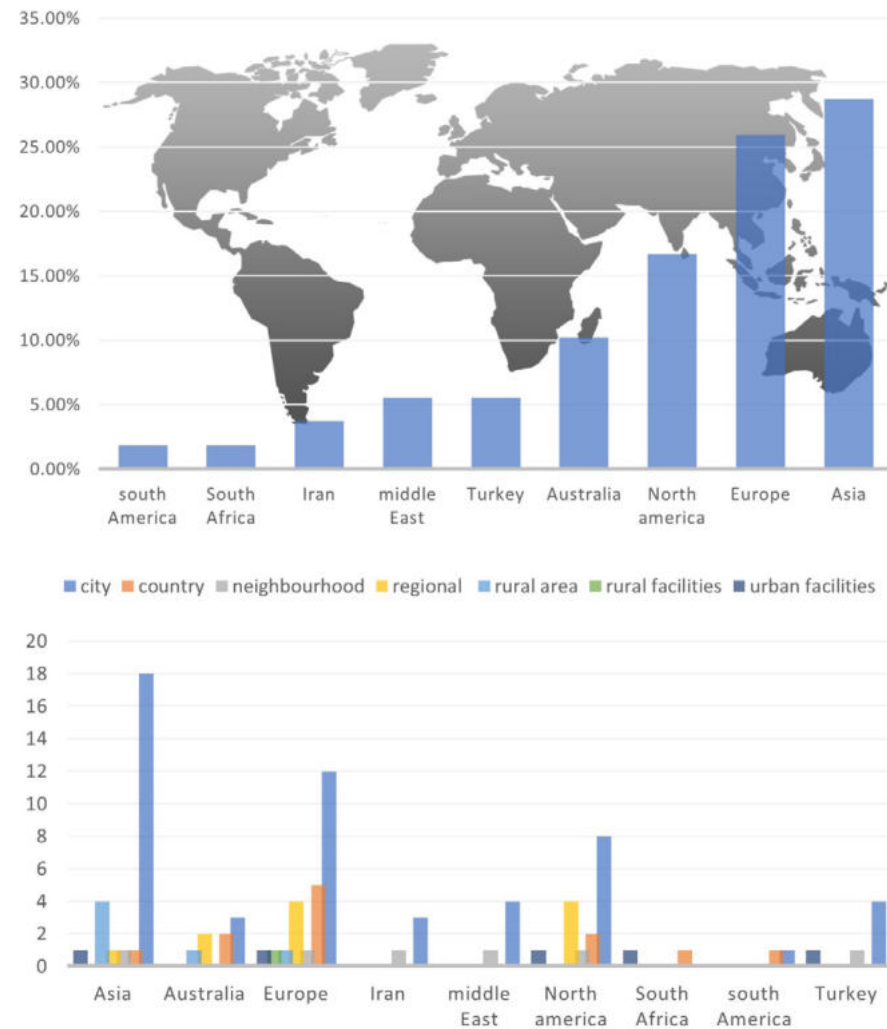


Figure 2: The geographical distribution of studies
Figure 3: The distribution of "Scale of place" according to geographical context
Figure 4: The distribution of "Type of place" according to geographical context
Figure 5: The use of SOP, PA across different geographical context
Figure 6: The conceptual frameworks used for SOP & PA in research

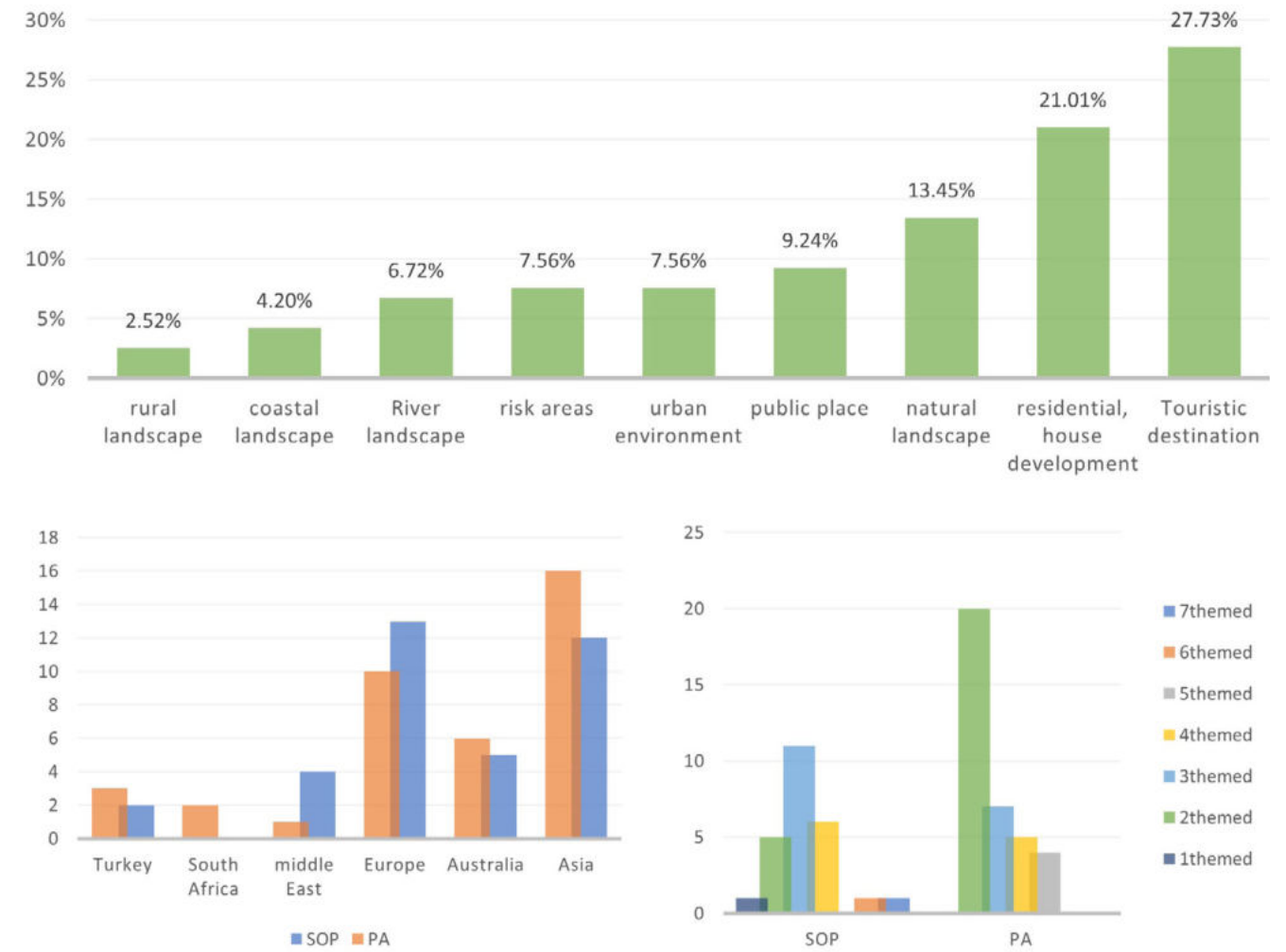
Our analysis of the scale of place, Figure 3, and type of place, Figure 4, revealed that most papers focused on the bond people form with tourist destinations, particularly in studies from China. The second trend in the literature is a focus on studying the attachment toward home and residential neighbourhoods, while bonding and attachment to natural landscape are the third most studied in the literature. According to [15], the top three research categories were environmental studies, environmental sciences, and hospitality, leisure, and sport tourism. We can see the impact of this focus on the spatial scales of studies: papers from Asia and the Middle East, where the primary focus of SOP/PA research is on tourism and residential issues, are more focused on the city level than on other levels. Studies on national and regional scales, meanwhile, only appear in Europe, America, and Australia, because of a research direction in these regions that focuses on studying SOP/PA in natural settings (parks, nature, and recreational, coastal, and river landscapes). There were significant differences in the relationships between research and the locations where studies were conducted [16]. The difficulty in grasping methodologically the concept of place and transferring it into

place-specific, formal method has made progress in "place sciences" appear slow and results meagre [17], especially when compared to theoretical developments in domains such as cognitive psychology or neuropsychology [6].

Conceptualizing the framework of people-place relationship in different contexts

Comparative analysis of the use of SOP and PA in the literature revealed no significant difference in their use across different spatial scales, types of places, or geographical locations, as shown in Figure 5. Both terms were used at similar rates in all locations, spatial scales, and contexts of interest. The findings from [16] indicate that PA has received the most attention in the literature in this field, with many concrete sub-concepts formulated around it. However, our analysis shows that PA is used more frequently than SOP in studies involving residential attachment or natural settings, but the difference is not significant. The ambiguous relationships between these concepts require further investigation [18,19].

Figure 6 shows the frameworks used to conceptualize SOP and PA, arranged in seven groups based on



the number of dimensions used in each framework (for example, 2 themed means the framework consists of two dimensions). The most relevant framework for studying SOP consists of three dimensions: PA, PI, and PD [17, 20, 21, 22, 23, 24]. Some researchers suggest that current theories regarding SOP can be organized into an overlapping four-dimensional model involving the physical environment, psychology of the self, and sociocultural circumstances [3]. PA was conceptualized in terms of two common dimensions: PI, and PD [25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37], but the importance of incorporating other dimensions such as social bonding and place memory into the measurement of place attachment is highlighted by many researchers [38]. Table 3 illustrates in more detail the various frameworks used in the reviewed papers to study SOP, PA, and other related concepts, all listed based on the number of dimensions used (themed). For example, [39] investigates four place dimensions that influence people-place connections (biophysical, psychological, sociocultural, and political-economic). [40] presents a model of a tourist's sense of place with four dimensions: natural scenery, social and cultural setting, tourism function, and affectional attachment. Meanwhile, [41] uses

seven indicators for SOP including PI, PD, nature bonding, social bonding, sense of belonging, familiarity, and social interaction. With such a diverse conceptual approach, it is still unclear which dimension has the greatest influence on the development of a sense of place for an individual or group [3]. Future research should move away from unidimensional conceptualizations of place and toward a more holistic and inclusive understanding, in order to better capture the complex reality of those relationships [16].

Operationalization of place attachment and sense of place in a planning context

There is a significant trend in research to use questionnaires to evaluate the subjective experience of SOP and PA as shown in Figure 7. Mixed methods were most frequently used to include both the quantitative and qualitative aspects of these concepts. They were most frequently used to collect data, with surveys and interviews being the most popular methods [14]. Another emerging trend in this domain is the adoption of frequently used models from the literature, such as: PA scale by Williams and Vaske [84] which was used in [25, 66], PA for

Term	Conceptual framework
Sense of Place (SOP)	2 themed: PA, PI [4,2,4,3]. PA, PD [4,4]. PI, PD [4,5].
	3 themed: PA, PI, PD [17, 20, 21, 22, 23, 24]. Identity, structure, meaning [4,6]. Form, activity, meaning [4,7]. place characteristics, responses to place, PA [4,8]. personal, phycological, spatial [4,9]. attachment, identity or symbolic meaning [50].
	4 themed: biophysical, psychological, sociocultural, and political-economic [39]. belonging to a place, commitment to a place, affection for a place, and identifying with a place [51]. Identity, emotional, symbolic, functional [52]. Cognitive, phenomenological, self-concept (or anthropological) and sociological [53]. 'Polarity', dimensions, components, and 'directness' [54]. Natural scenery, social cultural setting, tourism function, and affectional attachment [4,0].
	7 themed: PI,PD, 'nature bonding', 'social bonding', 'sense of belonging', 'familiarity' and 'social interaction' [4,1].
Place Attachment (PA)	2 themed: PI, PD [25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37]. PI, place memory [55]. continuous local interactions (socialization) and subjective perceptions of place utilities (evaluation) [56]. Physical rootedness, social bonding [57]. Functional and emotional [58, 59, 60, 61]. Preferred place of residence. Emotional attachment, desire to stay [6,2].
	3 themed: PI, PD, PS [6,3]. PI, PD, social bonding [6,4, 6,5]. PI, PD, loyalty [6,6]. Place, people, process [6,7]. Form, meanings, experiences [6,8]. Person, community, environment [6,9].
	4 themed: PI, PD, social bonding, nature bonding [70]. PI, PD, place affect, place social bonding [71]. PI, PD, social bonding, narrative bonding [72]. Meaning of life, dependency, feeling "in place," continuity, and social inclusion [73]. Physical, social, temporal, and psychological [74].
	5 themed: PI, PD, PS, place affect, place social bonding [75, 76]. PI, PD, affective bonding, rootedness, and home meaning [77]. Evaluation, familiarity, attachment, continuity, commitment [78].
Place Identity (PI)	5 themed: Planning process, governmental process, semantic process, time [79].
Identity related concepts	4 themed: Natural heritage, economic heritage, cultural heritage, population society [80]. Physical appearance, social interaction, sensory experience and historical character [81]. Cognition, evaluation, attachment, activities [82].

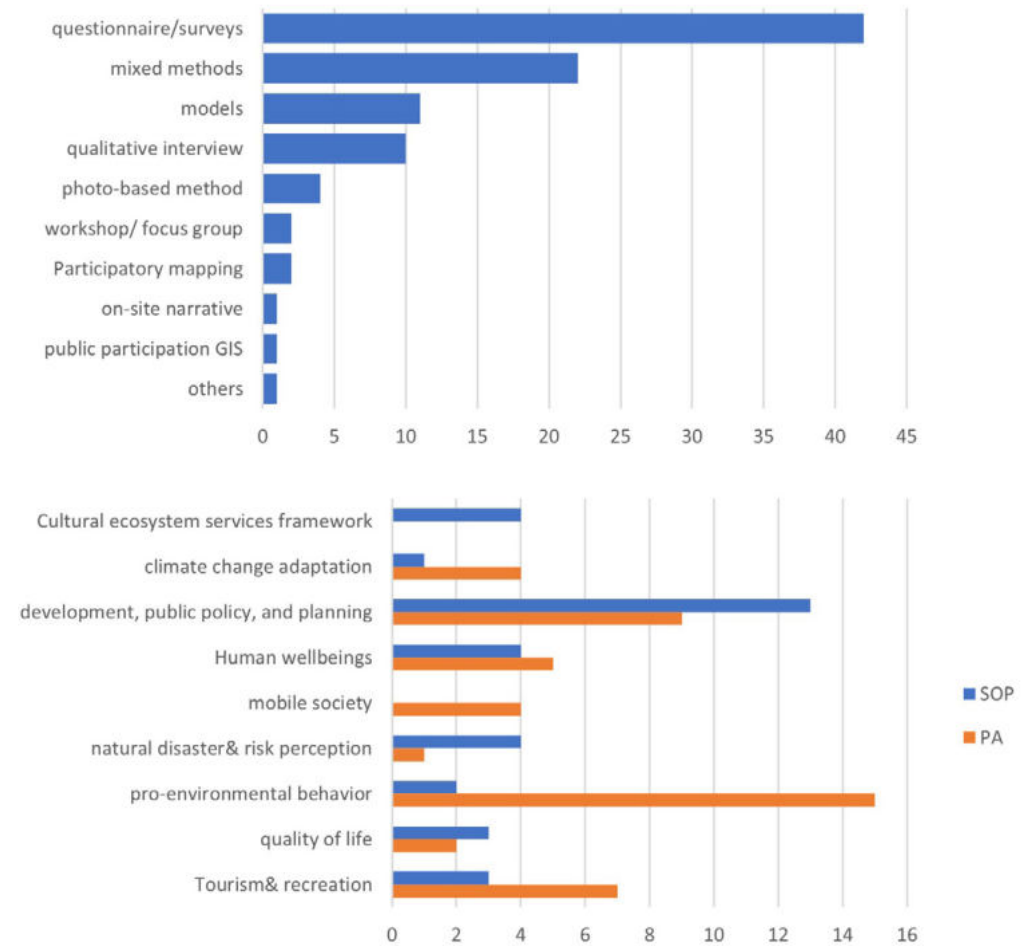
Community-Dwelling Older Adults (PACOA) scale [73], the Fuzzy Analytic Network Process (FANP) model [69], the Place Attachment Scale by Lewicka [6], the Urban Identity Scale of Lalli [7], and the Abbreviated PA Scale (APAS) [31]. Photo-based methods are also becoming more popular in this field, including photo elicitation [67], the photo projective method [85], and photo-based questionnaire [36]. This narrative tool has shown remarkable results in eliciting people's bonding, memory, and attachment to place [86], but it is still not very common in the literature, given the difficulties in analysing and coding the results on a larger scale. Participatory mapping and PPGIS are rarely used alone, but rather in conjunction with social studies to ensure that both the functional and emotional aspects of this relationship are included [87, 88]. Different methods of measuring basic theoretical constructs are rarely confronted in a single study, which make knowledge

accumulation difficult [6]. Therefore, cooperation and analysis involving multiple disciplines, specialties, and perspectives will become the dominant trend in this field [16].

The relevance and application of results in a planning context

The application of the empirical studies on SOP and PA, as shown in Figure 8, is mostly linked to public policy, pro-environmental behaviour, and human well-being, which together make up more than 50% of the results. Tourism and recreation, as well as climate change adaptation, have also been well represented in studies. According to findings from the literature, the four research trending topics in this domain were climate change, pro-environmental behaviour, tourism, and environmental threat [15]. SOP can be a vehicle for understanding people's attitudes toward their environment, which

◀◀Table 3: Conceptual models for place-based concepts of attachment in the analyzed papers
Figure 7: The methods used in literature to evaluate SOP/ PA
Figure 8: The application domains for SOP and PA research

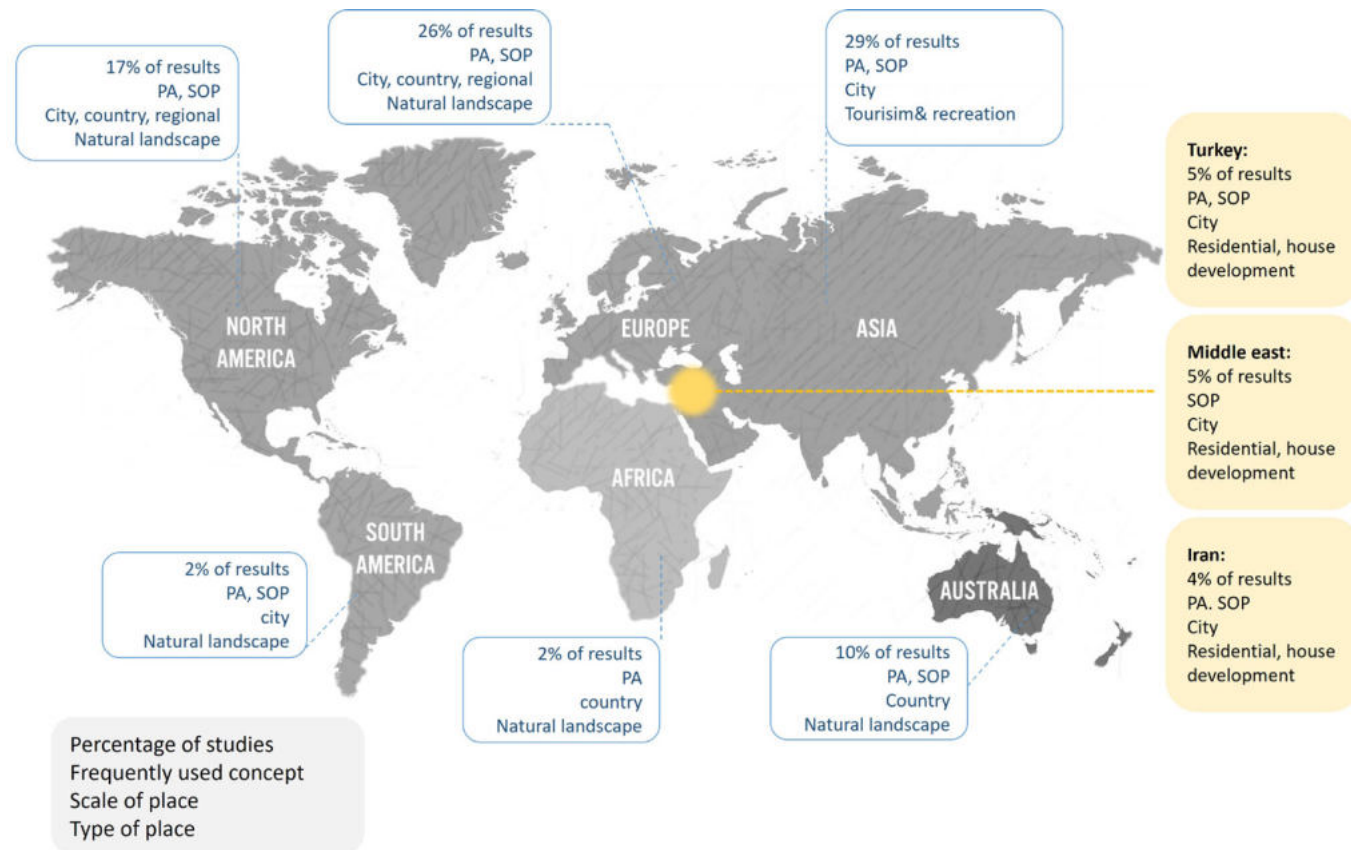


makes SOP a valuable area for studying tourist and travel behaviour [51]. In addition, SOP is a guiding principle in the design of the built environment for sustainability and liveability [1]. According to [89], the results of the qualitative analysis revealed that most of the studies provided empirical evidence of a significant relationship between PA and willingness to pay, loyalty, risk-coping behaviour, land management practices, civic engagement, pro-environmental behaviours, and pro-tourism behaviours such as intentions to revisit or recommend. Findings from [90] demonstrate that understanding people's SOP towards peri-urban green spaces is crucial for promoting place-conscious behaviour and, consequently, prioritizing effective policy responses to ensure the sustainable future of these areas. In relation to tourism, [40] it has been emphasised that travel and sightseeing are significant ways of perceiving and understanding environments, and

a tourist's SOP is the outcome of an interaction between the tourist and the destination environment.

Another area of study is the application of measuring SOP/PA in mobile societies, the migration process, and the international community. According to [6], despite mobility and globalization processes, the place continues to be an object of strong attachments. [91] indicates that the increased mobility of people, if anything, generates more places to feel attached to, rather than no attachment to any place. Disaster research and risk perception are two other areas where these concepts can be applied. [92] finds that those who are strongly attached to their place of residence are unlikely to leave even when the risk is high. This is especially true when place attachment is linked to religious beliefs and social capital is high. PA can be a potential parameter influencing an individual's risk perception and coping strategies in areas facing natural

Figure 9: The significance of the conceptualization and operationalization of SOP and PA research across different geographical contexts



hazards. Nevertheless, while PA has several collective benefits and improves one's quality of life, it can be dysfunctional if it reduces the perceived risk of hazards [92].

The geographical significance of studies

The main idea behind studying SOP, PA, and related concepts is that people have emotional and psychological connections to specific places, influenced by factors such as personal experiences, cultural and historical associations, and physical characteristics. However, the influence of special attributes of the cultural and geographical context of studies is still largely overlooked in the literature. Our study findings, summarized in Figure 9, show a significant difference in the geographical distribution of studies and the less significant influence of the geographical context on the conceptualization and operationalization of these concepts. We highlighted the results related to the Middle East since this research is part of a wider project which involves studying these concepts in a Middle Eastern context. Among the selected studies, only a few demonstrated attempts to study SOP and PA within different cultural environments and compare the results. Some

of these attempts included assessing the validity and reliability of the PA model across varying sites from USE and Germany [25]; mapping SOP in river landscapes across a set of case studies from diverse geographical, institutional, and policy contexts [83]; testing the scales, as they are currently applied, might not measure the same conceptualizations in various contexts. Because of this, their use without critical examination and modification to the special geographical and cultural context could result in inaccurate interpretations of these concepts, and lead to misapplied actions. Overall, the study emphasizes the importance of considering both geographical and cultural factors when studying people's relationships with place. By doing so, researchers can gain a more comprehensive understanding of how SOP and PA are formed and how they impact individuals' lives, and thus their implications for urban planning, environmental conservation, and community development. ©



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AZ EGYKORI ZÁRTKERTEK TÁJÉRTÉKEI ÉS TÁJKÉPVÉDELMI JELENTŐSÉGE

UNIQUE LANDSCAPE FEATURES AND SIGNIFICANCE OF FORMER ALLOTMENT GARDENS IN THE PROTECTION OF THE VISUAL LANDSCAPE

ALBICZ KINGA | HUBAYNÉ HORVÁTH NÓRA

ABSZTRAKT

A zártkert egy speciális területhasználati forma, maga a fogalom a szocializmus alatt, az 1960-as évek elején jött létre Magyarországon. Eredetileg azokat a magántulajdonban lévő, kisparcellás, hagyományosan szőlő, gyümölcsös és kert hasznosítású földrészeket jelölte, amelyek a háztáji gazdálkodás lehetősége mellett hétvégi pihenést biztosítottak tulajdonosaik számára.

A zártkertek túlnyomó része azonban történeti előzményekkel is rendelkezik, a kertés művelés a zártkertté minősítés előtt is létezett. A kialakításuk óta a zártkertek erőteljes funkcióváltozáson mentek keresztül; egy részükön fennmaradt a hagyományos kiskerti gazdálkodás, más részük települési belterületté (lakóterületekké), gyepekké, vagy felhagyott, erdősödő területekké váltak. Az átalakulási, illetve pusztulási folyamat ellenére a zártkert területek még napjainkban is táji értékek hordozói: többé-kevésbé őrzik az ember tudatos tájformáló tevékenységéből fakadó jellemvonásokat, a tájszerkezetet, a természeti értékeket, valamint sok esetben a történeti tájhasználat hagyatékát, a gazdálkodás fennmaradt nyomait. Cikkünk a zártkertek értékességét örökségvédelmi, illetve tájképvédelmi szempontból közelíti meg országos

és mintaterületi vizsgálati szinten. Az elemzés célja a zártkertek szőlőhegyi eredetének, tájképi jelentőségének feltárása és a zártkerti egyedi tájértékek bemutatása térinformatikai módszerekkel. A szőlőhegyi eredetre vonatkozó elemzés rámutatott, hogy a szőlőhegyi múlt, mint történeti előzmény a zártkerti területek összterületének jelentős részén kimutatható. Az egyedi tájértékek az országos átlagot csaknem ötszörösen meghaladó sűrűséggel fordulnak elő. Az ország szőlő- és gyümölcsstermesztéshez kapcsolódó egyedi tájértékeinek harmada a zártkerti területeken koncentrálódik. A kutatás eredményeiből ugyanakkor arra is fény derült, hogy a zártkertek kultúr-történeti értékeinek felmértsége korántsem tekinthető teljeskörűnek, a valóságban sokkal több érték (pincék, horhosok, kőtámfalak) jelenléte feltételezhető a zártkerteken, mint amennyi az egyedi tájérték-adatbázisban szerepel. A zártkertek tájképvédelmi jelentőségét támasztja alá, hogy a tájképvédelmi övezetbe sorolt zártkerti foltok területi aránya a tájképvédelmi területek országos területi arányának közel másfélszerese.

Kulcsszavak: zártkert, táji örökség, egyedi tájérték, tájképvédelem, történeti szőlőhegy, tájváltozás ☉

ABSTRACT

The term “allotment garden” is a special form of land use, developed in Hungary under socialism in the early 1960s. 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.

However, the vast majority of allotment gardens have a historical background, with horticulture having existed before gardens were classified as allotment gardens. 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. Despite the process of transformation and degradation, allotment gardens still today contain various landscape features: they more or less preserve the characteristics of human conscious landscape forming activities, landscape pattern, natural heritage and valuable visual features of the landscape, and in many cases the heritage of historic land use and remained traces of farming. This article approaches the value of allotment gardens from a heritage and visual landscape protection viewpoint, at national and sample area level. The aim of the study is to explore vineyard origins and landscape significance of allotment gardens and to present the unique landscape features of allotment gardens applying geographic information methods. Furthermore, the results of the analysis of the vineyard origins analysis revealed that the vineyard past as a historical antecedent can be detected in a significant part of the total area of allotment gardens. The results of the study indicated that unique landscape features occur at a density almost five times higher than the national average in the allotment garden areas. One third of the country's unique landscape features related to vine and fruit production are concentrated in these areas. However, the research also revealed that the survey on allotment garden landscape features of cultural and historical significance is far from being complete. Presumably, there are many more landscape features (cellars, gorges and retaining walls of stone) in

the allotment gardens than are recorded in the unique landscape feature database.

The significance of allotment gardens in the protection of the visual landscape is confirmed by the fact that the proportion of allotment garden patches classified as zones of visually sensitive landscapes is almost one and a half times the national rate.

Keywords: allotment garden, landscape heritage, unique landscape feature, (visual) landscape protection, historical vineyard, landscape change

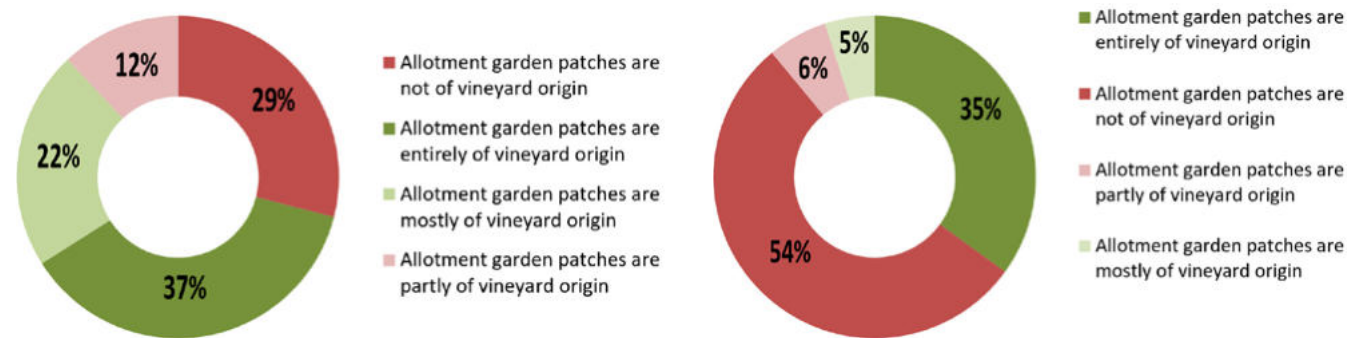
1. INTRODUCTION

Today, the allotment garden is no longer a legal institution, but appears as a land classification category on land registry maps and title deeds. The term “allotment garden” came into existence in Hungary under socialism in the early 1960s. [1, 2] Allotment garden is a special form of land use, which originally referred to privately-owned small parcels of land, traditionally vineyards, orchards and gardens, which offered their owners weekend recreation in addition to the possibility of backyard farming.

With the change of the Hungarian livestock farming to crop production, most of the gardens were moved outside the villages, adjacent to the fields. Gardens remained on the outskirts of villages and later cities, where vegetable, fruit or vines were grown. The gardens where vines, cabbages or melons were planted, and which later became allotment gardens, were created taking into account the terrain and other conditions, e.g. soil conditions [3].

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 [2]. The transforming allotment gardens of settlements, with their distinctive parcel structure and size, form a recognisable landscape segment that is distinct from the residential area. A significant part of the parcels previously classified as allotment gardens are unique, valuable and worthy of

Fig. 1: Distribution of allotment gardens of vineyard origin in the Pilis-Visegrád sample area, by extent
Fig. 2: Distribution of the number of allotment gardens by vineyard origin in the Pilis-Visegrád sample area
Fig. 3: Origins of allotment gardens in the Pilis-Visegrád Hills sample area (based on Second Military Survey)



preservation, but at the same time endangered landscape areas of Hungary (Piroska Pető ex verb.).

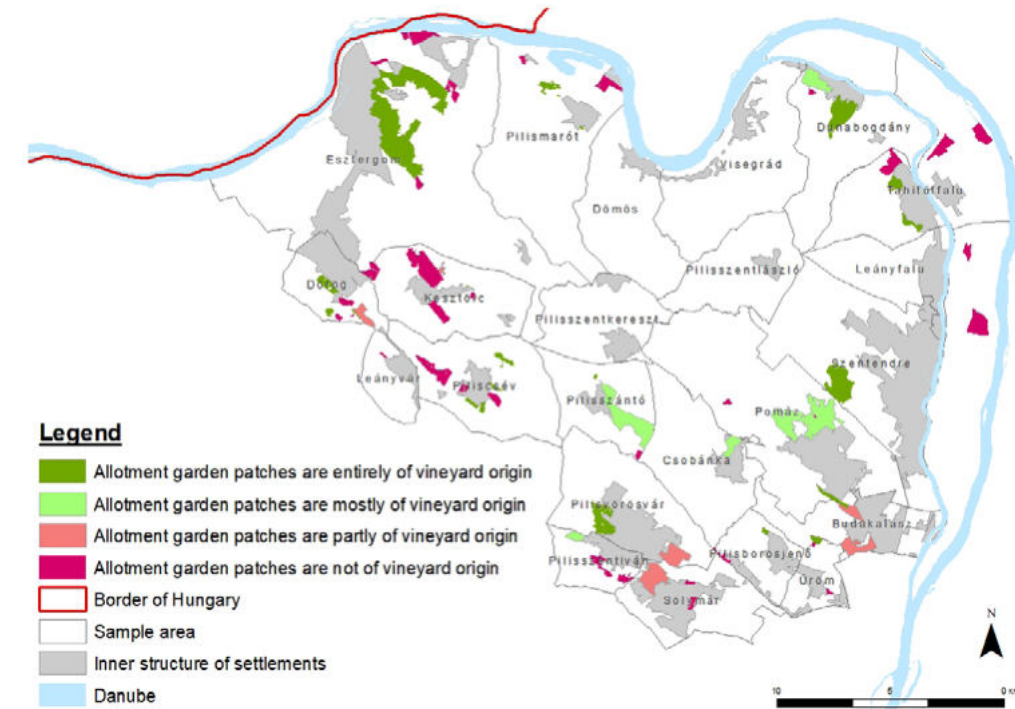
The origins, functions and changes in extent of allotment gardens have been studied by many authors. This study was preceded by a review of the literature. Several national-level studies have been carried out since the early 2000s [1-5, 8-9], typically on the development of allotment gardens, their history, and the direction and quality of their transformation from their creation to the present day.

The differences and similarities between the term of the former vegetable garden, orchard and allotment garden are discussed in Ónodi et. al [3], "Gardens and gardeners". According to Ónodi, the term "allotment garden" is mostly linked to a certain era, so if we are considering the development and potential of former allotment gardens, we need to know the former land use, the main characteristics and the history of these areas before the time allotment gardens evolved. The book also presents a national analysis and sample area research.

Csirszki [4] studies the historical and legal events that directly or indirectly contributed to the development of allotment gardens from a national, but also from a legal-historical perspective. The recently published study aid [5] of the Institute of Landscape Architecture, Urban Planning and Garden Art of MATE primarily analyses and typifies the legal aspects of the construction, urban development and planning of allotment gardens, their change of function and their position within the settlement.

Only the part of the literature [1-9] related to the study of allotment gardens emphasizes the landscape significance and the presence of landscape features. Most of the value-oriented scientific literature [6-7, 10] focuses on the vineyards and wine-growing areas of Lake Balaton with their special character, the historically developed mosaic landscape structure and the unique landscape features, and which areas are to be preserved.

In addition to describing the national situation, Laposa and Pócsi analysed the heritage and status of the allotment gardens in a certain region. While Laposa's [6, 7] name and his works have intertwined with the active advocacy for the preservation of natural and cultural heritage of the vineyards of the Balaton Uplands, and especially Badacsony in particular, and as a productive landscape, Pócsi [8-9] mainly describes the changes and the present situation of the allotment gardens around Szeged and Kecskemét. Laposa's researches shows that the vineyards of the Balaton Uplands depicted on the first military survey map are almost identical to the areas later delimited as allotment gardens [6, 7]. The allotment gardens of the Balaton Uplands were also researched by Balázs Törő, ethnographer at the Dezső Laczkó Museum in Veszprém, and Piroska Pető [10], environmental engineer, primarily by surveying and publishing their architectural, historical and cultural values. Their names are associated with the compilation of the heritage database of several settlements.



The allotment gardens of natural value and their role in the system of protected nature areas have been the subject of our previous studies. Our results have shown that almost a third of the former allotment gardens are nature conservation areas of a general or high priority designation. In many places, there is an accumulation of several categories of protection. However, compared to the national averages, the proportion of protected allotment gardens is lower in most protection categories [1].

This study is the first to discuss the landscape value of allotment garden areas, the distribution of unique landscape features by type, quantity and significance of landscape conservation on a national and sample area scale.

2. MATERIAL AND METHOD

2.1. The study area

The analysis deals with the landscape and cultural and historical significance of allotment gardens on a national and sample area level. Sample area analyses enabled more detailed studies to be carried out, such as the vineyard origin analysis.

There are currently 6495 allotment gardens in Hungary [11] (data from 2011), with a total area of 204,148.05 ha (2.1% of the country's territory). The sample area includes 24 settlements in the Pilis-Visegrád Hills (Figure 3). The settlements include 101 allotment patches, covering a total area of 2935 ha. The size of the allotment garden patches varies considerably (1 - 403 ha).

Among other reasons, the sample area was chosen based on the fact that our previous research on allotment gardens has also investigated the allotment garden patches in this area in terms of other factors [1-2], and the sample area has diverse geographical, natural and environmental characteristics, such as:

- Historical vineyard: Esztergom, Piliscsév
- Lowland: Tahitótfalu
- Upland/mountains, forest: Pilisszentlászló, Csobánka, Pilisszentlélek,
- Mining site: Pilisvörösvár
- Waterfront recreation area: Tahitótfalu, Leányfalu, Dunabogdány, Dömös
- Rural settlement in character: Kesztlőc, Piliscsév, Pilisszentlászló, Pilisszántó
- Urban settlement in character: Esztergom, Szentendre, Pilisvörösvár

The sample area is well representative of the similar areas of the country, including the characteristics of the patches of allotment gardens, located in settlements both inside (17) and outside (7) the Budapest agglomeration.

2.2. Applied geographic information software and datasets

In this study, we use the term "allotment garden" as the location of special outskirts in the Hungarian Land Registry [12]. Based on their geographic extent, these land parcels are displayed as merged, in patches and blocks



Fig. 4: Areas of significant landscape value in the settlement of Hegymagas

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on the layer of allotment gardens (data host: Lechner Knowledge Centre), which is the initial geographic data set for our studies. In addition, state base data (national boundary, administrative boundaries, rivers and standing waters) the National Zone of Visually Sensitive Landscapes [13] and the TÉKA cadastre of unique landscape features [14] were used. The geographic information system datasets were analysed in ArcGIS software (ArcMap 10.4.1)

The application of the geographic information system differs for each type of study.

In the *vineyard origin* analysis, based on the Second Military Survey [15], we identified by visual inspection the present-day allotment garden patches and the former cultivation, which either confirmed the existence of wine growing or a different type of cultivation (grassland, plough land, orchard, etc.). The Methods section details the criteria used to develop the categories.

The allotment gardens affected by/intersected with *high priority area of visual landscape significance* were selected in ArcMap (ArcMap 10.4.1), but as there were allotment gardens that were only slightly affected, those gardens that overlapped less than 30% of the layer of

high priority area of visual landscape significance were removed as they were not relevant for the study.

This methodology was applied at both national and sample area level.

The *unique landscape features* were selected for national scale assessment by creating a 5 m buffer zone around the allotment gardens to eliminate field data recording inaccuracy. This extended dataset was then used in the sample area.

2.3. Analytical methods

In the *vineyard origin analysis*, we compared the sample area's allotment garden patches with the map sections of the Second Military Survey of the Habsburg Empire, which was prepared about 180 years ago (1841-1842) [15]. The Second Military Survey is suitable for the analysis as it shows the conditions before the phylloxera epidemic that destroyed a significant part of Hungary's vineyards, and due to its colouring and graphic detail, the patches of wine-growing areas can be easily identified on it, making it suitable for determining vineyard origin. The analysis was carried out in the settlements of the Pilis-Visegrád Hills at sample area level.

For each patch, the following four categories were developed based on the vine cover (origin):

- *Allotment garden of vineyard origin:* The Second Military Survey identifies the total area of the allotment garden as vineyards (100%)
- *Allotment garden mainly of vineyard origin:* At the time of the Second Military Survey, at least 50% or more of the area of the allotment garden patch was used for wine growing (50-99%),
- *Allotment garden partly of vineyard origin:* At the time of the Second Military Survey, the portion of the allotment garden patch used for wine growing covered less than 50% of the total patch area (1-49%).
- *Allotment garden not of vineyard origin:* At the time of the Second Military Survey, no wine growing occurred in the area of the allotment garden patch; arable land, meadow, pasture, forest or in other use (0%)

In the *analysis concerning the impact of the zone of visually sensitive landscapes*, the dataset for the zone of visually sensitive landscapes [13] and allotment garden areas was compared. We selected the allotment gardens affected by the above-mentioned zone, but excluded those allotment garden patches that were less than 30% covered by this zone category.

The *unique landscape feature analyses* are based on the TÉKA unique landscape features geographic information system database [14]. From the TÉKA data, a 5 m buffer zone was applied at the boundary of the allotment gardens to select the unique landscape features in the allotment areas of the country. The data were then analysed by the main types according to the unique landscape feature classification [16, 17] and then by the distribution of individually constructed variety groups relevant to the subject. The results were then compared with national reference data. The results are summarised in a table by the categories relevant for allotment gardens (Table 1). In order to compare the quantity of unique landscape features per square kilometre (hereafter "density"), the number of unique landscape features per square kilometre was calculated.

3. RESULTS

3.1. Results of the vineyard origin analysis

The aim of the analysis of the origins of allotment gardens origin analysis is to provide data to demonstrate that a significant number part of allotment gardens was established on the areas of several hundred years old small vineyards and orchards that are several hundred years old, and that their small-scale cultivation can therefore be considered as a historical landscape use. The analysis of the vineyard origin analysis was carried out in the sample area, based on the Second Military Survey. The four categories (of vineyard origin, mainly of vineyard origin, partly of vineyard origin, not of vineyard origin) are shown in Figure 1, and are colour-coded to represent the origin of the vineyard patches. The diagrams represent the distribution by number and area of patches in the four categories of the proportion of the sample area by origin.

In terms of the distribution by number of pieces, 54% of the allotment garden patches are not of vineyard origin, 35% are entirely (100%) and a further 11% are partly (mostly or in a smaller portion) related to past wine growing in the sample area.

In terms of extent, the proportion of allotment gardens of vineyard origin is much higher, at 40%, with 21% of them being "mostly" and 11% "partly" involved. Allotment gardens of non-vineyard origin represent about 28% of the total area in the allotments of the sample area. The largest extent of the vineyard-derived allotments is found in the foothill areas of Esztergom, Szentendre and Dunabogdány, while the allotments of non-vineyard originated allotments are found in Dorog, Keszthely, Piliscsév, Pilisszentiván and Solymár.

One of the country's most scenic wine regions, the Balaton Upland, preserve the traces of thousands of years of wine growing. According to Laposa's research [6-7], the vineyards on the First Military Survey are almost identical to the areas later set as allotment gardens. A similar result was found when studying the allotment gardens in the sample area, as the proportion

Table 1: Extent and area ratio of visually sensitive landscapes throughout Hungary of allotment garden areas and the sample area's allotment gardens

Fig. 5: Location of allotment gardens affected by zone of visually sensitive landscapes

Fig. 6: Allotment garden patches in the sample area affected by the zone of visually sensitive landscapes

of those of vineyard origin and mostly of vineyard origin allotments totals reaches 60%.

3.2. Allotment gardens within area of visually sensitive landscapes

We found it important to examine the relationship between the zone of visually sensitive landscapes and the allotment gardens because visually sensitive landscapes in Hungary include areas of natural features, systems and the interaction and change of human activity which have specific aesthetic characteristics of particular importance for the landscape, worthy of conservation [18]. According to our hypothesis, the allotment gardens are, from a landscape viewpoint, among the most scenic areas in the country, for example the valuable allotment gardens of the Balaton Uplands (Figure 4).

According to our results, 59.83% of the total national area of all allotment gardens is covered by area of visually sensitive landscapes, which means they have landscape features to be preserved (Table 1). That is almost one and a half times the national figure. The protected areas are concentrated mainly in the Pilis-Visegrád Hills, in the Bükk, around Tokaj, in the Balaton Uplands, in the Zala Hills and in the Mecsek (Figure 5). 80.6% of the sample area's allotment gardens are in the zone of visually sensitive landscapes (Figure 6).

3.3 Results of the analysis of unique landscape features in allotment garden areas

Quantity and types of unique landscape features in Hungary and in the sample area

Quantitative data and the distribution of unique landscape features by type are summarised in Table 2 for the total area of Hungary and for the country's allotment garden areas and in the sample area.

Of the nearly 12,000 unique features recorded in the TÉKA national database, 12,231 are located in allotments, which is 10.2% of the national total, although the percentage of allotments in the total area of the country is

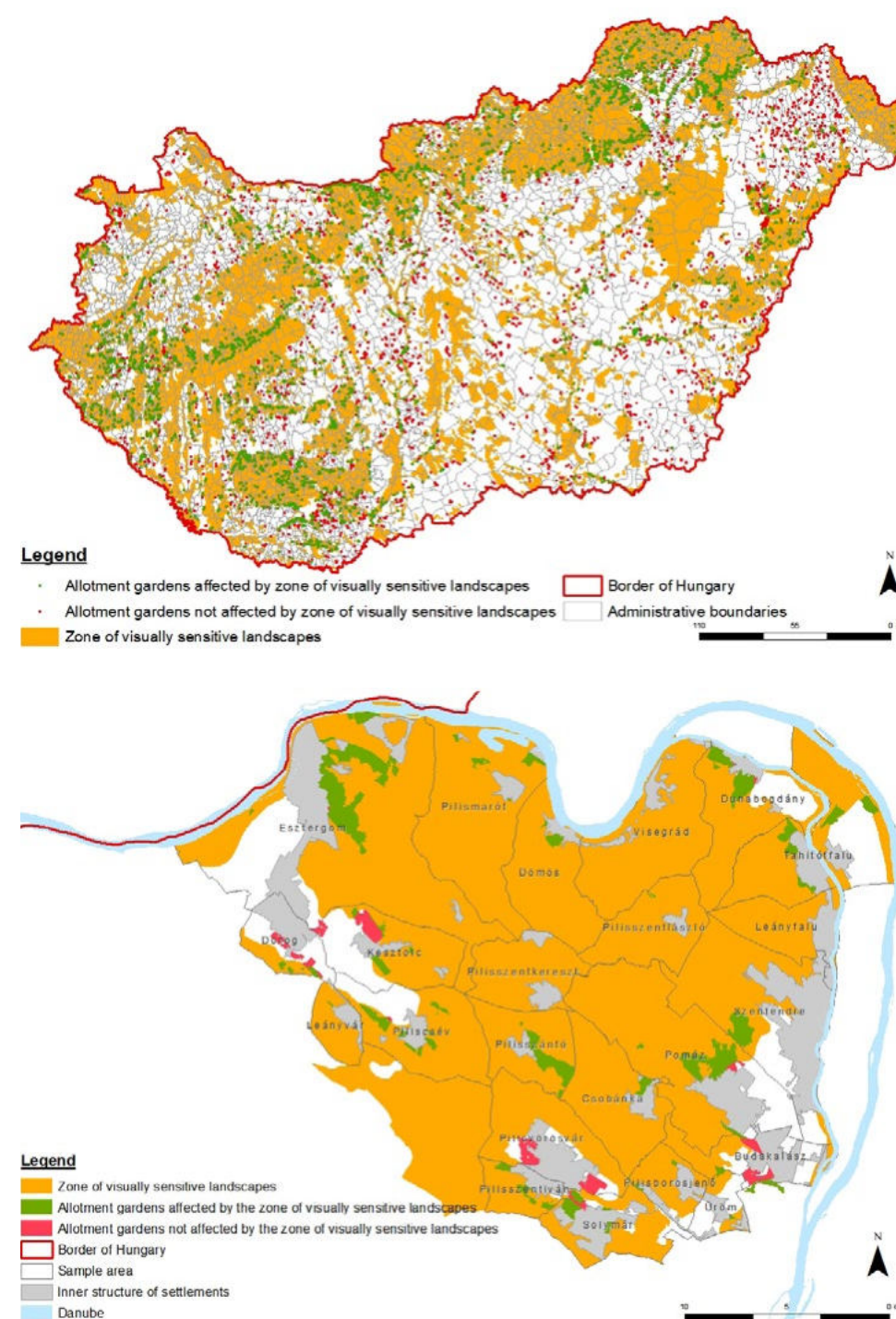
only 2.1%. The number of unique landscape features per hectare in allotment garden areas is 5.99 per km², while the total number of unique landscape features registered in Hungary is only 1.27 per km² compared to the total area of the country. These findings confirm that there is a significant concentration of unique landscape features in the area of the allotments and that the allotments have a higher density of unique landscape features than the national average.

88.4% of the unique landscape features in the allotment garden areas can be classified as vineyards and fruit growing, water and water management and sacred categories. Almost a third (31.8%) are related to vine and fruit production, three times the national figure (9.6%). The unique landscape features associated with viticulture define the landscape character of the allotments. Wine cellars (Figure 7), wine cellar rows, press houses, wine houses, which are preserved as traditional folk architecture, and next to them vineyards, abandoned vineyards and orchards (e.g. old plum orchards, almond groves) represent the vast majority of this category in the allotment gardens. In reality, the number of traditional wine cellars and press houses may be much higher than the number in the TÉKA database [14], because in many places - for example in Piliscsév, included in the sample area - the cellar village or cellar row is recorded as a single unique landscape feature, and the cellar buildings are not recorded individually.

The results of the research also pointed out that the number of remains of some unique landscape feature types (e.g. traces of terraced cultivation, retaining walls of stone, sunken vineyard roads, gorges) in the TÉKA database is surprisingly small. In reality, much more can be assumed, and therefore the assessment of the features of the allotment gardens cannot be considered complete.

In the allotment garden areas, the highest percentage of unique landscape features is related to *hydrology and water use and management*, with a total of 44.1%. Most of these are springs, wells, shadoofs, but there are also cisterns, water towers, lakes, watercourses and backwaters. The national proportion of water-related features is much lower, at only 20.1%.

Extent and area ratio of visually sensitive landscapes	All over Hungary		In allotment garden areas of Hungary		In allotment garden areas of the sample area	
	Extent (km ²)	Percent (%)	Extent (km ²)	Percent (%)	Extent (km ²)	Percent (%)
	41,270	44.36	1,221.44	59.83	23.65	80.57



Quantity and distribution of unique landscape features by main type/type/subtype		All over Hungary		In allotment garden areas of Hungary	
		Quantity (pcs)	Percent (%)	Quantity (pcs)	Percent (%)
Main type	Unique landscape features classified as cultural-historical main type	104,347	87.9	11,364	92.9
	Unique landscape features classified as natural main type	13,494	11.4	818	6.7
	Unique landscape features classified as (visual) landscape main type	767	0.6	45	0.4
	Unique landscape features uncategorised	144	0.1	4	0.03
	Total number of unique landscape feature	118,752	100	12,231	100
Subtype groups	Unique landscape features related to vine and fruit production	11,356	9.6	3,892	31.8
	Unique landscape features related to hydrology, water use and water management	24,044	20.2	5,392	44.1
	Cultic, sacral unique landscape features.	24,913	21.0	1,534	12.5
	Unique landscape features related to traffic and transport	672	0.6	18	0.1
	Unique landscape features related to everyday life	18,981	16.0	289	2.4
	Tree alleys, tree stands	3,548	3.0	103	0.8
	Unique landscape features of geological significance	9,316	7.8	502	4.1
	Unique landscape features of (visual) landscape	767	0.6	45	0.4
	Unique landscape features of other subtype, not relevant in allotment gardens or occurring in small number	25,155	21.2	456	3.7
	Total number of unique landscape features	118,752	100.0	12,231	100.0
Area (km ²)	93,025 km ² (100%)		2,041 km ² (2.19%)		
Number per km ² (pcs/km ²)	1.2766	–	5.9912	–	

The percentage of sacral landscape features (12.5%) is relatively high in the allotment garden areas. Most of them are crosses and crucifixes, but there are also many churches, church ruins, calvarias, stations, belfries and shrines in the gardens. Small chapels and votive chapels are common (Figure 8), where the farmers asked the patron saints of the vineyard (e.g. St. Orban, St. Donat, St. Vendel) for intervention for a good harvest and favourable weather. Sculptures of vine patron saints (Figure 10), Marian's columns and trees of sacral value with pictures are also characteristic features of the allotment gardens.

Around 500 features of geological significance are located in allotments, representing 4.1% of the national total. Among them, the database contains a surprisingly large number of caves, as well as loess walls, cliffs and gorges. In the category of unique landscape features

related to transport, we find roads, bridges and even Roman roads, with a proportion of only 0.1%.

The TÉKA database lists 103 individual trees, alleys and groups of trees in allotment garden areas, which represent only 0.8% of the total landscape feature of the allotment gardens. They include, among others, oaks, linden trees (Figure 9), walnut trees, chestnut trees, strawberry trees, old orchards, almond groves, which are the remnants of allotment garden cultivation.

The analysis of the zone of visually sensitive landscapes highlights the landscape significance of the former allotment gardens. Despite this, the proportion of unique landscape features (lookout towers and lookout points, panoramic roads and traditional streetscapes) in the allotment gardens is much lower than expected, at only 0.4%.

◀◀ **Table 2:** Quantity and distribution of unique landscape features by type throughout Hungary, in the allotment garden areas

Fig. 7: Wine cellar row and the adjacent allotment land plots in Piliscsév

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Fig. 8: The Polish Chapel and the stone cross in front of it are fine examples of sacral landscape values in the allotment garden area of Hegymagas

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Quantity and type distribution of unique landscape features in the sample area

Most of the unique landscape features in the sample area can be found in Esztergom (8.4% of the total landscape features in the sample area) and in the allotment garden areas of Pomáz, Piliscsév and Dorog. The number of unique landscape features per square kilometre in the sample area is 9.34 per km², so the density of unique landscape features in the sample area is significantly higher than the national average.

The most significant, also in the sample area, is the category of unique landscape features related to vine and fruit production (52.5%), which confirms the vineyard origin of a large part of the allotment gardens in the sample area and the high number of related landscape features. The occurrence of unique landscape features is well above the national average (6.2%). Crosses and crucifixes are typical boundary markers.

4. CONCLUSIONS

In allotment areas, the density of unique landscape features is almost five times higher than the national average. One third of the country's unique landscape features related to vine and fruit production are concentrated in allotment areas. However, the results of the research also revealed that the survey of allotment values is far from complete, in reality there are many more features (wine cellars, gorges and retaining walls of stone) in allotment

gardens than are recorded in the databases. The significance of allotment gardens in the protection of the visual landscape is confirmed by the fact that their area ratio in the zone of visually sensitive landscapes is almost one and a half times the national rate.

The findings of the vineyard origin analysis revealed that vineyards' pasts as historical antecedents affect a significant part of the total allotment garden area (almost three quarters of the sample area).

In allotment garden areas, unique landscape features occur at a density almost five times higher than the national average and a third of the country's unique landscape features related to vine and fruit production are concentrated in these areas.

It can be seen in the sample area that in the allotment garden areas of vineyard origins, the number and density of unique landscape features related to vine and fruit production is higher.

The results of the research raise the question of how the presence of landscape features and landscape significance influence the transformation processes of allotment gardens. Due to the length limitations of this article, these correlations will be analysed in a future publication. ©



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Fig. 9: An old linden tree on the wine cellar row in Piliscsév with a statue of St. Orban next to it

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Fig. 10: Statue of St. Orban with a Roman milestone with plinth on the outskirts of Piliscsév

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EGY MESTERPROJEKT TÖRTÉNETE, A SZENTENDREI GYÓGYNÖVÉNYKERT TERVEZÉSE

STORY OF A MASTER PROJECT: THE PLANNING PROCESS OF THE HERB GARDEN IN SZENTENDRE

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ABSZTRAKT

A MATE Tájvédelmi és Tájrehabilitációs Tanszékén (továbbiakban Tanszék) diplomázó hallgatók a tájépítész mesterképzést úgynevezett „Mesterprojekt” készítésével zárják. A mesterprojekt munkamódszere a team szupervízió, ahol a szupervízorok az egyes kapcsolódó kurzusok – Diplomatervezés 2, Tájrehabilitáció, Tájbailestés – oktatói, valamint a téma szerint felkért oktatók. Az összesen nyolc hét (2 hét műhely és 6 szorgalmi hét) alatt elkészülő terv jellemzően programszintű. A koncepcióalkotás közös folyamat, de a hallgatók részfeladatokon dolgozva egyéni javaslatokat is kidolgoznak. A Mesterprojekt fontos követelménye az életszerűség, valós megbízók és közreműködő szakemberek bevonása, valós tervezési feladat felkínálása, valamint részt vállalás a társadalmassításban. 2022 őszén Szentendre városa a Mesterprojekt-hez igen jól illeszkedő tervezési témával kereste meg a

Tanszékét, a Kőhegyi út mellett fekvő Hrsz 0181/6 területen a településrendezési besorolásoktól eltérő irányú fejlesztésben gondolkodva. A tervezési terület beépítési határ helyzete, szabályozási besorolása, a jelenlévő természeti értékek, valamint az ökológiai hálózattal való érintettség a fejlesztés gondos előkészítését és tájvédelmi szemléletű megközelítést igényelt. A helyzetfeltárási munkarész oktatói előkészítését követően, a javaslatok kidolgozását a tájépítész mesterképzés, tanszékünkön diplomázó hallgatói tantárgycsoport feladatként dolgozták ki. A hallgatók a helyi telepítő és korlátozó tényezők figyelembevételével komplex létesítményt terveztek: egy fél hektáros, zárt gyógynövénykert, valamint a kert a várossal és a közlekedési tengelyekkel összekötő előtérbe több, szabadon látogatható rekreációs teret. A Mesterprojekt végeredményeként ökológiai és tájképi szempontból illeszkedő és különböző látogatói érdeklődést

ABSTRACT

Senior students of the Landscape Architecture Masters programme writing their thesis at the Department of Landscape Protection and Reclamation (hereinafter: Department) conclude their education by participating in a so-called “Master Project”. The method of Master Projects is team supervision, the supervisors being lecturers of associated courses – Thesis Project 2, Landscape Restoration, Fitting into the Landscape – and other lecturers invited based on the topic. The plan, finished in a total of eight weeks (two weeks of workshops and six weeks of study period) is typically programme-level. Creating a concept is a collaborative task, but students also make individual designs for sub-tasks. Some important characteristics of Master Projects are that they are realistic, involving real clients and contributing professionals, provide real planning tasks, and include participatory elements and communication with local communities. In the autumn of 2022, the town of Szentendre reached out to the Department with a design topic that was highly compatible with Master Projects, the development of the area next to Kőhegyi Road (lot number 0181/6), in a different way from current zoning regulations. The location of the area on the settlement fringe, its zoning situation, the surrounding natural values as well as its partial designation as an ecological corridor all required careful preparation and a landscape-conservation-based approach. After preparing a site analysis, senior students writing their theses on the Department were included in the planning process. Based on the analyses and considering local restrictions and opportunities, the students designed a complex development – a half-hectare, closed herb garden and several freely accessible recreational facilities in the entry area connecting the garden with the town and transport routes. The proposal also decreases pressure on areas with high nature conservation value, with the management tasks of these valuable habitats also being appointed to the operator of the garden. Case studies provided an excellent basis for the concept of the herb garden, and based on experience, a design proposal was created that is sustainable, fits into its surroundings both

visually and ecologically and fulfils economic and visitor requirements alike.

Keywords: master project, herb garden, landscape protection, landscape integration, grassland

INTRODUCTION

The studio called Master Project is not explicitly named in the curriculum. It is a complex project for senior students that was created by lecturers of the Department of Landscape Protection and Reclamation by combining practical and design projects, reflecting real-life commissions. The Master Project has been an established education practice for years – for example, results of the projects in Biatorbágy (2016) [1] and Pécsbánya (2017) [2] have also been published in booklets. From an educational perspective, the Master Project is a group design method aimed at deepening the practical knowledge of students, which includes lecturers making preliminary studies to serve as the foundation for the individual design approaches the students later create. In this paper, we introduce our educational practice based on the example of the Master Project in 2022, the concept plan for the Szentendre Herb Garden (Figure 1).

MATERIALS AND METHODS

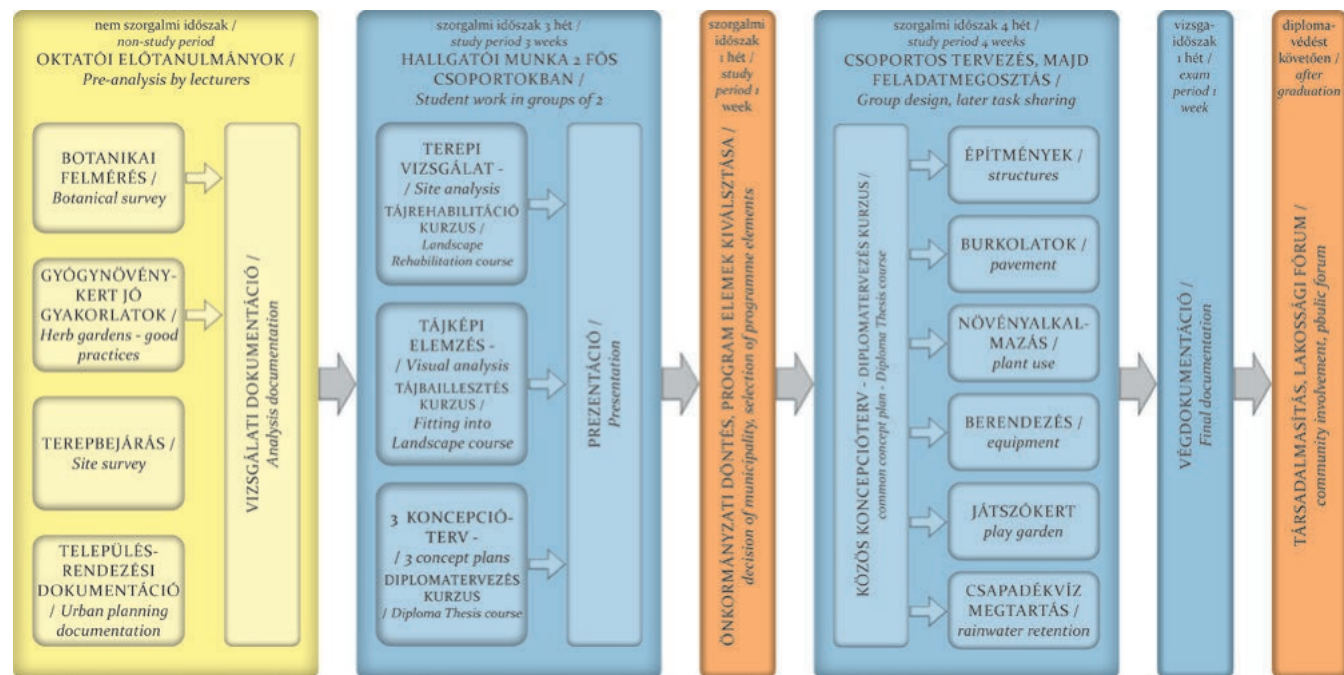
General description of the development area and the assignment

The development of the area next to Kőhegyi Road (lot number 0181/6) is owned by the city of Szentendre (Figure 2). The Local Regulation Plan [3] that determines the local building regulations and possible developments designates 1.1 hectares of the plot as a natural area (TK/1) while 1.67 hectares are zoned as a special sports area (K-Sp/2). Based on the study of historical maps, it can be presumed that the relatively wide hilltop has been used for arable farming and grazing over the past 200 years. On the adjacent hillsides, vineyards and orchards are also indicated on historical maps.

Currently the lot is covered with treeless arid grassland with a spontaneously increasing shrub cover. An

1. ábra/Fig. 1: A Szentendrei Ökológiai és Gyógynövény-élménykert Mesterprojekt készítés folyamata, oktatási programba illesztése / Planning process of the Szentendre Ecological and Herb Experience Garden Master Project and its place in the educational programme
2. ábra/Fig. 2: A tervezési terület elhelyezkedése / Location of the design area

SZERK. MÓDOSNÉ BUGYI ILDIKÓ / EDITED BY ILDIKÓ MÓDOSNÉ BUGYI



kielégítő, valamint gazdaságossági szempontokat is figyelembe vevő megoldás született.

Kulcsszavak: mesterprojekt, gyógynövénykert, tájvédelem, tájbaillesztés, szárazgyepek

BEVEZETÉS

A Mesterprojektnek keresztelt stúdiót nem nevesíti a terv. Ez a Tájvédelmi és Tájrehabilitációs Tanszéken az oktatók elhatározásából született és a tervezési gyakorlatok összefogásával létrehozott, valamint külsős megkeresésekre reflektáló komplex feladat végzős hallgatóink számára. A Mesterprojekt már több éve bevezetett oktatási gyakorlat, többek között a *Biatorbágy, Város és táj kapcsolata* (2016) [1], valamint a *Pécsbánya a mi szemünkkel* (2017) [2] kiadványok foglalták össze az adott évben született feladat-megoldásokat. Oktatási szempontból

a Mesterprojekt a szakmai tudás alkalmazását elmélyítő csoportos tervezési módszer, ahol az oktatók saját előkészítő vizsgálatokkal alapozzák meg a hallgatói megközelítések egyéni fejlesztő vezetését. A továbbiakban a 2022. évi Mesterprojekt, a Szentendrei Gyógynövénykert koncepciótervének példáján keresztül ismertetjük oktatási gyakorlatunkat (1. ábra).

ANYAG ÉS MÓDSZER

A fejlesztési terület és feladat általános leírása

A Kőhegyi út mellett fekvő Hrsz 0181/6 telek Szentendre város tulajdonában áll (2. ábra). A Helyi Építési Szabályzat [3] az országos ökológiai hálózatba sorolt 1,1 ha nagyságú telekrészen természetközeli területet (TK/1), míg az azon kívüli 1,67 hektáros területen beépítésre szánt különleges sportterületet (K-Sp/2) jelez. Történeti térképek vizsgálata



asphalt roundabout and parking lot with 24 parking spaces is wedged into the area as well. The arid grassland forming the primary vegetation of the lot typically occurs in the region in places formerly occupied by vineyards. Secondary succession causes a slow increase in shrub cover in the grassland - the appearance of flowering ash (*Fraxinus ornus*) and downy oak (*Quercus pubescens*) seedlings indicate the potential vegetation. Wind-dispersed seedlings of Scots pine (*Pinus sylvestris*) have also entered the grassland from the neighbouring pine plantation. Apple (*Malus domestica*) and cherry plum (*Prunus cerasifera*) trees are present as remnants of former orchards, primarily in the stand of trees next to Kőhegyi Road. Invasive species, especially tree-of-heaven (*Ailanthus altissima*) are rapidly advancing from the direction of Szegfű Street. Current land use is characterised by relatively intensive recreational use (dog walking, sports,

hiking), but at the fringes of the study area (Kőhegyi Street), occasional through traffic (cars and vans) also occurs.

The soil of the design area is predominantly carbonaceous brown earth, formed on a loess sediment, with a topsoil rich in rock debris [4-5]. The potential vegetation of the area is *Quercus cerris* - *Quercus petraea* woodland [6], but phytogeographically its broader region (the municipal area of Szentendre) is in the transitional zone between the valley of the Danube and the mountains, on the border of three floristic districts. The richness of its vegetation and flora can also be attributed to its location, with characteristic habitats and species of all three districts occurring here.

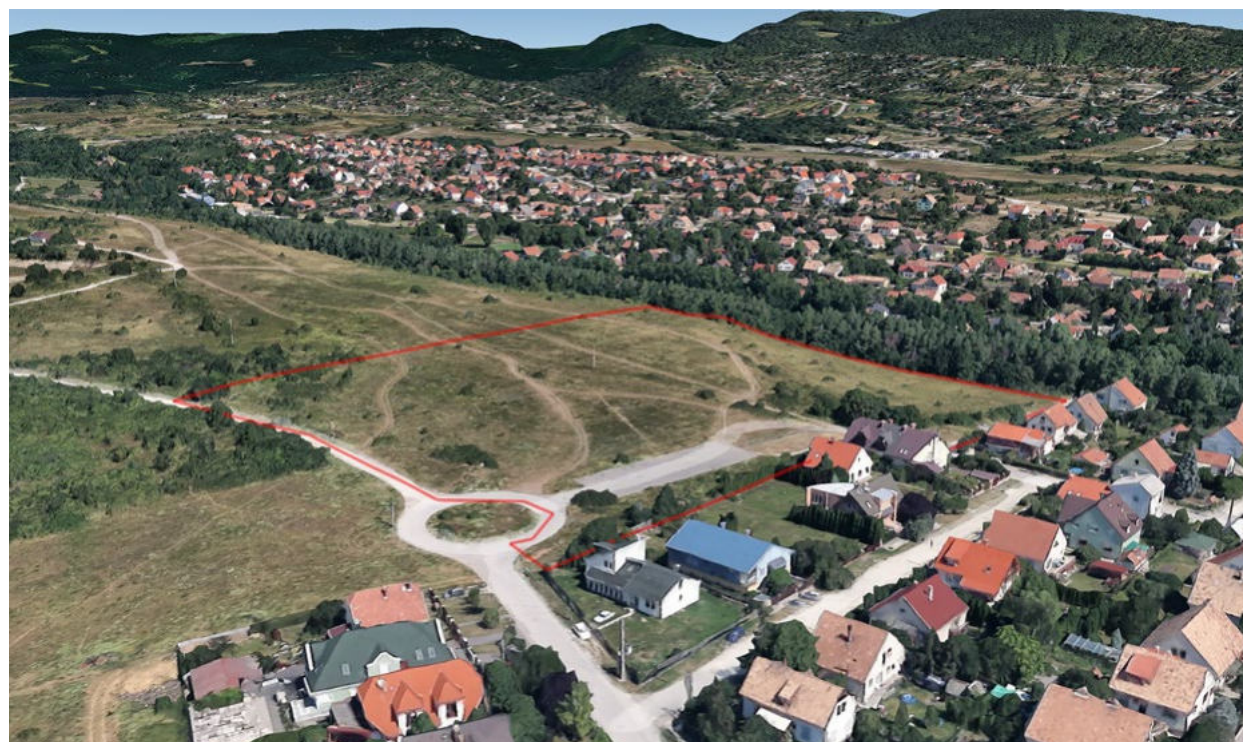
The design area is located in a fringe position visually, and can be considered as a gateway to the settlement (Figure 3). It serves as one of the most important entry

3. ábra/Fig. 3: A tervezési helyszín elhelyezkedése a település szegélyén /
 Location of the design area on the settlement fringe

PHOTO BY BÁLINT LACH, USING 2022 GOOGLE EARTH 3D / KÉSZÍTETTE: LACH BÁLINT, 2022
 GOOGLE EARTH 3D FELHASZNÁLÁSÁVAL

4. ábra/Fig. 4: Védett növényfajok előfordulása / Occurrence of
 protected plant species

KÉSZÍTETTE: GERGELY ATTILA / AUTHOR: ATTILA GERGELY



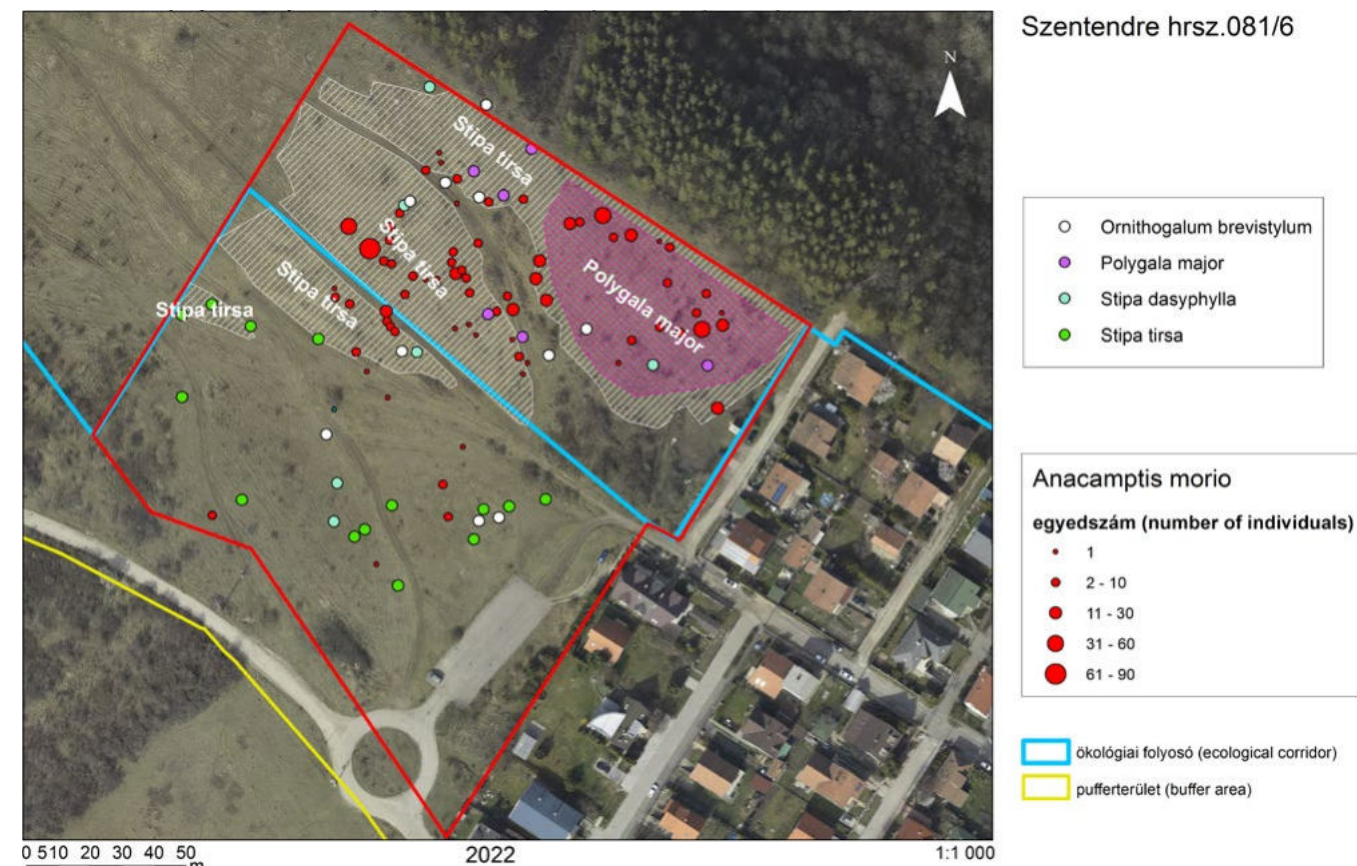
alapján a viszonylag széles dombháton szántó művelés és legeltetés feltételezhető az elmúlt 200 évben, míg a szomszédos domboldalakon szőlő- és gyümölcsstermesztést is jelölnek az egykori térképek.

Jelenleg a telek felszínét jellemzően fátlan, cserjésedő szárazgyep borítja, illetve a területbe egy aszfalt burkolatú körforgalom, valamint egy 24 férőhelyes parkoló is beékelődik. A területet elsődlegesen borító szárazgyep a térségben általánosan a korábbi szőlőkultúrák helyén alakult ki. A szárazgyepben a másodlagos szukcesszió során lassú cserjésedés figyelhető meg. A potenciális vegetációra utal a virágos kőris (*Fraxinus ornus*) és a molyhos tölgy (*Quercus pubescens*) megjelenése. A gyeppen a szélllel könnyen terjedő erdeifenyő (*Pinus sylvestris*) magoncjai, csemétéi is megjelentek a szomszédos ültetett fenyves irányából. Az egykori gyümölcsösök maradványaként jelennek meg az alma (*Malus domestica*) és mirabolán (*Prunus cerasifera*) faegyedek, elsősorban a Kőhegyi út melletti facsoportban. A Szegefű utca irányából jelentős az inváziós fajok, elsősorban a bálványfa (*Ailanthus altissima*) térnyerése. A jelenlegi területhasználatra jellemző a viszonylag intenzív rekreációs tevékenység (kutyasétáltatás, sportolás, túrázás), de a tervezési terület határán

(Kőhegyi u.) alkalmanként átmenő forgalom is megjelenik (személygépkocsi, kisteherautó).

A tervezési terület talaja löszös üledéken keletkezett, felszíntől karbonátos barnaföld, termőrétege közettörmelekes [4-5]. A terület potenciális vegetációja a cseres-tölgyes [6], azonban a növényföldrajzi tagolódás alapján a tágabb térség (Szentendre határa) a Duna völgye és a hegyvidék közötti átmeneti zónában, három flóraidék találkozásánál fekszik. Növényzetének és flórájának gazdagsága is fekvésének köszönhető, mindhárom tájegység jellegzetes élőhelyei, fajai megjelennek itt.

A tervezési terület tájképi értelemben is szegély helyzetben áll és kapu szerepet tölt be (3. ábra). A távolabbról és a településről érkező gyalogos turisták számára is ez a Visegrádi-hegységbe vezető egyik legjelentősebb útvonal belépési pontja, egyben a gépjárművel történő megközelítés végállomása, valamint a jelenlegi beépítés határa is. A terület rálátás és kilátás szempontjából egyaránt érzékeny, frekvenciált, ezért a tájbaillesztést igazoló dokumentáció műszaki követelményeiről szóló szabvány [7] módszertanának megfelelően az 10 000 méteres, 1500 méteres, valamint 150 méteres vonzáskörzetben a terület vizuális kapcsolatát, tájképi adottságait is vizsgáltuk.



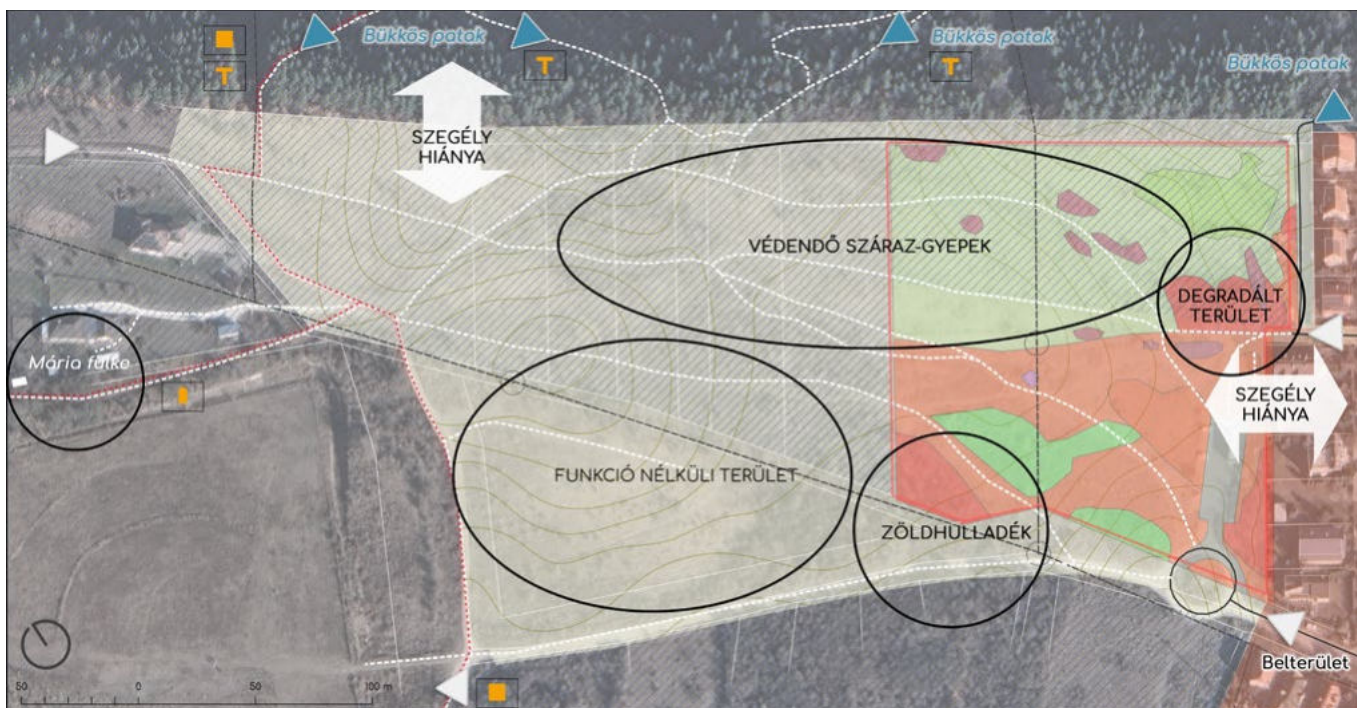
points to the Visegrád Mountains for hikers coming either from afar or from Szentendre, the furthestmost point of access by vehicle, as well as the current boundary of built-in areas. The view from the location, as well as its appearance in the landscape, are significant and sensitive, therefore visibility analyses were necessary to establish the design process. The analysis included the assessment of visual connections and landscape characteristics of the design area in surrounding 10,000-metre, 1,500-metre and 150-metre zones, in accordance with the Hungarian standard MSZ 20378:2018 regulating the technical requirements of documentation for fitting objects into the landscape [7].

ESSENTIAL RESULTS OF THE SITE ANALYSIS – BASED ON STUDIES CONDUCTED BY LECTURERS

We considered the exquisite 180-degree panoramic view from the study area towards the Southern range of Visegrád Mountains as a defining characteristic. The design area is clearly visible from surrounding peaks (Nyerges-hegy 558 m a.s.l., Málnás-hegy 535 m a.s.l., Nagy-Kevély 534 m a.s.l.), as well as from the top of nearby Kő-hegy

Mountain. The view from the study area is obstructed by an area of pine woodland to the north and northeast and the green fringe of surrounding residential areas to the south and southeast, but the pylons of the Megyeri Bridge are clearly visible to the South. Aesthetically unpleasant elements – utility poles, scattered buildings – appear individually in the landscape. The visibility analysis concluded that fitting all proposed objects into the landscape must be a basic requirement in the design process, and that the preservation of the view towards the mountains must be prioritised. The analysis concluded that the preferred position of new development is at the side of the study area connected to existing built-up areas.

Site visits resulted in the discovery of populations of five protected plant species (Figure 4): green-winged orchid (*Anacamptis morio*), the star-of-Bethlehem species *Ornithogalum brevistylum*, the milkwort *Polygala major* and the feather grasses *Stipa tirsia* and *Stipa dasyphylla*. Assessment of social behaviour types of all identified species (8g) revealed that disturbance tolerant (DT) and weed (W) species are typically present in the southern disturbed (trampled) grassland, while the nature conservation value of the northern grassy area (belonging to



A HELYZETFELTÁRÁS LÉNYEGI EREDMÉNYEI – OKTATÓI ELŐTANULMÁNYOK ALAPJÁN

Meghatározó adottságnak értékeltük, hogy a tervezési területről mintegy 180 fokban pompás panoráma tárul fel a Visegrádi-hegység déli hegyvonulata irányába. A környező magaslatokról (Nyerges-hegy (558 m), Málnás-hegy (535 m), Nagy-Kevély (534 m) és a közeli Kő-hegyről (366 m), szintén jó rálátás nyílik a tervezési területre. Észak, északkelet felől fenyves erdőszáv, dél-délkelet felől a szomszédos lakóterület zöld szegélye korlátozza a látványt, ugyanakkor déli irányban a Megyeri híd pilonjai már akadálytalanul láthatók. A tájképi elemzés rámutatott, hogy a tervezésnél alapvető kritérium a javasolt objektumok tájba simuló kialakítása, emellett kiemelt szempont a hegyek felé feltáruló látvány

megőrzése, így a fejlesztések pozicionálása a tervezési terület településhez csatlakozó oldalán javasolható.

A terepbejárások során 5 védett növényfaj került elő (4. ábra), ezek: agárkosbor (*Anacamptis morio*), nyúlánk sárma (*Ornithogalum brevistylum*), nagy pacirtafű (*Polygala major*), hosszúlevelű árvalányhaj (*Stipa tirsia*), bozontos árvalányhaj (*Stipa dasphylla*). A feltárt fajkészlet (89 faj) szociális magatartás-típusait (SZMT) értékelve megállapítottuk, hogy a zavarástűrő (DT) és gyomfajok (W) zóme a déli, taposott/zavart gyepekben figyelhető meg, az északi gyepek (az ökológiai folyosóba eső rész) természetvédelmi értéke pedig kiemelkedő [8]. A felmért élőhelyek természetességét/degradáltságát a Németh-Seregélyes-féle ötfokozatú skála alapján minősítettük [9-10].

Összességében megállapítottuk, hogy a tervezési terület a fajkészletét és az állományképét tekintve két részre osztható és jellegzetesen eltérő képet mutat. A „déli

◀◀5. ábra/Fig. 5: Árvalányhajás gyepek a tervezési terület északi részén / Maidenhair grass meadow on the northern part of the area

KÉSZÍTETTE: GERGELY ATTILA DRÓNFEKVÉTEL / DRONE PHOTO BY ATTILA GERGELY

◀◀6. ábra/Fig. 6: Tervezési szempontok / Design aspects

SZERK. LACH BÁLINT / EDITED BY BÁLINT LACH

7. ábra/Fig. 7: Fejlesztési koncepcióterv, készítette: Lach Bálint, Selymes Sára / Development concept plan by Bálint Lach, Sára Selymes



the ecological corridor) is outstanding [8]. The naturalness/degradation of habitats was assessed based on the Németh-Seregélyes five-point scale [9-10].

Ultimately, we determined that the two sides of the former pastureland are distinctly different in terms of species pool and physiognomy. The “Southern Grassland” is characterised by few species, a high proportion of disturbance-tolerant and weed species, as well as large mosaic patches and often monodominance. Based on the same characteristics (species pool, physiognomy), the “Northern Grassland” shows more complete regeneration and can be considered semi-natural (Figure 5). This area has higher species richness and boasts significant populations of protected plant species. The border between the two grassland types is approximately the same as the boundary of the ecological corridor of the National Ecological Network [11].

In our botanical assessment, we drew attention to the threats posed by abandoning grassland management practices (e.g. cessation of grazing or mowing) to the habitats of the area. The regeneration potential of the arid habitats in the area, especially grasslands on shallow, fast-drying topsoil, is low, which means that degraded areas can only regenerate very slowly.

Nevertheless, patches of native scrub and woodland species are also highly valuable, both as landscape elements and as habitats. Because of this – and especially for the protection of local fauna (particularly insects and birds) – these vegetation patches also need to be conserved.

Based on the experience gathered by lecturers visiting herb gardens, the potential nature and scale of the development emerged. Out of the four visited sites (oral sources) we found the operation and design [12] of the



gyepet" a fajszegénység, a zavarástűrő, ill. gyomfajok magas aránya, illetve a nagy foltos mozaikosság, és ezen belül sok helyen a monodominancia jellemzi. Az „északi gyep” ugyanezen jellemzők (fajkészlet, állománykép) alapján jobban regenerált, természetközeli állapotúnak minősíthető (5. ábra). Ez utóbbi részterület viszonylag fajgazdag, és védett növényfajok jelentős állományában is bővelkedik. A két gyep típus határa körülbelül egybeesik az OÖH ökológiai folyosó határával [11].

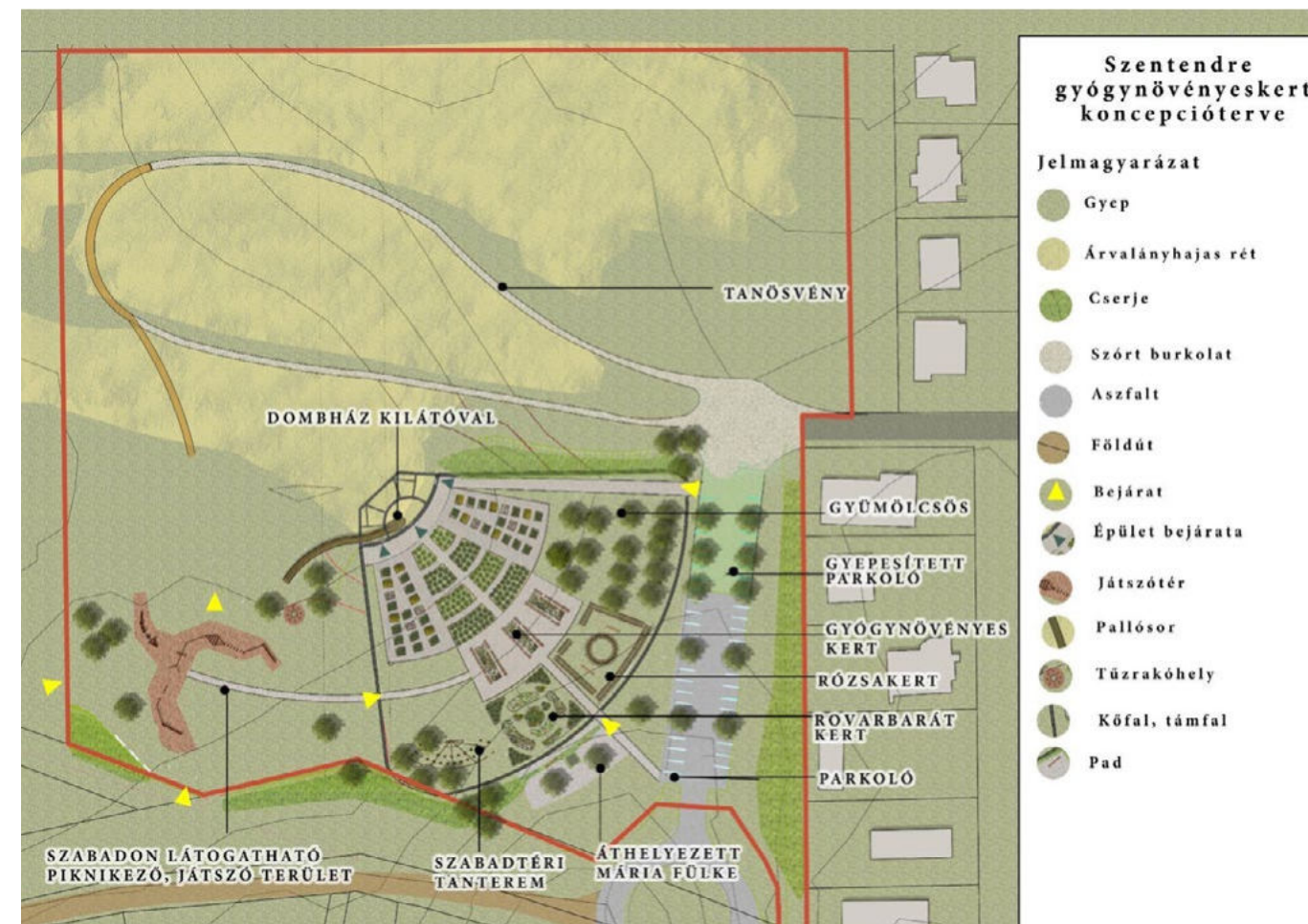
A botanikai értékelésben felhívtuk a figyelmet arra is, hogy a gyepművelés felhagyása (pl. a korábbi legeltetés vagy kaszálás megszüntetése) önmagában is veszélyeztető tényező a terület élőhelyei számára. Az itt található száraz élőhelyek, különösen a sekély, könnyen kiszáradó talajú gyepvegetáció regenerációs potenciálja alacsony, így az esetlegesen károsodott területek regenerálódása csak igen lassan megy végbe.

Mindemellett az őshonos fajokból álló cserjésedő-erdősődő foltok szintén jelentős értéket képviselnek, mind tájképi, mind élőhelyi szempontból. Ez utóbbi miatt – az állatvilág (elsősorban a rovar- és madárvilág) védelme érdekében – ezek a növényzeti foltok szintén kímélendők.

Az oktatói gyógynövénykert-látogatások alkalmával szerzett tapasztalatok alapján kibontakozott a fejlesztés lehetséges léptéke és jellege. A felkeresett négy helyszín közül a halimbai Szalai Miklós Gyógynövényeskert Bemutató és Oktatóközpont kialakítását [12] és működését éreztük a leginkább irányadónak. Így a gyógynövénykert nagyjából fél hektár körüli méretét, extenzív, ugyanakkor sokszínűsége törekvő jellegét, elsősorban környezeti nevelési és reformélelmény oktatási céljait, továbbá a gyógynövények feldolgozásának helyi fogyasztást és felhasználást célzó mértékét találtuk Szentendrén is követendő mintának.

8. ábra/Fig. 8: Fejlesztési koncepcióterv, készítette: Gyöngyösi Eszter, Gyöngyösi Kevin / Development concept plan by Eszter Gyöngyösi, Kevin Gyöngyösi

9. ábra/Fig. 9: Fejlesztési koncepcióterv, készítette: Hetényi Renáta, Szűcs-Józsa Sára / Development concept plan by: Renáta Hetényi, Sára Szűcs-Józsa



Miklós Szalai Herb Garden in Halimba to be the most influential in solving the task. We considered its approximate size of around half a hectare, low-intensity yet diverse character, primary focus on environmental and lifestyle education, and scale of herbal product production designed to satisfy local demands as examples worth following.

APPLICATION OF RESULTS – DEVELOPMENT OF DIFFERENT CONCEPT PLANS BY STUDENTS

The Master Project was designed by a group of six students (Eszter Gyöngyösi, Kevin Gyöngyösi, Renáta Hetényi, Bálint Lach, Sára Ajnácska Selymes, Sára Szűcs-Józsa) attending the Landscape Architecture Master's programme and preparing their theses at the Department of Landscape Protection and Rehabilitation. They conducted

the identification of herb and native species found in the area, as well as the analysis of traditional cultivated species. As a result of their work, an initial plant list consisting of 29 species was compiled for the selection of recommended herbs. They also recognised that nearby gardens and abandoned orchards still contain valuable heritage cultivars and old fruit-bearing species ('Besztercei' plum, 'Kálmán' and 'Szegefű' pears, 'Nyári fontos' apple and several cultivars of currants and grapes).

Based on the analyses conducted by lecturers and the students themselves (Figure 6), the design teams developed three different development concept plans (Figure 7-9).

From the proposals contained in the three concept plans, differing from each other in many aspects, the municipality selected the following for further development and finalisation:



10. ábra/Fig. 10: A Szentendrei Ökológiai és Gyógynövény élménykert átnézeti helyszínrajza / Site plan layout of the Szentendre Ecological and Herb Garden

SZERK. SZÜCS-JÓZSA SÁRA / EDITED BY SÁRA SZÜCS-JÓZSA

EREDMÉNYEK ALKALMAZÁSA – HALLGATÓI KONCEPCIÓTERV ALTERNATÍVÁK KIDOLGOZÁSA

A területen fellelhető gyógyhatású és őshonos növényfajok meghatározását, valamint a hagyományos természetfajok feltárását a Mesterprojektet készítő 6 fős végzős hallgatói csoport (Gyöngyösi Eszter, Gyöngyösi Kevin, Hetényi Renáta, Lach Bálint, Selymes Sára Ajnácska, Szűcs-Józsa Sára) végezte. Munkájuk eredményeként 29 fajt tartalmazó kiinduló növénylista állt össze a javasolható gyógynövények kiválasztásához. Megállapították

azt is, hogy a szomszédos házikertekben és a felhagyott gyümölcsösökben található még megmentésre érdemes tájfajták, régi gyümölcsfajták (besztercei szilva, a Kálmán- és a szegfű körte, a nyári fontos alma, illetve a különböző ribiszke és csemegezőlő fajták).

Az oktatói és saját vizsgálati eredményekre támaszkodva (6. ábra) a hallgatói tervezőpárok három különböző fejlesztési koncepciótervet (7-9. ábra) dolgoztak ki.

Az önkormányzat a három, egymástól sok tekintetben eltérő koncepció javaslatából a következőket választotta ki tovább dolgozásra, véglegesítésre:

- Preservation and maintenance of valuable areas, installing new functions on areas requiring rehabilitation.
- Development consisting of both openly accessible and restricted access elements.
- Visitor centre in the shape of a hill-house and lookout
- Installation of other open and closed garden facilities
- Herb plantation in the shape of a leaf
- Creation of an open entry area and educational trail.

PLANNED FUNCTIONS AND APPEARANCE – THE FINAL CONCEPT PLAN

The fundamental task was to determine a garden size that allows comfortable access, separates conflicting functions and is economically sustainable. Considering references and restrictions, the students finalised the size of the herb garden at half a hectare and placed it in the southern part of the design area (Figure 10) [13].

The entrance of the herb garden, with the creation of a small entry area, is aligned with the existing roundabout and parking lot. The pathway from the entrance to the visitor centre divides the herb beds into two sections, with drought-tolerant herbs in the southern bed and plants with higher water demands in the northern bed (Figure 11). To serve as habitat for plants requiring more water and to soften water for irrigation, a 60 m² garden pond is planned in the forecourt of the visitor centre. The herb beds and their network of paths form a characteristic spatial element in the shape of sage leaves.

The visitor centre is located at the highest point of the development area. The aim was for the new buildings to fit into the landscape and have minimal impact on the views from the surrounding mountains. Therefore, the visitor centre was designed as a single-storey, circular hill-house, turning its entrance towards the south (towards the town). This solution allows the building to remain hidden from the hillside, under a grassy green roof (Figure 12).

The hill-house is also a built boundary between the valuable habitat and the herb garden, with a hidden rooftop lookout freely accessible from the trail. The elevation, nearly five meters above the original ground level, allows

for unobstructed views of the nearby herb beds and distant landscapes.

On the eastern side of the hill-house, a wooden outdoor classroom was designed. The two facilities are separated by elevated beds designed for people with reduced mobility (Figure 13).

In addition to a harmonious appearance, the use of natural local architectural materials and paving (such as local stone, brick-like Barabás stone, stone chippings, pine mulch and wood) is proposed, to help landscape integration and adherence to local architectural traditions. The principles of landscape integration for eco-tourism facilities [14] were followed in the design of the herb garden.

The herb garden is fenced. Wooden pergolas combined with grapevines and rose arches, as well as resting benches, serve as boundary markers on the southern sections, while on the side facing the car park, plant-covered fencing fulfils this role. There is a proposal to plant a significant number of trees to serve a landscaping function.

The programme of the herb garden is complemented by a standalone collection of heritage fruit cultivars from Szentendre, which also serves as a closing element of the town's road network. A freely accessible playground is connected to the herb garden from the direction of the hiking trail. Natural materials and forms were prioritized in the selection of playground equipment.

CONCLUSION AND DISCUSSION OF RESULTS

According to the feedback received, the site analysis and design proposal created in the 2022 Master Project completely satisfied the demands of the client and received popular support in a community forum as well.

It can be ascertained that preliminary analyses conducted by lecturers were necessary to develop well-founded proposals, and they were sufficient to initiate the independent work of students. The inclusion of the Duna-Ipoly National Park Directorate in the planning process was crucial to ensure professional oversight.

The presentation and discussion of concept plans facilitated the decision-making process of the municipality.

11. ábra/Fig. 11: Tervezett madártávlati látvány déli irányból / *Bird's eye view of the planned garden from the South*

SZERK. LACH BÁLINT / EDITED BY BÁLINT LACH

12. ábra/Fig. 12: A központi épület, dombház látványa északi irányból / *View of the proposed central building, the hill-house, from the North*

SZERK. LACH BÁLINT / EDITED BY BÁLINT LACH

13. ábra/Fig. 13: Kertrészlet külső oktató pavilonnal és akadálymentes ágyásokkal / *Detail of the garden with an educational pavilion and accessible beds*

SZERK. LACH BÁLINT / EDITED BY BÁLINT LACH



- Az értékes területek megtartása és kezelése, a rehabilitálható területekre új funkciók telepítése,
- Szabadon látogatható és korlátozottan látogatható elemekből álló fejlesztés,
- Fogadóépület dombházaként, kilátóként történő megformálása,
- Egyéb nyitott-fedett kert létesítmények, foglalkoztatók telepítése,
- A gyógynövény ültetvény levélforma kialakítása
- Külső fogadótér és tanösvény létesítése

TERVEZETT FUNKCIÓK ÉS MEGJELENÉS – VÉGLLEGES KONCEPCIÓTERV

A gyógynövénykert tervezésekor alapvető feladat volt a kényelmesen bejárható, az egymást zavaró funkciók elkülönítését lehetővé tevő, ugyanakkor gazdaságosan fenntartható kertméret meghatározása. Az előképek

és a helyszíni korlátozó tényezők figyelembevételével a gyógynövénykert méretét fél hektárban véglegesítették és a tervezési terület déli részére helyezték a hallgatók (10. ábra) [13].

A gyógynövénykert bejárata - egy kisebb fogadótér kialakításával - a meglévő körforgalomhoz és a parkolóhoz igazodik. A bejáratról a fogadóépülethez vezető út a gyógynövény-ágyásokat két részre osztja, a déli ágyásban szárazságtűrő, míg az északi ágyásban vízigényesebb gyógynövények kaptak helyet (11. ábra). A vízigényes növények élőhelyeként, illetve az öntözővíz lágyítására szolgál a fogadóépület előterébe tervezett 60 m²-es kerti tó. A gyógynövény-ágyások és úthálózatuk egy zsályalevél formát képezve meghatározó térszerkezeti elemként jelenik meg.

A fogadóépület a fejlesztésre kijelölt terület legmagasabb pontján kapott helyet. Cél volt, hogy az új létesítmény



However, the functions selected for the final design, originating in several different plans, created a serious dilemma for the design team. The harmonisation of elements and decisions about compositional principles were done with support from lecturers, as was the process of finding technical and ecological solutions.

The proposed development affects the vegetation in the less valuable (southern) areas and completely eliminates stands containing significant amounts of invasive species, replacing them with buildings, paved surfaces or designed plant communities. Students decided to keep existing shrubs in the entry square, the area between the parking lot and the residential area and along the dirt road leading towards Kő-hegy Mountain. These shrubs, mostly composed of native species, provide cover for the development area during the time of construction and can later be managed together with the vegetation of the

entire project area, as a harmonic compositional unit. The restoration of the native steppe vegetation is proposed for the part of the development area outside the herb garden, with the “northern” area designated as a reference.

The final concept plan proposes a complex of facilities, firmly based on ecological principles, which can also be used as a multifunctional community space and connects the built environment with its natural surroundings by providing services in a harmonized way.

The students felt that their experience with the educational practice described above was the capstone of their education. ©



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a tájképbe illeszkedve a lehető legkevésbé befolyásolja a környező hegyekről feltáruuló látványt. A fogadóépület ezért lett egyszintes, a bejáratával dél felé (azaz a település felé) forduló kör alaprajzú dombházként megformálva. Ezzel a megoldással az épület a hegyek irányából nézve, a gyepes zöldtető alatt rejtve maradhat (12. ábra).

A dombház egyben épített határ az értékes élőhely és a gyógynövénykert között, rejtett tetőszinti kilátója a tanösvény irányából szabadon megközelíthető. Az eredeti terepszinthez képest majdnem 5 méterre kiemelt magaslat lehetővé teszi a közeli (gyógynövénykert ágyásaira való rálátást) és távoli látványokban való időkorlát nélküli gyönyörködést.

A dombház keleti oldalán, de tőle függetlenül kialakítva kapott helyet a faszerkezetű kültéri nyitott-fedett tanterem. A két létesítményt a mozgáskorlátozottak számára készített magasított ágyások választják el (13. ábra).

A harmonikus megjelenés mellett a tájbaillesztést, illetve a helyi építészeti hagyományokhoz való illeszkedést szolgálja a természetes helyi építőanyagok és burkolatok (pl. helyi terméskő, téglá megjelenésű Barabás-kő, zúzottkő, fenyőmulcs, fa) javasolt alkalmazása. A tervezett gyógynövénykerten kívül és belül is az ökoturisztikai létesítmények tájba illesztésének alapelvei [14] szerint folyt a tervezés.

A gyógynövénykert körbekerített. A déli kerítésszakszokon térhatárolásként szőlő - és rózsaluvasokkal, valamint pihenőpadokkal kombinált, fából épített pergolák szolgálnak, a parkoló felől pedig a növényekkel befuttatott kerítés tölti be ezt a szerepet. Tájképi szempontból jelentős mennyiségben javasolt fák telepítése a lombkoronahiányos településszegély kiegészítése érdekében.

A gyógynövénykerti bemutatás programját a Szentendrere jellemző gyümölcs tájfajtaiból álló önálló gyűjteményes kert egészíti ki, amely a települési úthálózat záróelemeként is szolgál. A Kő-hegyre vezető turistaút felől szabadon látogatható játszókert csatlakozik a gyógynövénykerthez. A játszóeszközök kiválasztásánál a természetes anyagok és formák kerültek előtérbe.

ÖSSZEFOGLALÁS ÉS AZ EREDMÉNYEK MEGVITATÁSA

A 2022 évi Mesterprojekthez kapcsolódóan született helyzetfeltáró tanulmány és javaslati tervdokumentáció a visszajelzések alapján a megrendelői elvárásoknak teljes mértékben megfelelt, valamint a lakossági fórumon is támogatást kapott.

Megállapítható, hogy a hallgatói munkát segítő oktatói előtanulmányok szükségesek voltak a megalapozott javaslatok kidolgozásához, ugyanakkor elégségesnek bizonyultak az önálló hallgatói munka elindításához. A szakmai kontroll szempontjából lényeges volt a Duna-Ipoly Nemzeti Park Igazgatóság bekapcsolódása is a tervezési folyamatba.

A koncepcióvázlatok bemutatása és megvitatása hatékonyan segítette az önkormányzati döntéselőkészítést. Ugyanakkor az, hogy a végleges kidolgozásra kiválasztott funkciók több tervből származtak, komoly esztétikai dilemma elé állította a tervező csapatot. A részletek formai összhangjának megteremtése, a főbb kompozíciós elvek kiválasztása ismét oktatói támogatással történt, ahogy a műszaki és ökológiai megoldások kidolgozása is.

A javasolt fejlesztések a természetvédelmi szempontból kevésbé értékes (déli) részterület növénytakaróját érintik: beépített, vagy burkolt felületté, vagy tervezetten beültetett növényfelületté alakulnak, teljes mértékben felszámolják az inváziós fajokkal leginkább érintett növényfoltokat. A meglévő cserjefoltok a fogadótéren, a parkoló beépítés felőli oldalán, valamint a Kő-hegyre vezető földút mentén maradnak meg. Ezek, a többnyire őshonos fajokból álló foltok a fejlesztés időszakában takarást biztosítanak a beavatkozási területnek, és később a teljes terület növényállományával közösen és harmonikus kompozíciós egységben kezelhetők. A fejlesztési terület gyógynövénykerten kívüli részén a sztyepprért helyreállítása szükséges és javasolt, referenciaterületként az északi részterület (OÖH) jelölhető meg.

A koncepcióterv végeredménye egy olyan ökológiai szempontból megalapozott létesítmény-együttes lett, amely multifunkcionális közösségi térként is használható, valamint az épített környezetet harmonikusan és sok szolgáltatóval vezeti át a természeti környezetbe.

A hallgatók a fent vázolt oktatási gyakorlatban szerzett tapasztalataikat képzésük koronájaként ítélték meg. ©

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A TÁJBAILLESZTÉS AKTUÁLIS KIHÍVÁSAI MAGYARORSZÁGON

CURRENT CHALLENGES OF LANDSCAPE INTEGRATION IN HUNGARY

BOROMISZA ZSOMBOR | FÖLDI ZSÓFIA | ERDEI TÍMEA |
VALÁNSZKI ISTVÁN | NÁDASY LÁSZLÓ ZOLTÁN

ABSZTRAKT

Jelen írás célja áttekinteni a hazai tájvédelem aktuális kihívásait, korlátozó tényezőit, tipikus jelenségeit elsődlegesen egyes beruházások tájbaillesztésére koncentrálnva, gyakorlati példákra építve. A cikk a Szerzők tájvédelmi szakértői tapasztalatait összegzi, elsődlegesen beruházások engedélyezéséhez kapcsolódó tájvédelmi feladatok elvégzésére építve. A felvetéseket az elmúlt 5 évben (2018-2023) született 10 db környezeti hatástanulmány tájvédelmi munkarésze, 16 db előzetes vizsgálati dokumentáció tájvédelmi munkarésze, 13 db tájbaillesztési tanulmány, 11 db egyéb tájvédelmi szakértői állásfoglalás, szakvélemény elkészítése után fogalmaztuk meg. Eredményeink alapján a tájbaillesztési tanulmányokon a legtöbb esetben az esztétikai szempontú megközelítés, tájbaillesztettség, ezen belül is a láthatóság részletes vizsgálatát értik a környezethasználók, hatóságok. A fogalomhasználat területén különösen sok a bizonytalanság a vizsgálandó/frekventált nézőpontok értelmezése, a tájképi / elvi vizuális / vizuális hatásterület, közvetett/közvetlen hatásterület meghatározásának módszere tekintetében. Jelentős problémának látjuk, hogy bizonyos beruházások (pl. napelemparkok, adótoronyok / bázisállomások) eleve

nem / alig tájbailleszthetőek a méreteikből adódóan (alapterület, magasság), illetve anyaghasználatuk, felületképzésük miatt. Ebben az esetben különösen igaz, hogy a tájbaillesztés a helykiválasztással kezdődik.

Kulcsszavak: tájvédelem, tájbaillesztés, tájbaillesztési tanulmány, tájvizsgálat, tájvédelmi szakértő

BEVEZETÉS

A hazai tájvédelem elméletének és gyakorlatának fejlődését több mérföldkő jellemezte az elmúlt 30 évben. A tájvédelem nemzetközi szintű felértékelődése jelentős részben az Európai Tájégyezmény [1] megszületéséhez köthető (2021-től a megnevezése: Az Európa Tanács Táj Egyezménye), számos eredmény született ebből levezethetően [2]. Az egyezmény Magyarországon 2008-ban lépett hatályba, majd 2017-ben készült el a Nemzeti Tájstratégia 2017-2026 [3-4].

A Táj Egyezmény az aláíró országok kötelezettségévé teszi a tájak számbavételét és értékelését, így a 1990-es évekre visszanyúló nagy-britanniai alapokra épülve számos országban indultak el tájkarakter-elemzések [5-6]. A hazai tájaink karakter alapú azonosításának

ABSTRACT

The aim of this paper is to review the current challenges, constraints and typical characteristics of landscape protection in Hungary, focusing primarily on the integration of certain investments into the landscape, based on practical examples. The paper summarises the authors' experiences as landscape protection experts, primarily based on their experience in carrying out landscape protection tasks related to the permitting of investments. The findings are based on ten environmental impact assessments, sixteen preliminary study documents, thirteen landscape integration studies and eleven other landscape expert studies, all of which were prepared in the last five years (2018-2023). Based on our results, in most cases, both users and authorities require landscape integration studies to include a detailed assessment of the aesthetic approach to landscape integration, including visibility. In the field of terminology, there is a particular uncertainty regarding the interpretation of the viewpoints to be investigated/exposed, as well as the method of defining landscape/visual impact area and the indirect/direct impact area. A major problem is that some development (e.g. solar-panel parks, transmission towers / base stations) are difficult or impossible to successfully integrate into the landscape, due to their size (footprint, height), use of materials or surface treatment.

Keywords: landscape protection, fitting into landscape, landscape integration study, landscape analysis, landscape protection expert

INTRODUCTION

Several milestones have been reached during the evolution of Hungarian landscape protection in the past thirty years, both in theory and practice. The increasing international attention towards landscape protection is largely due to the adoption of the European Landscape Convention [1] officially called the European Landscape Convention of the Council of Europe since 2021, which directly led to several breakthroughs [2]. The convention was ratified in Hungary in 2008, and the Hungarian Landscape Strategy 2017-2026 was completed in 2017 [3-4].

Adopting the Landscape Convention makes inventoring and assessing landscapes the responsibility of all signatory parties, therefore several countries started analysing their landscapes simultaneously using the theoretical basis laid down in the United Kingdom in the 1990s [5-6]. The landscape-based identification and description of Hungarian landscapes took place within the framework of a national-level landscape character study conducted between 2016-2021, itself one of the development elements of the project "Strategic Assessments supporting the long term conservation of natural values of

community interest as well as the national implementation of the EU Biodiversity Strategy to 2020" (project ID KEHOP 4.3.0-VEKOP-15-2016-00001), coordinated by the Ministry of Agriculture [7]. These precursors laid down several basic principles regarding approach, and constituted a major breakthrough in the fields of landscape analysis and landscape assessment, as well as establishing several new methods [8].

The main framework of landscape protection, as used in administrative nomenclature, is determined by Articles 6 and 7 of Act LIII of 1996 on Nature Conservation.

According to Article 7 (2): "In order to conserve the character of the landscape, the natural values, unique landscape features and aesthetic endowments:

a) provision shall be made for the integration into the landscape of new facilities (buildings, structures, installations and linear structures (roads, railways, telegraph wires, etc.)) on exterior areas of settlements, in order to harmonise them functionally and aesthetically with natural values and the artificial environment"

The responsibilities of the authorities regarding landscape protection are determined by the Jurisdiction Decree, which has been changed several times, and the current version of which is the Government Decree 625/2022.

One question that is highly relevant in Hungarian landscape protection practice is how the the level of integration into the landscape is judged and how it can be incorporated into the permission procedure. The Landscape Protection Manual, the latest version of which was published in 2014, was drawn up in 2005 to provide a professional framework for the landscape protection tasks, which is also linked to this process. It is a welcome development concerning impact assessments that Government Decree No. 297/2009 (XII. 21.) (about expert services in the fields of environmental protection, nature conservation, water management and landscape protection) regulated registered expert services in landscape protection. Ministry of Agriculture records show that as of 24 May 2023, there are 175 registered landscape protection experts in Hungary. In practice, it is currently necessary to prove registered expert status to work on environmental impact assessments and preliminary examination documents. However, the fact that the regulatory authority does not always have landscape protection professionals and registered experts creates an asymmetry between the expert and participants in the authorisation process.

Standards and guidelines regarding the landscape protection elements of environmental impact assessments are a very important starting point [9, 10]. A document was published in 2005 on the landscape protection and nature conservation aspects of wind turbine

és leírásának folyamata a 2016–2021 között zajlott tájka-
rakter-kutatás keretében, amely az egyik fejlesztési eleme
volt az Agrárminisztérium által koordinált „Közösségi
jelentőségű természeti értékek hosszú távú megőrzését
és fejlesztését, valamint az EU Biológiai Sokféleség Stra-
tégia 2020 célkitűzéseinek hazai megvalósítását megal-
pózó stratégiai vizsgálatok” című KEHOP 4.3.0-VEKOP-15-
2016-00001 azonosítószámú projektnek [7]. A fenti hazai
előzmények számos szemléleti alapelvet lefektettek, és
jelentős módszertani előrelépést jelentettek a tájvizsgálat,
tájértékelés területén, valamint számos további módszer
kidolgozását generálták [8].

A közigazgatási nomenklatúra szerinti tájvédelem
főbb tartalmi kereteit a természet védelméről szóló 1996.
évi LIII. törvény 6. és 7. §-a határozza meg.

7. § (2) alapján: “a táj jellege, a természeti értékek, az
egyedi tájértékek és esztétikai adottságok megóvása érde-
kében:

a) gondoskodni kell az épületek, építmények, nyom-
vonalas létesítmények, berendezések külterületi elhelye-
zése során azoknak a természeti értékek, a mesterséges
környezet funkcionális és esztétikai összehangolásával
történő tájba illesztéséről”

A hatóságok tájvédelmi feladatait a többször módosult
hatásköri rendelet határozza meg, amelynek hatályos ver-
ziója a 625/2022. (XII. 30.) Korm. rendelet.

A hazai tájvédelmi gyakorlat szempontjából igen
releváns az egyes létesítmények tájbaillesztének meg-
ítélése és ezek engedélyezési folyamatba integrálása.
A tájvédelmi feladatok ellátásának ehhez a folyamat-
hoz is kapcsolódó szakmai kereteiről 2005-ben született
a Tájvédelmi Kézikönyv, amelynek 2014-ben jelent meg
a legutóbbi változata. A hatástanulmányok esetén igen
örvendetes, hogy a 297/2009. (XII. 21.) Korm. rendelet (a
környezetvédelmi, természetvédelmi, vízgazdálkodás és
tájvédelmi szakértői tevékenységről) szabályozza a tájvé-
delmi szakértői jogosultságot. Az Agrárminisztérium nyil-
vántartása szerint 175 tájvédelmi szakértő van hazánkban
(2023.05.24-i adat), a gyakorlat szerint valóban szüksé-
ges a szakértői jogosultság igazolása a környezeti hatás-
tanulmányok, előzetes vizsgálati dokumentációk készí-
tése során. Az engedélyezési folyamatok szereplői és a
szakértő között ugyanakkor asszimetriát teremt, hogy a
véleményező/engedélyező hatóság nem minden esetben
rendelkezik tájvédelemhez kapcsolódó végzettséggel, táj-
védelmi szakértői jogosultsággal bíró szakemberrel.

A környezeti hatástanulmányok készítésének táj-
védelmi részeivel kapcsolatos elvárások és útmutatók
fontos kiindulási pontot jelentenek [9, 10]. Ilyen például a
Szélerőművek elhelyezésének táj- és természetvédelmi
szempontjaira 2005-ben készült kiadvány [11]. Igen elő-
remutató a 2018-ban született A tájba illesztést igazoló
dokumentáció műszaki követelményeit rögzítő szabvány

[12], valamint 2019-ben a MATE Tájvédelmi és Tájrehabili-
tációs Tanszékén elsőként készült tájbaillesztési módszer-
tani útmutató – ökoturisztikai létesítményekre koncent-
rálva [13].

A fenti törekvések, tudományos eredmények [7], az
egymással részben átfedő, illetve az 1990-es évtől kiala-
kult fogalomrendszerrel [14-16] eltérő szakkifejezéseket
használó jogszabályok, útmutatók, szabványok, stratégiák
[17-19] megszületése mellett a hazai tájvédelem számos
kihívással néz szembe. A táj karakterét, a táj szerkezetét,
a táj használatát, a tájpotenciált, a tájképet, településké-
pet szinte minden ágazat (mezőgazdaság-vidékfejlesztés,
energetika, területfejlesztés és -rendezés, településfejlesz-
tés és -rendezés, vízgazdálkodás, erdőgazdálkodás, kör-
nyezet- és természetvédelem stb.) változásai befolyásol-
ják, valamint a globális, regionális trendek lenyomatát is
viseli a táj (pl. demográfiai folyamatok, éghajlatváltozás).
Az elmúlt 5 év meghatározó jelenségei közé soroljuk a
napelemparkok fokozódó megjelenését, a külterületi lakó-
illetve üdülési funkciójú beépítéseket, a nagy tavak, holtá-
gak – akár védett természeti területek, vagy az ökológiai
hálózathoz tartozó szakaszok – parti sávjában nagy inten-
zítású beépítéseket, a táji léptékű vízepítési beruházaso-
kat, a magas építményeket (mobiltelefon bázisállomások),
ökoturisztikai beruházásokat (kerékpárutak, látogatóköz-
pontok, kilátók, lombkoronasétányok stb.).

Az elemzés célja áttekinteni a hazai tájvédelem aktu-
ális kihívásait, korlátozó tényezőit, tipikus jelenségeit
elsődlegesen egyes beruházások tájbaillesztésére kon-
centrálva, tájvédelmi szakértői szempontból, gyakorlati
példákra építve.

ANYAG ÉS MÓDSZER

Jelen írás a Szerzők tájvédelmi szakértői tapasztalatait
összegzi, elsődlegesen beruházások engedélyezéséhez
kapcsolódó tájvédelmi feladatok elvégzésére építve. Az
alábbi felvetéseket az elmúlt 5 évben (2018-2023) szüle-
tett 10 db környezeti hatástanulmány tájvédelmi munka-
része, 16 db előzetes vizsgálati dokumentáció tájvédelmi
munkarésze, 13 db tájbaillesztési tanulmány, 11 db egyéb
tájvédelmi szakértői állásfoglalás, szakvélemény (pl. kör-
nyezetvédelmi felülvizsgálat, építési engedélyezési doku-
mentáció, településrendezési tervmódosítás részeként)
elkészítése után fogalmaztuk meg. A felvetéseket a foga-
lomhasználattal, az esztétikai tájbaillesztéssel, és a spe-
ciális szituációkat érintő tájrészletek (belterület, védett
természeti terület) bontásában ismertetjük. A tájbaillesz-
tés fogalmát – a tájba illesztést igazoló dokumentáció
műszaki követelményeit rögzítő szabványnak [12] megfe-
lelően ökológiai, funkcionális, esztétikai adottságokhoz
igazításra egyaránt értjük, ugyanakkor a gyakorlatban fel-
merülő szakmai kérdések miatt elsődlegesen az esztétikai
tájbaillesztésre koncentrálnunk jelen cikkünkben.

installation [11]. The 2018 standard regulating the require-
ments for documentation assessing the level of landscape
integration [12] is rather progressive. In 2019, the first
methodological guide for fitting new development into
the landscape was published at the MATE Department of
Landscape Protection and Reclamation – focusing on ecot-
ourism facilities [13].

Despite the aforementioned efforts [7], scientific
results and the adoption of new and partially overlapping,
laws, regulations, guidelines, standards and strategies
– which use different terms from the traditional jargon
used since the 1990s [14-16] – landscape protection in
Hungary is facing several major challenges [17-19]. Land-
scape character, landscape structure, land use, landscape
potential, rural and urban landscapes are all affected
by changes in all sectors (agriculture and rural develop-
ment, energy, regional development, urban development
and urban planning, water management, forestry, envi-
ronmental protection, nature conservation etc.), and the
landscape also bears the imprints of global and regional
trends (e.g. demographic processes, climate change).
Significant changes in the last five years include the
increasing abundance of solar parks, the appearance of
residential and recreational development in previously
unbuilt areas, high-intensity developments on the shores
of large lakes and oxbow lakes – even in protected natural
areas or parts of the ecological network – landscape-scale
water-management projects, tall buildings (telecommu-
nication base stations) and ecotourism projects (bicycle
routes, visitor centres, lookout towers, canopy walks etc.).

The goal of this study is to provide an overview of cur-
rent challenges in Hungarian landscape protection, pri-
marily focusing on the integration of individual projects
into the landscape, from the standpoint of landscape pro-
tection experts, based on practical examples.

MATERIALS AND METHODS

This study summarizes the experience of the authors
regarding the work of landscape protection experts, pri-
marily based on landscape protection tasks related to
the authorization of development projects. Discussion is
formulated based on ten landscape protection packages
on environmental impact assessments, sixteen landscape
protection packages of preliminary examination docu-
mentations, thirteen studies on blending into the land-
scape and eleven other landscape protection expert opin-
ions and reports (in environmental revisions, construction
permit documentation, modifications of urban develop-
ment plans etc.) completed in the last five years (2018-
2023). The results and their respective discussions are
presented in the following three parts: terminology, fitting
development into the landscape in an aesthetic sense
and landscape units involving special situations (such as

designated built-up areas and protected natural areas).
While we understand the definition of landscape integra-
tion – following the standard regulating the requirements
of documentation assessing the level of integration into
the landscape [12] – to include ecological, functional and
aesthetic appropriateness, this paper primarily focuses on
aesthetic integration into the landscape, due to concerns
emerging in professional practice.

RESULTS AND DISCUSSION

Use of terminology, requirements and differences in methods

Terminology is the first issue to be discussed. The require-
ments for goal-oriented and professional landscape plan-
ning can only be fulfilled if the expected contents are
unambiguous, predefined and created by a competent
planner. In Hungarian practice, these conditions for com-
petent landscape protection planning and expertise are
only partially met, due to ambiguously regulated terms
and methods with multiple interpretations. The efficient
representation of landscape protection interests and the
objective assessment of certain projects are hindered by
different approaches to professional terms and methods
of analysis.

Experience shows that authorities have different prac-
tices and interpretations of “certifying integration into the
landscape”, and therefore have different expectations of
experts and investors. In landscape integration studies,
authorities usually concentrate on aesthetic aspects, and
specifically the detailed study of visibility and landscape
changes (Figure 1). Participants in the authorisation pro-
cess are not even consistent regarding the assessments
outlined by the standard [12]. The question of ecologi-
cal integration into the landscape is rarely mentioned,
at least in official studies about landscape integration.
In certain cases, integration into the landscape is inter-
preted as necessitating an open space design (landscap-
ing, planting design) task aimed at completely obstruct-
ing visibility, and connected to “K” (garden design) expert
registration instead of landscape protection – or in some
cases nature conservation – expertise.

These uncertainties regarding professional terminol-
ogy are especially true in analysis and assessment pro-
cesses when it comes to evaluating visibility, and particu-
larly so in interpreting what are frequented points of view
to be analysed and the method for determining land-
scape/theoretical visual/visual impact areas or direct/
indirect impact areas. Determining and analysing land-
scape features always poses the risk of becoming subjec-
tive, therefore it is of utmost importance that an unam-
biguous methodology created by a competent expert is
used to assess typical landscape features and to delineate
landscape impact areas.

EREDMÉNYEK ÉS AZOK ÉRTELMEZÉSE

Fogalomhasználat, elvárások, módszerek különbözőségei

Elsőként a fogalomhasználattal kapcsolatos problémakört vetjük fel. A céltudatos, szakszerű tájtervezés feltételei akkor teljesülnek, ha a tartalom egyértelmű, meghatározott, és szakmailag felkészült tervező/szakértő készíti. A hazai gyakorlatban a táj védelmével kapcsolatos szak-szerű tervezés, szakértői tevékenység feltételei a nem pontosan szabályozott / többféleképpen értelmezett fogalmak és módszertani kérdések miatt csak részben adottak. A tájvédelmi szempontok érvényesítését, egy-egy beruházás objektív megítélését nehezíti a szakmai fogalmak és a vizsgálati módszerek különböző megközelítése.

A tapasztalatok azt mutatják, hogy a „tájbaillesztés igazolása” alatt a hatóságok gyakorlata eltérő, más értenek, várnak el a szakértőktől és a beruházótól. A tájbaillesztési tanulmányokon a legtöbb esetben az esztétikai szempontokat helyezik előtérbe, ezen belül is a láthatóság, a tájkép változásának részletes vizsgálatát kéri (1. ábra). A szabvány [12] szerinti vizsgálatot sem következetesen várják el az engedélyezési folyamatok szereplői. Az ökológiai szempontú tájbaillesztés szempontja ritkán, illetve nem tájbaillesztési tanulmányokban kerül elő. Egyes esetekben a tájbaillesztési tanulmányt teljes takarást jelentő kertépítészeti tervezési (tereprendezés, növénytelepítés) feladatként értelmezik, és nem tájvédelmi, adott esetben élővilágvédelmi szakértői, hanem K tervezési jogosultsághoz (Magyar Építészeti Kamara) kötik.

Különösen igazak a fogalmakkal kapcsolatos bizonytalanságok a láthatóság megítélését érintő elemzési és véleményezési folyamatokra, kiemelten a vizsgálandó/frekventált nézőpontok értelmezésére, a tájképi / elvi vizuális / vizuális hatásterület, közvetett/közvetlen hatásterület meghatározásának módszerére. A tájképi adottságok meghatározása és elemzése mindig magában rejti a szubjektív veszélyét, ezért is fontos, hogy szakmailag felkészült szakértő által meghatározott módszerrel kerüljenek feltárára a jellegzetes tájképi elemek és lehatárolásra a tájképi hatásterület.

Esztétikai tájbaillesztéssel kapcsolatos problémák

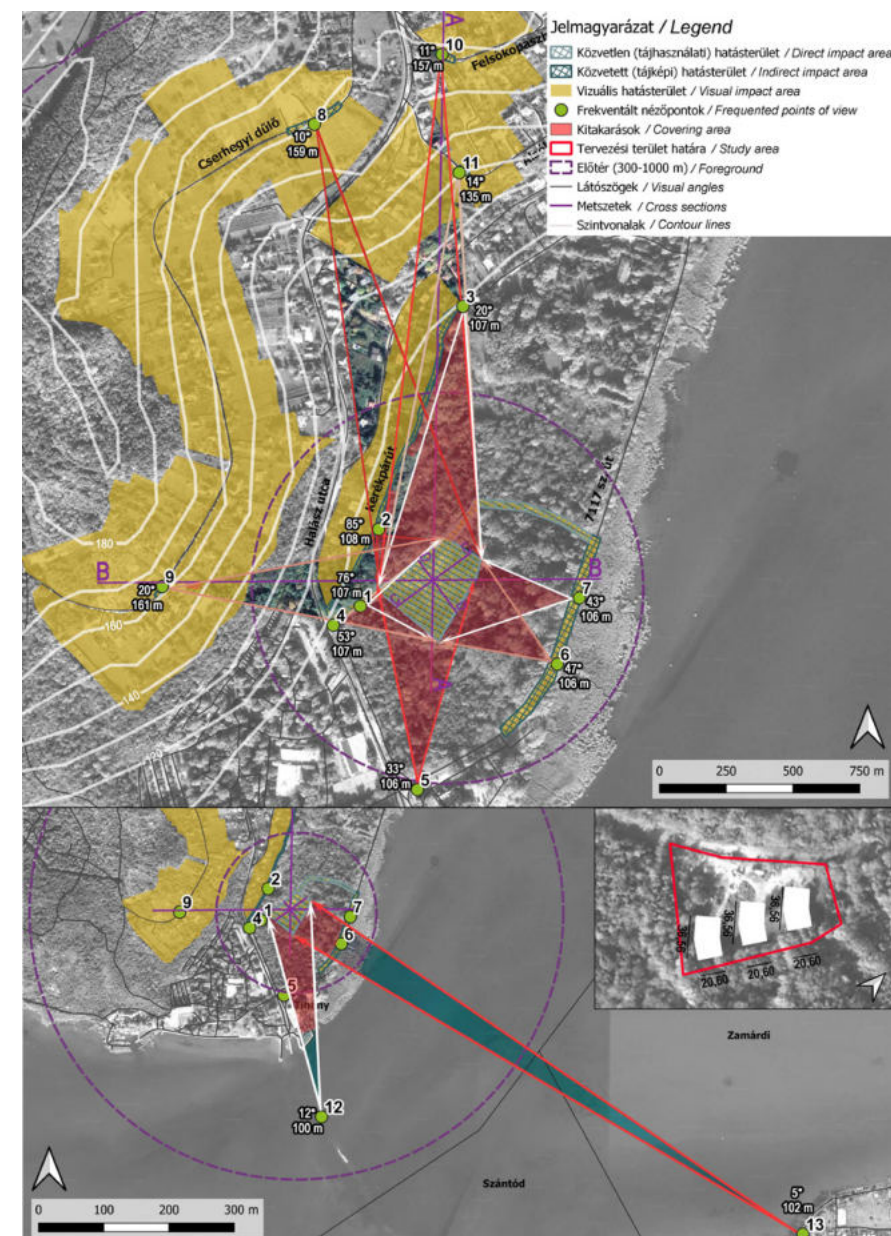
Jelentős problémának látjuk, hogy bizonyos beruházások eleve nem / alig tájbailleszthetőek a méreteikből adódóan (alapterület, magasság), illetve anyaghasználatuk, felületképzésük stb. miatt. Ide sorolhatóak a napelemparkok, adótoronyok / bázisállomások. Bizonyos beruházástípusokkal kapcsolatosan a helyszínek kiválasztás stratégiai szerepet kap, hiszen megfelelni a tájbaillesztéssel kapcsolatos kívánalmaknak nehezen tudnak, és vannak olyan tájrészletek, ahol elhelyezésük, hosszú és költséges tervezési,

engedélyezési folyamat végén is aggályos lehet tájvédelmi szempontból (ld. tájképvédelmi terület övezet, tájképvédelmi szempontból kiemelten kezelendő övezet). Az adott befoglaló tájrészlet adottságai, karaktere, védettsége, érzékenysége meghatározó, de a megújuló energiaforrások terjedése közérdek környezetvédelmi szempontból, ezért szükséges, hogy az ilyen típusú beruházások esetében a helyszín kiválasztásánál is figyelembe vegyék a táj- és természetvédelmi szempontokat, hogy olyan műszaki megoldás születhessen, ami lehetővé teszi a közcélú beruházások megvalósítását.

A tájvédelmi szakértői tevékenységeink során számos olyan beruházással foglalkoztunk, amelyek nem tájképi vonatkozásban jelentettek tájvédelmi problémát, hanem jellemzően nem feleltek meg a kompakt települések megőrzése elvének. Ilyen tipikus beruházási példa a külterületi lakóépületek, komplexumok elhelyezése. Aggályosnak tekinthető, hogy néhány esetben a beruházások az esztétikai tájbaillesztettség igazolását követően zöld lámpát kapnak az engedélyezési eljárás során. Tájvédelmi vonatkozásban hibás megközelítés, ha csupán a láthatóság megítélésére helyeződik a hangsúly. A tájbaillesztést igazoló tanulmány tartalmi elemeit rögzítő szabvány is döntően a vizuális hatások elemzését írja elő, többek között a vizuális hatásterület lehatárolását, nézőpontok meghatározását, takaró elemek feltárását, látványtervek készítését. Ennek értelmében azon hatósági, engedélyezési eljárásokban, ahol a szabvány alapján történő tájbaillesztettség igazolását kéri, túlértékelt a láthatóság megítélése a többi tájvédelmi szemponttal szemben. Találkozhatunk olyan döntéssel is, hogy bár egy új művi elem a frekventált nézőpontok felől nem lesz érzékelhető a tájban, a hatósági, engedélyezési eljárásban a beruházás nem kap támogatást, engedélyt a tájképi értékek veszélyeztetésére hivatkozva.

Tapasztalataink alapján jellemző elvárás, hogy a tájbaillesztés csak az adott létesítmény teljes takarásával érhető el, növényzónák mechanikus alkalmazásával. Amennyiben megoldható az adott tájban természetközeli hatású (pl. állományszerkezet, fajösszetétel) növényállomány telepítése, akkor jól alkalmazható ez a megközelítés is. Egyes esetekben azonban a növényzettel való teljes takarás nem illeszkedik az adott táj karakteréhez, vagy csak ültetvény jellegű, a tájban határozott egyenes vonalként megjelenő telepítésekkel valósítható meg, pl. a rendelkezésre álló hely szűkössége miatt, amely elüthet az adott tájrészletben jellemző természetes formáktól. Más esetekben a beruházási területen belül nincs lehetőség hely hiányában takaró növénytelepítés kialakítására, vagy közművek jelenléte korlátozza a növénytelepítés beavatkozási lehetőségeit.

A szabvány előírásai szerint látványtervek készítése szükséges lokális, tájkapcsolati és távoli nézetekben. Látványtervek készítésével elsődlegesen lokális nézetben



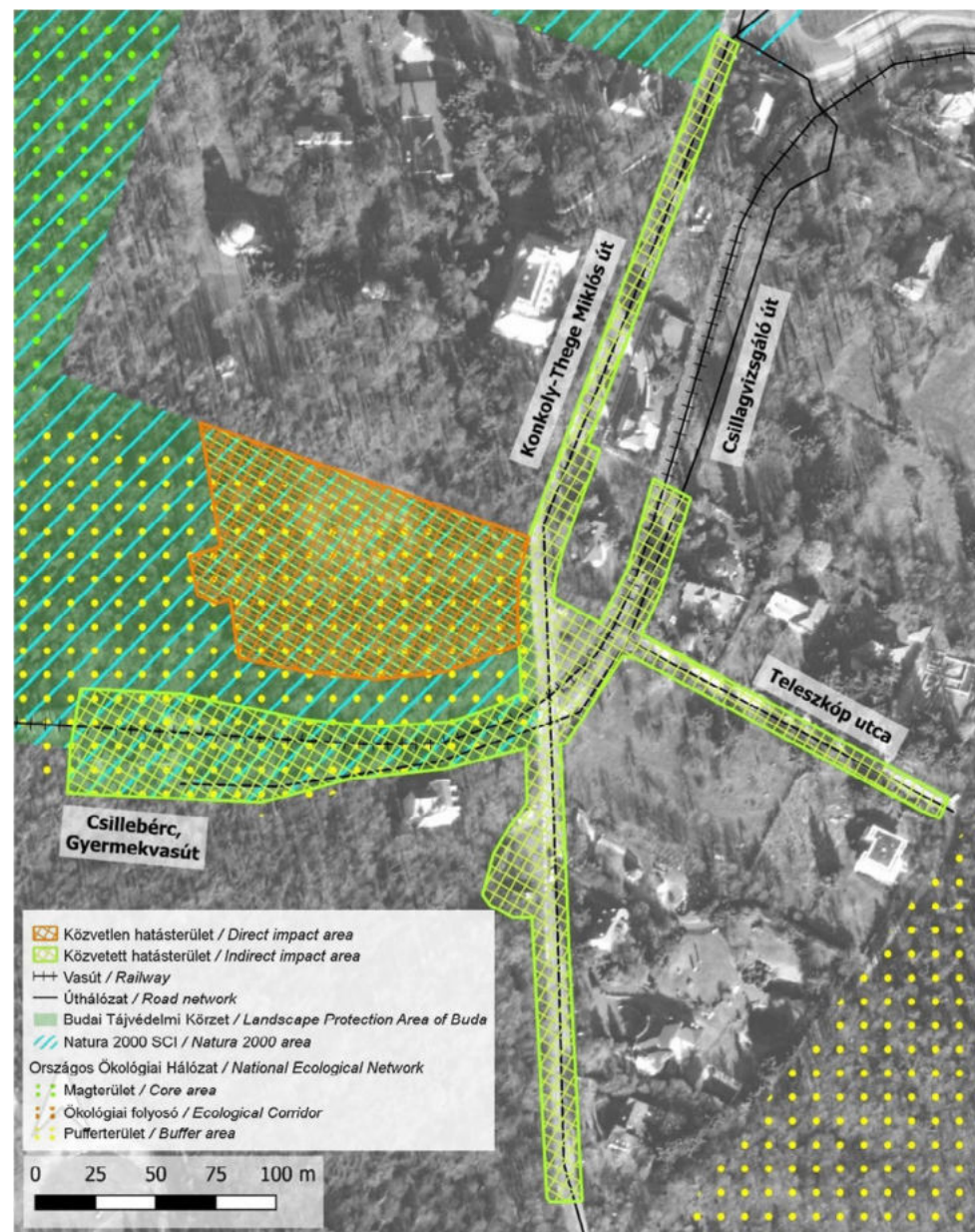
1. ábra/ Fig. 1: A tájképi hatásterület meghatározásához számos tényező figyelembevétele szükséges / Several factors determine the delimitation of the landscape impact areas

Problems surrounding landscape integration in an aesthetic sense

We consider it a major problem that certain projects ultimately cannot (or can only to a very small extent) be successfully integrated into the landscape due to their size (area, height), material, surface etc. Such projects include solar parks, transmission towers and base stations. Certain types of development would require strategic decisions, as they are fundamentally unable to fulfil certain requirements for landscape integration and are therefore certain to be rejected after a long and costly planning and authorisation process. The characteristics, character, protection level and sensitivity of the landscape in the area concerned are decisive, but the expansion of renewable energy sources is in the public interest from an environmental point of view, so it is necessary to take into account the landscape and nature conservation aspects

when selecting locations for this type of investment, in order to find a technical solution that allows the implementation of public investments.

As landscape protection experts, the authors have been involved in several projects that caused landscape protection concerns not primarily due to their visual impact, but because they failed to meet requirements to preserve compact settlements. Typical examples for this are residential buildings and complexes placed outside traditionally built-up areas. It is concerning that sometimes these projects are authorized after proof of aesthetic integration has been provided. From a landscape protection standpoint, focusing only on assessing visibility can be considered a mistake. The standard specifying mandatory elements of studies evaluating the level of landscape integration also primarily lists visual impact as a topic of assessment, including delineating the visual



2. ábra/ Fig. 2: A tervezési területtel együtt érzékelhető tájrészlet lehatárolását a védett természeti terület kiterjedése helyett, a látványkapcsolatok, a rálátási viszonyok határozzák meg / The demarcation of the landscape that can be perceived with the development area is determined by visual sight lines and visibility conditions, rather than by the extent of the protected natural area

mutatható be jól az adott létesítmény tájbaillesztettsége. A nagyobb, tájkapcsolati és távoli nézetekből készített látványtervek gyakran nehezen adják vissza az építmények látványát a valóságban.

Tájbaillesztés kérdése települési belterületeken és védett természeti területeken

A tájbaillesztés lehetőségei eltérőek engedélyezési eljárások során és a településrendezés eszközrendszerében. A belterületi építési engedélyeztetési folyamatok során a településképi illeszkedés vizsgálata elsősorban építészeti jellegű kérdések alapján történik. Az utcakép mellett az épületek homlokzata, épületmagassága, beépítési jellemzői képezik a fő vizsgálati szempontokat. Ezáltal az egyéb építményekre, illetve a belterületi, de még be nem épített helyzetű épületek, építmények vizsgálatára

kevésbé alkalmazható jól a településstervezéssel összefüggő jogszabályi környezet.

A hatósági, engedélyezési eljárások során a védett természeti területen tervezett beruházások tájbaillesztettség megítélésének alapját gyakran a védett természeti területek területi lehatárolása adja, mert ehhez kapcsolódnak a 1996. évi LIII. törvény természet védelméről, illetve a védetté nyilvánító jogszabály, a kezelési terv, valamint Natura 2000 terület esetében a fenntartási terv előírásai. Azonban a védett természeti terület egésze jellemzően nem egy egységes tájkarakter-egység, tehát illeszkedés / tájbaillesztés vizsgálatánál kizárólagos viszonyítási alapnak tekinteni szakmailag hibás megközelítés lenne. A vizsgálatok során nem elégséges a védett természeti területre vonatkozó adatbázisok elemzésére, területi kimutatásokra támaszkodni, mivel nem szolgálják a percpionális jellemzők figyelembevételét, nem adnak

impact area, determining relevant viewpoints, analysing objects obstructing visibility and creating visualisations. Therefore, in building permit procedures where authorities require proof of integration according to the contents outlined in the standard, the weight of visibility is over-exaggerated relative to other landscape protection concerns. Sometimes decisions can lead to failure to secure approval or support for projects from authorities for threatening landscape values, even though the proposed objects would not be perceptible in the landscape from relevant viewpoints.

Our experience shows that the expectation of authorities is to achieve integrating facilities into the landscape by complete obstruction of visibility, using linear planting schemes. This approach is certainly usable if creating a naturalistic plant community (in terms of stand structure and species diversity) is possible in the landscape. However, in certain cases, visually covering the entire facility using plants does not fit well into the character of the surrounding landscape, or only uses plantation-like schemes which appear in the landscape as strong linear elements – due to space constraints, for example – which can stand out from naturally occurring landforms. In other cases, space constraints make it impossible to achieve visual cover using vegetation within the development area, or the presence of utility lines restricts planting possibilities.

The standard specifies that visualisations must be created from several viewpoints: locally, from landscape connection points and from afar. However, the integration of objects into the landscape can only be effectively demonstrated using visualisations from local viewpoints. Wider angles from landscape connection points and long distances often fail to accurately represent how buildings look in reality.

The question of integration in built-in areas and protected natural areas

Opportunities for integration into landscape differ in permission procedures and urban planning tools. In building permission procedures within continuous built-up areas, integration into the urban landscape is primarily evaluated on the basis of architectural concerns. The main aspects of assessment are integration into the streetscape and the facade, height and placement properties of buildings. This means that the current legal framework for urban planning is not fully applicable to other structures or to assessing buildings and structures located at the inner administrative area of the settlements, but in a non-built-up context.

In authorisation and permit procedures, assessment of landscape integration in the case of developments

involving protected areas is usually based on the boundaries of protected natural areas, as per nature conservation regulations laid down in Act LIII of 1996, while rules included in decrees designating protection and management plans are also tied to this delineation. However, such protective designations are usually not restricted to a single, homogenous unit of landscape character, which means that considering the boundaries relevant for assessing the integration of structures into the landscape would be an incorrect professional approach. Analyses cannot be solely based on databases and spatial surveys related to the protected area, as these are not suitable for assessing perceptual properties and do not facilitate the evaluation of true integration. Impact on the landscape is not directly influenced by nature protection designations in and of themselves. When evaluating such developments, delineating the landscape unit visibility, together with the study area, and determining the impact area where the proposed building will have a considerable effect are important professional tasks that must be done to properly assess the potential impact on landscape character (Figure 2).

CONCLUSION AND SUMMARY

The increasing importance of landscape integration in authorisation and permit procedures in recent years is a very positive development for protecting our landscape heritage. Proof of landscape integration is now more commonly required by authorities in an increasingly diverse variety of developments.

Objectives specified in the National Landscape Strategy 2017-2026 – that the receptivity of people to the protection, improvement and restoration of landscape properties should be strengthened in order to improve the representation of landscape protection interests – must be enforced in as many mechanisms involving landscape protection as possible, which can include permission procedures as well. These processes educate investors or users of the environment who gain knowledge they can effectively implement in later development projects, which helps achieve landscape protection objectives. Cooperation and moving towards a constructive professional dialogue between authorities and experts would be vitally important and would also have positive effects on investors, leading towards the popularisation of the subject. Creating a unified professional language based on regulated terminology and establishing a uniform methodology are necessary to objectively represent landscape protection principles.

The involvement of landscape protection experts at the placement phase would help significantly with issues regarding aesthetic landscape integration. A predetermined location and technical configuration significantly

lehetőséget a valós igazodás elemzésére. A tájra gyakorolt hatásokat a védettség ténye önmagában nem befolyásolja. Az ilyen típusú beruházások esetében is fontos szakmai feladat a tájkaraktert érő hatások megítéléséhez meghatározni azt a tájrészletet, amely a tervezési területtel együtt érzékelhető, lehatárolni a hatásterületet, ahol a tervezett létesítmény valós hatással lesz a befogadó tájrészlet tájszerkezetére, tájkarakterére, tájképére (2. ábra).

KONKLÚZIÓ, ÖSSZEGZÉS

Igen pozitív a táji értékek védelme tekintetében, hogy a tájbaillesztés az elmúlt néhány évben látványosan felértékelődött a hatósági, engedélyezési gyakorlatban. Egyre több és többféle beruházásnál élnek a hatóságok a tájbaillesztés igazolásának elvárásával.

A Nemzeti Tájstratégia 2017-2026. dokumentumban is rögzített célrendszer – a tájvédelmi szempontok hatékony érvényesítése céljából erősíteni kell a társadalmi fogékonyságot a táji adottságok megőrzése, fejlesztése, helyreállítása során – minél több, tájvédelmet érintő mechanizmus során érvényre kell juttatni, amire akár egy engedélyezési eljárási is alkalmas. Ezek a folyamatok is tanítják a környezethasználót / beruházót, amely tudást egy újabb fejlesztés során hatékonyan beépíthet, ezzel is segítve a tájvédelmi szempontok érvényesülését. Fontos lenne egy előre-mozdulás/együttműködés a konstruktív szakmai párbeszéd irányába a hatóságok és a szakértők közötti kommunikációban, ami egyébként pozitívan hatna a beruházóra, és a szakmai érzékenyítés irányába mutatna. A szakmaiság közös nyelvének kialakítása, azaz szabályozott fogalmak és egységes módszertan kialakítása szükséges a tájvédelmi szempontok objektív érvényesítéséhez.

Az esztétikai tájbaillesztést jelentősen segítené, ha már az elhelyezés fázisában részt vehetne tájvédelmi szakértő. Egy eldöntött helyszín, műszaki kialakítás esetében a tájbaillesztés lehetőségei igen korlátozottak, eleve csak belül van realitása némi takarást, látványhatást javító növénytelepítésnek. A beruházás megítélésakor a szakmai gyakorlatnak megfelelően nem lehet cél a rálátás tényét önmagában alapul venni: a tájkép, a látvány markáns és tartós, kedvezőtlen megváltozása az elsődleges kritérium. Ennek értelmében a tájképi hatásterület meghatározása elsődlegesen a közösségi használatú, frekvenciált nézőpontokból való rálátásra koncentrálhat (közutak, közterek stb). Frekvenciált nézőpontnak tekintjük azon helyszíneket, ahol tartós emberi tartózkodás jellemző, mindenki számára megközelíthető, elérhető helyszínek (pl. közterek, közparkok, közlekedési utak).

Az országos tájkarakter-kutatás részeként elkészült az országos tájkarakter-típusok azonosítása és tájkarakter-területek lehatárolása, valamint négy mintaterületen a tájkarakter-altípusok elkülönítése. A helyi léptékű eredmények lennének mélységük és részletezettségük

tekintetében jól felhasználhatók az építmények, épületek tájbaillesztési kérdéseinek esetében, azonban a helyi, mintaterületi vizsgálatokkal azonos mélységű eredmények jelenleg még nem állnak rendelkezésre az ország teljes területére. Emellett a tájkarakter-kutatás eredményei még nem integrálódtak a szabályozásba, így nincs kötelezés a tájbaillesztési vizsgálatok során ezek eredményeinek figyelembevételére, vagy a módszertani eredmények alkalmazására. A kutatás eredményei jól alkalmazhatók lennének a tájkarakterben történő változások elemzésének megalapozására, tájbaillesztés során igazodási pontként. Mind a tájkarakter-területek jellemzése, mind az ezekhez kapcsolódó minőségi célkitűzések megfogalmazása felhasználható lenne az elemzések elvégzése és a javaslatok megfogalmazása során. A vizsgálatok mellett már egy új beruházás helykiválasztása során is relevánsak és alkalmazhatók lennének a kutatás eredményei.

A fentiek folytatásaként az esztétikai tájbaillesztés kapcsán felvetett fogalmi kérdések egyértelmű definícióját, a módszertani hiányosságok tisztázását, pótlását tűztük ki célul. Az ökológiai tájbaillesztés értelmezése, gyakorlati problémaköre egy másik, későbbi írásunk tárgyát képezi. ☉

restricts possibilities for integration into the landscape, as planting new vegetation to reduce visibility and enhance appearance can only realistically be done within the plot boundaries. When evaluating projects, the visibility aspect cannot be considered sufficient by itself, as the primary criteria should be significant and permanent unfavourable changes to the landscape. Therefore, the delineation process of visual impact areas should primarily concentrate on prominent, frequented public viewpoints (public roads, squares etc.). These viewpoints include all locations that are used for prolonged human stay and are freely accessible and open (e.g. public squares, parks, roads).

The results of the national landscape character research included the identification of national landscape character types, the delineation of landscape character areas and the separation of character subtypes for four study areas. Local-scale results would be the most usable for landscape integration studies due to their depth and level of detail. However, local studies comparable in depth to the study area research packages are still currently unavailable for the rest of the country. Besides, results of the landscape character study have not yet

been fully integrated into the regulation system, which means that there is no formal requirement to take these results into consideration or use methodological results in landscape integration analyses. Analyses of changes in landscape character could be based upon the results of the study, and they could become a point of reference for fitting new development into the landscape. Descriptions of character areas and the formulation of related objectives could be used in analyses and new proposals. The results of the study could already be relevant and applicable during the location selection phase of new development projects.

As the continuation of our research, our goal is to provide unambiguous definitions for terms regarding aesthetic integration into the landscape, and to clarify and amend methodological imperfections. The interpretation of ecological landscape integration and related practical issues are the topics of an upcoming publication. ☉



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