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Restoration of Urban Gardening Practices in Lviv and Their Significance for the Unification of the City's Community

Abstract
The practices of gardening and horticulture have spread in the lives of city residents since the birth of E. Howard's ideas about the garden city, which promoted a combination of the advantages of urban and rural lifestyles. In Lviv, these ideas also spread in the late 19th and early 20th centuries with the establishment of residential areas of villa development with private gardens, as well as the development of gardening practices at the city administration level. In particular, a well-known example is the nursery in Zalizna Voda Park, which was established by plantation inspector Arnold Röhring. The practices of urban horticulture have been preserved and exist in the city of Lviv in various forms and manifestations. Recently, the 'Nursery' project started working in Lviv on the site of the historic nursery in the Zalizna Voda Park, founded by the NGO 'Plato' with the support of other NGOs and the Department of Ecology and Natural Resources of Lviv City Council. However, part of the territory with historical greenhouses is still in a dilapidated condition. As part of the course design, students and teachers of the Urban Planning and Design Department of Lviv Polytechnic National University developed a project that aimed to restore the greenhouses of the nursery and create an ecological, modern space for a comfortable stay of visitors. The development of urban gardening and the involvement of the city community with internally displaced persons in gardening practices is an important direction of work in the sense of unification and psychological rehabilitation and adaptation of newly arrived residents. This direction requires the use of specific techniques of landscape architecture and conducting special evidentiary studies of the perception and reactions of people affected by the war.

Keywords: urban gardening, nursery, restoration of greenhouses, psychological rehabilitation

INTRODUCTION

The tradition of urban gardening in Lviv dates back to the end of the 19th and beginning of the 20th centuries. Lviv as a city has a long and interesting history, in which landscape design has always been given great importance, and therefore the solution to these issues was dealt with by qualified employees of the city's administration, who held the position of chief gardener and director of city gardens' 'plantations' of Lviv. The large number of parks, squares, and streets drowning in greenery, which impress today's tourists a lot, is evidence of competent landscape management in the past (Bohdanova, 2014). In 1920, the Great Lviv Project was developed, the creator of which was Ignatius Drexler (Drexler, 1920). It provided for the expansion of the city due to the addition of new suburban areas, as well as the creation of new parks and significant greening of the city. In the first third part of the 20th century, E. Howard's garden-city idea was partially implemented in Lviv. The peculiarity of its implementation was that the districts designed according to the concept were formed within the city's territory and were linked via radial connections with the central part of the city (Berezovetska, 2008). One vivid embodiment of this idea in Lviv is, in particular, the Novy Svit precinct, which today is bounded from the north by Bandera Street, from the west by Heroiv UPA Street, from the south by the railway track on Kulparkov, and the east by Knyagynya Olga and Sakharov Streets (Turchyn, 2021, 247). Within this district, as well as other areas of residential development in Lviv, there is a large area of private gardens and front gardens, where residents have been engaged in gardening and continue to do so to this day.

During the development of Lviv in the second half of the 20th century during the Soviet period, the city territory was further increased due to the annexation of neighbouring villages. In these newly annexed territories, industrial facilities were built, as well as areas of residential multi-apartment development. The public spaces, which have been formed between the buildings were characterized by openness, publicity, and a significant amount of street landscaping. However, over time, it is possible to follow the trend of the development of outbuildings by residents of the first floors of apartment buildings. People fenced off these plots and turned them into private or semi-private gardens and orchards. In this way, informal practices of urban gardening continue to exist in recent years in the areas

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Ill. 1. The garden plot in the area of the multi-apartment building on Lazarenko Street in Lviv (source: Google Maps, access: 08/01/2024)



Ill. 2. The garden plot in the area of the multi-apartment building on Moldavska Street in Lviv (source: Google Maps, access: 08/01/2024)

of multi-apartment buildings in the city of Lviv (Ill. 1, 2). In Ukraine, the culture of agriculture and growing plants has been widespread for a long time. This was reflected in the mentality of modern Ukrainians, as proved by the survey results of the Kyiv International Institute of Sociology conducted at the end of December 2022.[1] According to this survey, three-quarters of adult residents of Ukraine grew some plants in 2022. Most of them – 61% – did it for pleasure, only 33% – out of necessity.

Today, Ukraine and the countries of Europe are facing significant problems as a result of military aggression by the Russian Federation. One of these challenges is the integration of internally displaced persons and refugees into local communities and, in general, the rehabilitation of war-affected persons. It has long been proven by scientific research that the practice of horticulture and vegetable gardening is an effective method of psychological rehabilitation. Garden therapy practices since the beginning of the 19th century were used in psychiatric clinics to treat and improve the mental state of patients (Simson, Straus, ed., 1998). So, for example, in the park of the Kulparkiv psychiatric clinic in Lviv, enclosed gardens were formed near the treatment buildings, so that patients with various mental disorders had their separate green rooms (Staniewska, et al., 2021). It has been found that gardening practices alleviate depression in people (Park, Jeong, Lee, 2015). So-called horticultural therapy has great flexibility and, probably, its great therapeutic value resides in the fact that it can be a preventive medicine and a therapy of support to traditional medical treatment, contributing to harmonic use of residual potentialities and a more structurally defined personality of the patient (Ferrini, 2003). If we delve deeper into the problem of the influence of the garden on a person, several theoretical directions investigate various aspects of the interaction between a person and a garden. Swedish researchers Ulrika A. Stigsdotter and Patrick Grahn (2002) write about this in detail, highlighting three main theoretical directions: 1. the visitor's health effects are, above all, derived from the experiences of the garden room as such, its design, and its contents; 2. the health effects are because work in the garden is particularly obvious, meaningful and enjoyable; 3. the health effects are because the garden or the wild nature with its shapes, colours, odours, etc., plus the activities that can be carried out there, can restore a person to a more positive view of himself and his capacities.

Therefore, the purpose of this article is to investigate the traditions and practices of horticulture in the city of Lviv and to adapt them to the modern needs of society through the methods of landscape architecture and planning. This study examines the example of the restoration project of historical greenhouses in the Zalizna Voda Park in Lviv, and, also touches on another problem – the integration of historical parks into the life of a modern city. The historical parks' integration into urban life has two tasks: the preservation and further viability of the historical landscape and the provision of new, modern functions to these territories. Human life requires not just preserved nature, but a landscape that meets the aesthetic needs of society and certain qualities (characteristics) of the environment. This includes viability, meaningfulness, accessibility, controllability, fairness, etc. (Kuzmenko, Dmytrenko, 2021).

The problems highlighted in this article can be divided into different directions in the scientific literature. The direction of designing and restoring historical landscape parks in cities is represented by a significant number of publications in the field of landscape architecture and cultural heritage protection, including Agata Zachariasz (2018), Ji-Hye Gil, Hee-Soung Park (2020), Martin Kümmerling, Norbert Müller (2012), Halyna Lukashchuk, Yaryna Onufriv, Stepan Tupis (2023), Nadiia Baranovska (2020) and others. The Florence Charter on Historic Gardens (1982), ratified by Ukraine, is the main normative document that regulates measures for the historical plantations' maintenance and protection. According to its provisions, the historic garden is 'an architectural and horticultural composition of interest to the public from the historical and artistic point of view' (ICOMOS Florence Charter: Article 1). It needs such measures as protection and maintenance.

Direct historical studies of Zalizna Voda Park and this area of Lviv are mainly presented in the works of local historians and researchers of the history of architecture and urban planning of Lviv, namely Franzishek Yavorskyi, Ivan Krypyakevych, Tetiana Maksymyuk, Yurii Biryulyov, and others.

The problem of urban community identity exploring through gardening practices is highlighted in the articles of Beata Gavryshevska (2014; 2019) and others.

MATERIALS AND METHODS

The following scientific methods were used in the research process: content analysis and comparative analysis of scientific literary sources, analysis of historical cartographic materials, field survey of the territory, dendrological (determination of species composition of stands), modelling and heuristic approach, synthesis, and generalisation, abstraction (conclusions).

It is worth describing in more detail the field surveys of the territory, which were carried out in two stages. In 2021, pre-designs surveys of the territory of the nursery's former greenhouses were carried out. It was part of the qualifying master's thesis of Urban Planning and Design Department of Lviv Polytechnic National University made by Anna Butenko under the leadership of Assoc. Prof. Halyna Lukashchuk on the topic: 'Historical greenhouses territories development in parks of Lviv'. The taxonomic composition of the dendroflora was determined based on the results of field surveys by the route method, which was specified according to the international list 'The Plant List'.[2] Based on these studies, a student project was developed to reconstruct these greenhouses and the surrounding area for the new functions of the park. Subsequently, in 2023, repeated field surveys of the territory were conducted and its current state was recorded.

Based on part of the discussion, available scientific research was summarized and the best approaches and practices of horticultural therapy and space organization techniques were selected, which will increase the effect of community unification and integration of newly arrived residents into society, and will also have the best effect on improving the mental state of war victims.

HISTORICAL DEVELOPMENT OF THE ZALIZNA VODA PARK

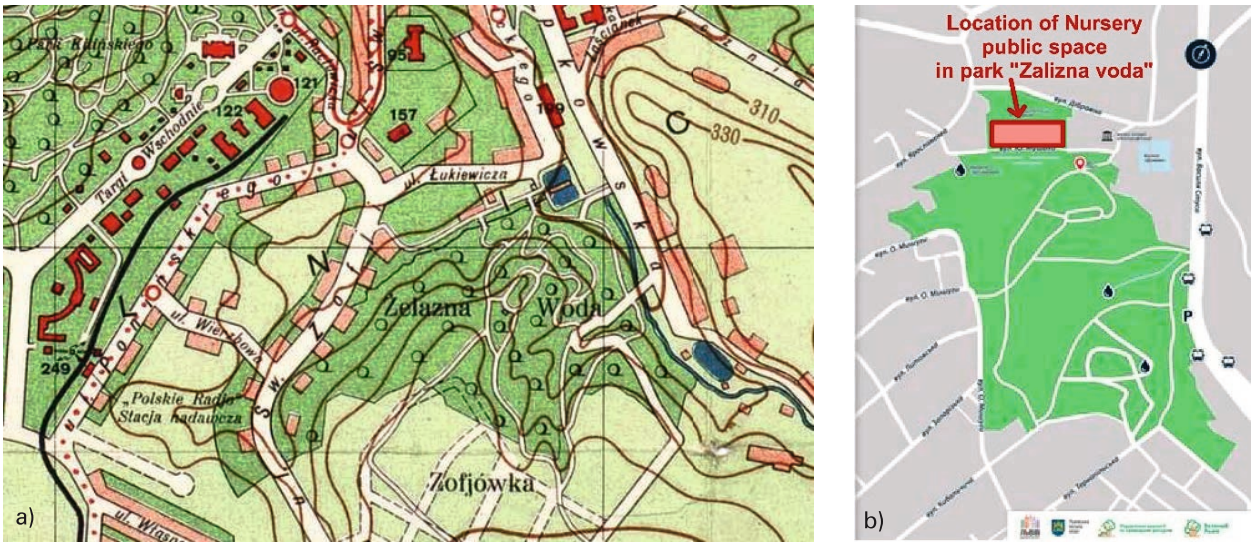
An important component of the perception of the park by contemporaries is the knowledge of how it looked and developed before. Historical details can tell a lot.

The popularity of Zalizna Voda as a recreational area dates back to the Biedermeier era when the theatre under the direction of Franz Kratter staged summer performances here. The director of the German stage in Lviv, Franz Kratter, organized a temporary summer theatre here (Jaworski, 1911).

Ivan Krypyakevich writes about this territory: 'Through Zyblykevych Street (part of modern I. Franko Street) and Dvernitskyi (I. Svientsitskyi Street) we reach Zalizna Voda, above the pond created by a tributary Soroka. Zalizna Voda has become a place for walks since the 1830s. Lviv residents travelled there more than once early in the morning with children and food, camped in glades in the forest, and returned to the city late in the evening' (Krypyakevich, 1991, 112). On the territory, there is an outcrop of marl, which gave rise to springs rich in iron. The presence of iron in the spring waters gave the area a unique name (in Ukrainian, Zalizna Voda means 'iron water'). There was a clean pond nearby, known as the Kamiński Pond. 'Guests were also attracted by the pool in the pond' (Ill. 3) (Krypyakevich, 1991, 112). In 1905, Zalizna Voda was planned as a city park, according to the project by plantation inspector Arnold Röhring (Ill. 4). He was engaged in the planning of the park from 1881 until the last days of his life (1913). It was one of the last projects executed by the great creator of Lviv parks. Röhring himself lived nearby, in a villa on the current 20 Stusa Street. The park is laid out on the slopes of the Poltva Ravine, on two hills connected in the upper part by a flat plateau. The remains of the former magnificent beech forest became the main background of the park. In some places of the park, aged individuals of *Fagus sylvatica* L. have been preserved. This background is complemented by *Larix decidua* (L.) Mill., *Betula pendula* Roth., *Carpinus betulus* L., *Picea abies* (L.) H. Karst., *Pinus strobus* L., *P. nigra* J. F. Arnold. In the middle of the massif of greenery, an old apple orchard has been preserved, with an admixture of *Prunus cersus* L. and *Prunus cerasifera* Ehrh., which may be a remnant of the ancient suburban Snopkiv. The solution of the park with a bypass promenade, on which a thematic change of some plant groups is strung with others, for example, first a curtain of black pine at the entrance, then a larch grove, and then a birch and the famous beech on the northern slopes, was unique. The nature of the relief determined the landscape style of planning here. There was a waterfall in the park, which was destroyed after the Second World War, and two springs of Röhring (under the park hills) together with a spring of Yankovsky supplied water to the Kaminsky pond (Biryulov, et al., 2008, 511). After the First World War, the Zalizna Voda Park was renamed to Narutowicz Park, in honour of the first president of interwar Poland. For some time, it was planned to create the so-called Yordaniv Park on the territory of the upper terrace of the park – a complex for sports exercises and patriotic education of young people. The implementation of this project was prevented by the construction of a colony of single-family houses (on the site between modern Ternopilska and Yaroslavenko streets – the so-called Novy Lviv). In the 1930s, a swimming pool was built on the site of the Kaminsky pond, where the

Ill. 3. Zalizna Voda park: fragments on the plans of Lviv: a) on the cadastral map of Lviv 1849/1853[3]; b) on the map of Lviv 1880[4]





Ill. 4. Fragment of the Zalizna Voda Park on the plans of Lviv a) 1931;[5] b) the location of the nursery on the modern plan of the Zalizna Voda Park, 2023

Dynamo sports complex was later located. Unfortunately, after the Second World War, the stream flowing along the lower border of the park was destroyed (Ill. 4a). Since 1984, the Zalizna Voda Park has been a monument of garden and park art of local importance.

Today, Zalizna Voda Park is an oasis of greenery in the southern sector of Lviv, located in the middle of urban development, in the neighbourhood of the historical districts of Snopkiv, Sofiivka, and Novyi Lviv, which the park borders, respectively, in the east, north, and southwest. The perimeter of the park is covered by the modern Stus, Mushak, Myshuga, and Ternopilska streets. In the north-eastern part of the park territory the Dynamo sports complex with a swimming pool is built on the site of the former Kaminsky pond. The total area of the city park Zalizna Voda is 19.5 ha.

MODERN FUNCTIONS AND PROSPECTS FOR THE DEVELOPMENT OF THE TERRITORY OF GREENHOUSES WITHIN ZALIZNA VODA PARK

In conditions of rapid urbanization, public spaces are an important indicator of the quality of life in cities. Along with the increase in public demand for expanding their network and functionality, the need to bring city residents closer to nature, strengthen social ties, and counteract the consequences of war is increasing. The solution can be urban gardening and horticulture.

The location of the northern part of the Zalizna Voda Park (Ill. 4b) is important in terms of the development of urban horticulture. Here are the ruins of greenhouses. According to Mykola Ryabyka, executive director of the NGO 'Plato', the history of these greenhouses begins at the beginning of the 20th century. They functioned somewhere around the 90s or 2000s. And for about twenty years, according to eyewitnesses, they have been empty.[6] Since April 2021, the arrangement of the space of urban gardening and horticulture 'Rozsadnyk' (Eng.: 'Nursery') has been underway at this location. Already today, it is a multifunctional educational platform, the main focus of which is the spread of environmentally friendly values against the background of the worsening climate crisis.[7] Association of nongovernmental organizations with the support of the Ecology and Natural Resources Department of the Lviv City Council created a public space according to the concept of 'Urban Gardening' (Ill. 5.). Meanwhile, the area of the former

Ill. 5. Photo of the territory around the greenhouses, which is gradually being developed by nongovernmental organizations with the support of the Ecology and Natural Resources Department of the Lviv City Council with the establishment of a nursery (Source: Yaryna Onufriv, 2023)





Ill. 6. Photo of greenhouses next to the nursery. Current state (Source: Yaryna Onufriv, 2023)



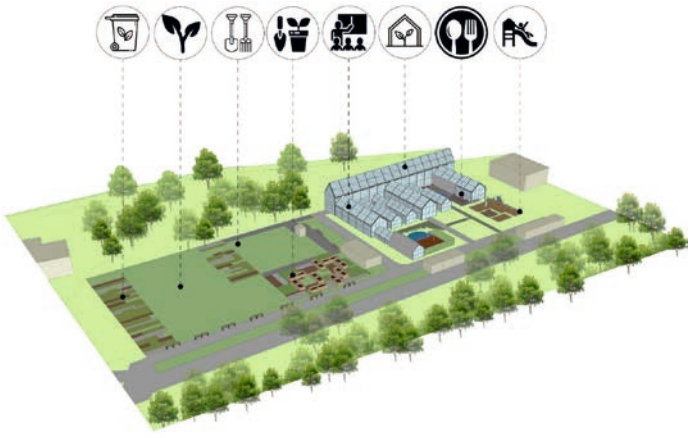
Ill. 7. Actions of urban gardening for internally displaced persons in the modular town Mariapolis, located in Sykhiv district in Lviv (2023)[9]

greenhouses is still in a neglected and littered state. The destruction of greenhouse buildings, overgrowth of the territory with low-value tree species and bushes, and clogging with household waste are observed (Ill. 6).

The current activity direction of NGOs of the city, together with the Architecture and Urban Planning Department, the Ecology Department of Lviv City Council, Gardeners of Lviv, etc. is the involvement of internally displaced persons in the practices of gardening and horticulture. Since the beginning of the war, various events have been constantly held in the nursery in Zalizna Voda Park where 60–70% of visitors were internally displaced persons. Garden therapy classes can be active (involvement in growing crops, caring for ornamental plants, participating in workshops, running, walking, etc.) and passive (sitting on a bench, drawing, meditating, etc.). Each of the formats can provide either individual or group involvement. There were classes in psychotherapy, workshops with clay modelling, seed bombing, and making outdoor furniture.[8] Also, in May 2023, urban gardening actions were held in the modular town Mariapolis, located in the Sykhiv district in Lviv, where internally displaced persons live (Ill. 7).

'HISTORICAL GREENHOUSES TERRITORIES DEVELOPMENT IN PARKS OF LVIV' PROJECT PROPOSAL (2021)

In 2021, a project by the student Anna Butenko under the leadership of Professor Halyna Lukashchuk on the topic: 'Historical greenhouse territories development in parks of Lviv' at the Urban Planning and Design Department of Lviv Polytechnic National University by order of the Ecology and Natural Resources Department of Lviv City Council was developed. The goal of the project is to restore historical greenhouses and create an ecological, modern space for the comfortable stay of others.



Ill. 8. Scheme of the landscape and spatial organization of the former nursery territory in the park 'Zalizna Voda' (Author: Anna Butenko, 2021)



Ill. 9. Visualization of the concept of space with greenhouses (Author: Anna Butenko, 2021)

The project involves the creation of a public space with the following functions: a small cafe, a children's playground, classrooms, and a lecture hall. Also, according to the project, the formation of spaces for outdoor co-working spaces is envisaged on the territory. On the historical territory, it is planned to form a tree plant nursery, a place for composters, and a rest area for the most comfortable stay of visitors and employees (Ill. 8). The project envisages the preservation and harmonious integration into the created space of existing interesting individuals of woody plants, namely: *Taxus baccata* L., *Thuja occidentalis* L., *Forsythia intermedia* Zab., *Philadelphus coronarius* L.

Since the design site is located on the territory of the park, surrounded by residential buildings, the project provides for the formation of tree plantations along the perimeter of the territory (Ill. 9). They will serve as a protective and noise-insulating screen. The territory includes a public garden-horticulture area, a greenhouse area with public functions (tourist and excursion), and a recreation area.

A children's playground and drinking water tanks for workers and visitors are situated on the territory near the greenhouses, as well as open and closed spaces for performances and co-working. For the convenience of movement, bicycle parking is offered.

DISCUSSION

In scientific literature, the issue of landscape planning and its impact on human psychology and physiology is widely discussed. Among the latest studies that consider these issues, there are, in particular, 2 studies by American and British researchers, which are interesting in the context of the issues of this article. The first of them concerns the influence of warm and cold colours of the garden landscape on people's moods and stress levels (Neale, et al., 2021). The researchers analysed and compared the results of a survey of residents of the USA and Great Britain and came to the conclusion that Americans respond more positively to the warm colours of the landscape and, in general, the level of stress from their stay in nature decreases more than that of the British. The second study examines specific characteristics of the garden that improve the well-being of visitors and is based on a comparative analysis of current scientific sources (Harries, et al., 2023). Scientists have identified the key characteristics of a garden or park, which are often mentioned in scientific sources, namely: accessibility, wayfinding, fostering serenity, variety of planting, spatial organization, and cultural artifacts. According to scientists, the *accessibility* of the garden is expressed in the design of the pathways with suitable surfaces considering users such as wheelchairs or pushchairs and also provides comfortable seating around the garden located near sensory planting. *Wayfinding* must be provided by signage to direct users around the garden aiding orientation and encouraging interaction; pathways laid out to encourage exploration of the whole garden. *Fostering*

Ill. 10. An example of a sensory garden in the community of West Horton (Great Britain)[10]





serenity in the park is perhaps the most important characteristic for persons affected by the war. Serene spaces can be created with the use of sound (running water, fountains, windchimes/long grasses) or by encouraging wildlife such as birds to foster a feeling of serenity. *Variety of planting* involves multi-sensory planting including mixtures of colours (reds/oranges for stimulation or whites/lilacs for calming), textures, scents, and where possible edible plants (e.g., spicy herbs), pollinator-friendly planting to encourage wildlife, consideration of seasonal changes providing year-round interest. As for *spatial organization*, in the context of the rehabilitation of people affected by war, it is important to create spaces for privacy/seclusion (enclosed spaces with views looking out), and also on the contrary – spaces for social gatherings, including options for sunny and shady spaces. The last important aspect, according to scientists, is the use of the potential of *cultural artifacts*, such as fountains, mosaics, monuments of architecture and art, and other physical elements that can be interacted with (Ill. 10).

CONCLUSIONS

As of today, many events related to urban horticulture are already taking place in the city of Lviv, mainly localized on the territory of the historic nursery within the Zalizna Voda Park. These activities are very popular among internally displaced persons, which once again confirms the need and usefulness of urban gardening for the psychological rehabilitation of people affected by war.

The project 'Historical greenhouses territories development in parks of Lviv' (2021) presented in the article is an attempt to organize and saturate the territory of the historical greenhouse with new functions. But after 2022, since the beginning of the war, Ukrainians have faced new dangerous challenges, and even today we need to think about how to solve problems of psychological stability and recovery of people affected by the war. In the context of this problem, the question of organizing and planning spaces for urban gardening remains open. Even though there are many recommendations in the literature on the formation of a comfortable natural environment using landscape architecture, there are no specific studies that present evidentiary coverage of the needs of war victims. We can assume that an important aspect for internally displaced persons or refugees in the formation of spaces in parks or gardens is to ensure a sense of peace and security. At the same time, it is equally important to ensure the need for communication, which involves the formation of open spaces with the opportunity for people to meet together and interact. The joint creation of these spaces, as well as the joint cultivation and care of plants, is a strong unifying factor for the various residents of the city community.

ENDNOTES

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[4] https://uma.lvivcenter.org/uk/maps/34384
[5] https://uma.lvivcenter.org/uk/maps/34520
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