

This is an Open Access document downloaded from ORCA, Cardiff University's institutional repository:<https://orca.cardiff.ac.uk/id/eprint/110145/>

This is the author's version of a work that was submitted to / accepted for publication.

Citation for final published version:

Tóth, Attila, Duží, Barbora, Vávra, Jan, Supuka, Ján, Bihuňová, Mária, Halajová, Denisa, Martinat, Stanislav and Nováková, Eva 2018. Changing patterns of allotment gardening in the Czech Republic and Slovakia. *Nature and Culture* 13 (1) , pp. 162-188. 10.3167/nc.2018.130108

Publishers page: <http://dx.doi.org/10.3167/nc.2018.130108>

Please note:

Changes made as a result of publishing processes such as copy-editing, formatting and page numbers may not be reflected in this version. For the definitive version of this publication, please refer to the published source. You are advised to consult the publisher's version if you wish to cite this paper.

This version is being made available in accordance with publisher policies. See <http://orca.cf.ac.uk/policies.html> for usage policies. Copyright and moral rights for publications made available in ORCA are retained by the copyright holders.



This is pre-publication author-version of a manuscript which has been published in Nature and Culture, doi: <https://doi.org/10.3167/nc.2018.130108>

(Published 1st March, 2018)

The manuscript did undergo copyediting, typesetting, and review of the resulting proof before it was published in its final form. To find or request access to the final version, please see:

<https://www.berghahnjournals.com/abstract/journals/nature-and-culture/13/1/nc130108.xml>

Tóth, A., Duží, B., Vávra, J., Supuka, J., Bihuňová, M., Halajová, D. Martinát, S. & Nováková, E. (2018). Changing Patterns of Allotment Gardening in the Czech Republic and Slovakia. *Nature and Culture*, 13(1), 162-188.

Changing Patterns of Allotment Gardening in the Czech Republic and Slovakia

Attila Tóth¹, Barbora Duží², Jan Vávra³, Ján Supuka¹, Mária Bihuňová¹, Denisa Halajová¹, Stanislav Martinát^{4,2}, and Eva Nováková²

¹ Slovak University of Agriculture in Nitra, Slovakia, attila.toth@uniag.sk

² The Czech Academy of Sciences, Institute of Geonics, Czech Republic

³ University of South Bohemia in České Budějovice, Czech Republic

⁴ Cardiff University, School of Geography and Planning, UK

Abstract:

Allotment gardens have played a significant role in Czech and Slovak society for decades, building upon a rich history of gardening. This article elaborates on Czech and Slovak allotments in the European context and identifies their core functions, services, and benefits. We provide a thorough historical review of allotments in this region, reaching back to the eighteenth century to trace significant periods and historic events that shaped society in general and urban gardening in particular. We analyze the development of allotments until and after 1989 and illustrate key aspects of their present situation using case studies and examples. The article provides a complex historical narrative as a good basis for discussions on contemporary trends, challenges, and visions for the future of urban allotment gardening in both countries.

Keywords:

allotments, civil society, Eastern Europe, political change, spatial planning and development, urban agriculture

Historically, one of the most important and widespread forms of urban gardening is allotment gardening. This form of urban gardening has had a long tradition in all Central and Eastern European countries and is the main object of research presented in this article. The term “allotments” or “allotment gardens” derives from British usage of a parcel of land being “allotted” to someone for his/her use. An allotment is an equipped plot, distinct from a personal garden, used by an individual person or a group of people for non-commercial cultivation of fruit, vegetables, and ornamental plants and recreational purposes. Allotments may be managed by local authorities, private or public bodies, or by an allotment garden association (Keshavarz and Bell 2016; Simon-Rojo et al. 2016). Urban gardening in its various spatial forms has multiple functions and provides many services for the urban environment and urban residents (Duží et al. 2017). In contemporary academic practice, urban gardening is considered a part of urban green infrastructure (Timpe et al. 2016; Tóth and Timpe 2017), which provides important ecosystem services and benefits for urban residents, such as water absorption, air cooling, and space for wildlife (Cameron et al. 2012). Urban gardening may also lower greenhouse gas emissions from food consumption through own food production.

Research suggests that allotments can contribute to food production, environmental improvement, ecological biodiversity, social interaction and inclusion through place-making, and green infrastructure in urban environments (Arosemena 2012; Paradis et al. 2016; Pawlikowska-Piechotka 2012; Timpe et al. 2016; Koopmans et al. 2017). The focus on psychological, social, and economic aspects of urban gardening highlights the positive physical and psychological impacts of this outdoor activity (Clayton 2007; Domene and Saurí 2007; Gray et al. 2014; Kiesling and Manning 2010). This includes a positive impact on human health and well-being (Keshavarz and Bell 2016), which is also connected to the production of one's own healthy and fresh food (Domene and Saurí 2007; Gray et al. 2014; Smith and Jehlička 2013). Gardening is most often characterized as a hobby and leisure activity (Clarke et al. 2000; Smith and Jehlička 2013), which has significance in terms of tradition, familiarity, and lifestyle (Brown et al. 1998; Kortright and Wakefield 2011; Larder et al. 2014). There is an ongoing debate about the significance of economic motivation of gardeners. Some authors claim that the economic motivation has had some relevance (Gray et al. 2014; Schupp and Sharp 2012), especially in societies undergoing a post-communist transition period (Rose and Tikhomirov 1993). However, allotment gardening is not primarily an activity of low-income groups (Clarke et al. 2000; Jehlička et al. 2012; Seeth et al. 1998; Teitelbaum and Beckley 2006), as hobby and leisure motives seem to be more important.

The social aspect of gardening is also very important, observable in the strengthening of interpersonal connections through food sharing (Domene and Saurí 2007; Gray et al. 2014; Smith and Jehlička 2013), the perception of gardening as an important point of social life (Torsello 2005), and the improvement of community feeling through successful home gardening programs (Gray et al. 2014). More recently, there has been an increasing global trend in reclaiming urban space (Caputo et al. 2016), in the form of squat farms (Tóth and Feriancová 2014), guerrilla gardens, or pop-up gardens located in public open spaces. Some authors interpret gardening as a means of resistance and empowerment, for instance, in the case of US community gardens (Taylor and Lovell 2013), while others emphasize the aspect of food sovereignty (Larder et al. 2014; Tóth et al. 2016). However, these aspects are not so significant in the Central European context (Duží et al. 2014).

When taking a closer look at current debates on urban agriculture in Europe, we conclude that the rich knowledge base of post-communist societies in Central and Eastern Europe is neither well researched nor utilized. These regions tend to be on the periphery of research, despite their historically strong allotment cultures, which inspired the main research question of this article: What does research into allotment gardening in the Czech and Slovak contexts add to the existing knowledge at the European level? Thus, the aim of this article is to extend the state of the art in European urban gardening by providing an in-depth, descriptive account of historical and recent developments of allotment gardening in the Czech Republic and Slovakia as representative samples of Central European post-communist societies. Allotment gardening has a widespread presence in these two countries. Nevertheless, it is important to note that it is a minority practice. For instance, in the Czech Republic, only 11 percent of people who grow food in their households (40 percent of the overall population) do so in allotments, while the majority (71 percent) grows food in the garden by the house in which they permanently live.

In order to answer the research question, this article elaborates on the historical and recent development of urban gardening in Czech and Slovak contexts under different social systems and takes a close look at its position and role in contemporary post-communist societies of the early twenty-first century. We analyze the main factors that have affected the position of allotment gardens in cities, with a particular focus on the situation before and after 1989; the conditions, features, and main drivers of the transition process; and contemporary challenges to urban gardening in the Czech Republic and Slovakia.

Allotment Gardening in Central Europe

The initiative of establishing allotment gardens in the former Austro-Hungarian Empire and later in Czechoslovakia followed the European allotment model, which dated to the Industrial Revolution. The intentional establishment of allotments responded to the migration into urban areas in this period, as well as

to the poor living conditions of industrial workers. Allotments were supposed not only to improve dietary conditions and food security of workers, but also to provide space for the socially desirable activity of gardening, which was also meant to help minimize the risk of social unrest. One of the iconic champions of European allotments was the German medical doctor Moritz Schreber from Leipzig (1808–1861), whose name has been used as a synonym of allotment gardens (Schrebergärten) in various Central European countries (Benčat' et al. 1997; Gibas et al. 2013). Nazila Keshavarz and Simon Bell (2016) categorize allotments historically according to the economic, social, and political factors that influenced their establishment, development, or decline: (1) the era of industrialization, urbanization, and pioneer countries in urban gardening (1700–1910); (2) the period of world wars (including the pre-, inter- and post-war periods) and the Great Depression (1911–1950); (3) the postwar decline (1951–1972); and (4) revival of urban gardens (1973–present). Such generalization, of course, overlooks some differences that can be found within the periods and between experiences of individual countries. There may have been, for example, some increase in the popularity of urban gardens in Eastern Europe due to economic problems after the collapse of the Soviet Union (Rose and Tikhomirov 1993). However, as our article shows, the 1990s in Central and Eastern Europe brought about a decline in allotments due to a variety of reasons. The revival trend appeared relatively recently (at least a revival of demand for allotments). Quite a different type of allotment revival can be seen in Southern European countries, which were significantly affected by the economic recession after 2008 (see Simon-Rojo et al., this issue). In Spain, Greece, and Portugal, the economic motivation for urban food production was accompanied by ideas of community resilience and anticapitalism.

Research Context, Materials, and Methodology

The Czech Republic and Slovakia, with an interwoven long-term common history, offer an interesting and challenging case for a comparative analysis. This article analyzes the dynamic changes that have occurred in post-communist countries through the prism of allotment gardens. Czechoslovakia, under the communist regime, was characterized by systematic management, central planning, and functional allocation within the urban structure. More recently, allotment gardening has become much more embedded in the Czech and Slovak civil society. Adopting a sociohistorical approach, the article reaches back to former Czechoslovakia and beyond, focusing on the period of establishment since the nineteenth century to the breakdown of the socialist regime in 1989. We further elaborate on the development of allotments during the post-communist and postdivision period of former Czechoslovakia until the present day.¹

Our methods consist of literature review, including scientific articles, books, master plans, annual reports, statistical publications, professional magazines, and news articles. The literature review has been supported by applied field research in selected allotment gardens in Ostrava, Brno, Uherské Hradiště, Karlovy Vary (Czech Republic, hereafter CZ) and Žilina, Nitra, Nové Zámky, Poprad, Spišská Nová Ves, Svit, Kežmarok, and Banská Bystrica (Slovakia, hereafter SK). The field research included visual observation of allotments (their overall and inner structure, architecture, diverse uses and their proportion, as well as the assortment of produced crops), and interviews and discussions with local stakeholders (representatives of the national gardeners' unions, their local, district, and regional branches, and users/gardeners).

Historical Development of Allotment Gardening in the Czech Republic and Slovakia

This section elaborates on the genesis and historical development of allotment gardening in the Czech Republic and Slovakia (historically part of Austria-Hungary until 1918 and later part of Czechoslovakia until 1989), with a particular focus on the main societal circumstances and key milestones that have affected this development.

¹ The research was conducted in the Czech Republic (area 78,866 square kilometers, population 10.5 million) and Slovakia (area 49,036 square kilometers, population 5.4 million), reaching back to the time of Czechoslovakia (area 140,446 square kilometers after 1918, 127,900 square kilometers after 1945; population 14.7 million in 1930, 15.6 million in 1991), with the largest cities being Prague, Brno, Ostrava, and Plzeň (CZ) and Bratislava, Košice, Prešov, Žilina, and Nitra (SK)

The Eighteenth and Nineteenth Centuries: The First Fruits of Organized Gardening and Associational Life

Massive industrialization and urbanization caused migration of rural inhabitants into cities, which at the same time brought the need for continuation of the rural lifestyle, mainly in the form of urban gardening. Professional publications promoted the development and dissemination of horticulture and fruit growing. One of the oldest preserved is a horticultural and pomological manuscript from the seventeenth century, which was followed by a series of other important publications on agriculture, horticulture, gardening, grafting, fruit tree growing, and dendrology from the eighteenth and nineteenth centuries. The first attempts to organize interest groups dealing with gardening, pomology, and horticulture in rural and urban areas into self-governing associations date back to the eighteenth century (Šimek 2005). These interest associations were supported by the Austro-Hungarian Empire. The first allotment sites were set up at the end of the nineteenth century by businessmen and industrialists as social projects for poor newcomers to cities from rural areas. The German-speaking population living in the Czech lands and Slovakia played a very significant role in importing and adopting the concept of allotments, which originated in what is today Germany. In the nineteenth and early twentieth centuries, several horticultural, mainly fruit-growing associations were established, and in the early twentieth century, some fruit-growing associations had started publishing professional horticultural journals for fruit growers.

The Early Twentieth Century and the Interwar Period: The Flowering of Civil Societies and Gardening Associations

The foundation of the first allotment gardens in former Czechoslovakia had mainly social objectives, as civic society was rapidly increasing. A significant contribution to the establishment of new allotments was the Central Union of Associations for Establishment of Allotment Gardens, founded in 1917. Its role was to support the establishment of new allotment gardens and various beautification and civic associations, including those dealing with gardening, pomology, and horticulture, in Bohemia, Moravia, and Slovakia. Allotment gardens subsequently developed in towns and cities—especially workers' gardens on municipal land, such as Ořechovka in Prague in 1926. Their importance increased dramatically in times of food shortage during economic crisis or the war period, when the so-called war gardens or emergency gardens were established. In the 1920s, national fruit-growing societies were established, which associated fruit growers and educated them through publishing professional journals. Later, World War II brought about a strong pressure for the unification of these diverse associations, while their activities were often limited.

After 1948: Gardening as a Tool of the Communist Regime Influenced by Centrally Planned Development

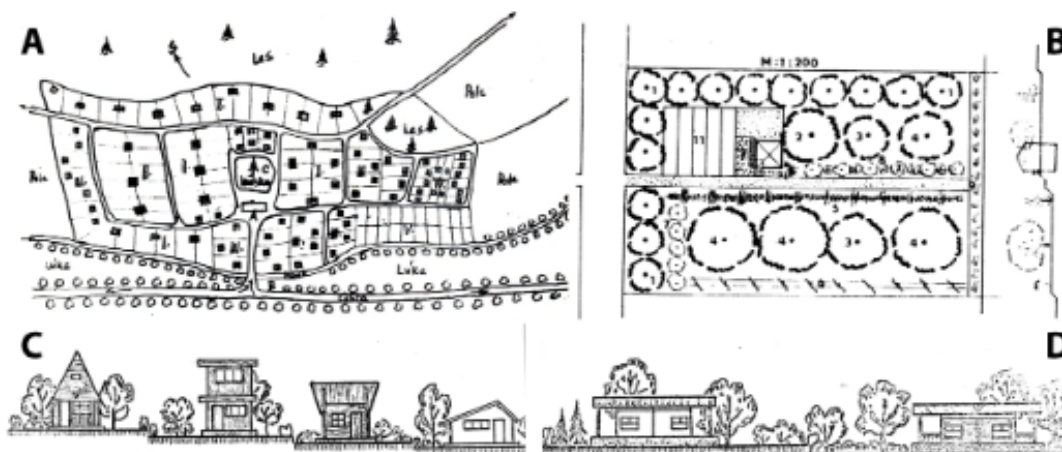
The post-war period and the new political regime brought about continuous attempts to unify diverse hobby associations, in order to include them in the political framework of the National Front (an umbrella organization of political parties ruled by the Communist Party of Czechoslovakia, with the participation of other social organizations) and to set up systematic top-down organizational structures and rules. In this period, common facilities such as clubs, rooms for fruit pressing and jam cooking, distilleries, warehouses, and cellars were built on fallow land. Diverse common public actions were organized such as exhibitions and competitions, and educational events for young people. In the 1950s, several agricultural organizations and gardening unions were disbanded and replaced by a united organization named the Czechoslovak Union of Gardeners and Fruit Growers (established in 1957), which set up a common legal framework with a controlled organizational structure, including membership rights and obligations. This resulted in the strengthening of economic activities and the position of gardeners and their products on the socialist market by selling surpluses and supplying the state with scarce horticultural commodities. The first guidelines for allotment gardens in Slovakia were approved by the Slovak Association of Gardeners and Fruit Growers in 1957. Public awareness of gardening was raised through the professional magazine *Zahrádkář* (Gardener), which was founded in 1969 and was published monthly.

Since the 1960s, allotments were included in local master plans and expanded as a reflection of industrial, urban, and agricultural development in former Czechoslovakia. One of the determining criteria for this development was collective land ownership (state or cooperative), a key component of communist economic

policy. This was accompanied by the attempt to set up demonstrative samples and to establish allotment gardens according to urban plans, such as Jenerálka in Prague, Zlatá hvězda (Golden Star) in Hradec Králové (both CZ), Cengelka: Garden Colony of the 20th Anniversary of the Slovak National Uprising in Myjava, and model allotments in the Agrokomplex Agricultural Exhibition Grounds, Nitra (both SK). Allotments were established according to specific urban plans and design models (Dekánek 1971), which was in line with the regulated planning system (Figure 1).

The Department of Agriculture, Forestry, and Water Management of the responsible district committee decided upon the establishment of allotment gardens based on the approved master plan. The basic land unit for horticultural allotments had an area of four hundred square meters (in major cities three hundred square meters), while animal-breeding allotments had an area of six hundred square meters. The land was rented to its users for a period of 10 to 90 years, according to the garden type (temporary or permanent). In permanent gardens, it was possible to build cottages of an area up to 16 square meters without the need to apply for a building permit. There was only a reporting obligation to the responsible construction authority. On temporary allotments, cottages with fixed foundations in the ground were not permitted, only prefabricated or portable. In permanent allotment gardens situated on hillside landscapes, diverse landscaping interventions were carried out in order to serve protective or functional purposes (Central Slovak Regional National Committee, Department of Territorial Planning 1988).

Figure 1: Planning and design of allotments in 1970s.



Urban plans and design models of allotments giving general directions on the situation plan of allotment gardens (A), the planting design of a 400-square-meter allotment (B), and evaluating sketches of cottage architecture, criticising the chaotic layout of very different cottages (C) and approving a unified architectural design (D), which ought to create a “pleasant and aesthetically satisfactory environment without eccentricities.”
 Source: Dekánek 1971: 21, 52, 65, 66.

Allotment regulations under socialism were relatively flexible, and the regime was relatively supportive and protective of allotment gardening in a systematic, top-down way. A relatively favorable legislative environment, collective land ownership, and an organized management structure through national gardeners’ associations motivated urban residents to participate in the establishment of allotments, which were socially and economically highly valuable. Twenty-four model gardens were designed by specialized design offices for allotments in diverse geographical conditions—lowland, submontane, and montane areas. Based on these, 12 model gardens were established in the exhibition grounds of the Agrokomplex (Nitra, SK), in order to inspire and educate visitors to the annual international agricultural and horticultural exhibitions. Organizers sought to present diverse types of allotments suitable for different functions, different land tenures, and different ecological contexts (Benčat’ et al. 1997; Bihuňová 2015).

After 1975: Empowerment of Allotments and Their Organized Development

In 1975, the government Resolution on the Integration of Allotments into the Urban Planning Process required municipalities to include land for allotments in their master plans. Land use planning became a strong tool of social and economic development in the centrally planned economy, stipulated in the federal law within Act No. 50/1975. This legislation specified territories and localities, especially in urban settlements with more than 10,000 residents, for building and developing allotments. It defined the regulations and criteria for the selection of these areas, which still apply today with only minor additions and changes. These regulations prohibit establishment of allotments on marshlands, in areas threatened by flooding and landslides, on slopes of more than 20 degrees, in territories under nature and landscape protection, in buffer zones of water resources, and in territories with a cultural and historical value threatened by the potential risk of visual and aesthetic degradation.

Subsequently, in 1977, the Federal Ministry of Agriculture and Nutrition issued the Decree on the Allocation of Agricultural Land Unsuitable for Mass Production, for the establishment of permanent or temporary allotment gardens. This decree enabled state subsidies for land reclamation and soil improvement, supported by the fund for agricultural land cultivation. Furthermore, the so-called Z Actions (voluntary work by residents) were organized, which resulted in a significant development of allotments. Thus, allotments got new land for gardening purposes, though on not very fertile and cultivable soils, such as loading dumps, hilly and stony land, excavated pits, and land along railways or in industrial zones (Table 1). Gardeners got the possibility to receive state subsidies designated for reclamation of land for gardening purposes. They transformed former infertile land into productive land and contributed to further improvements through participation in the Z Actions.

Within the union, gardeners specialized in diverse horticultural branches and established a range of specialized organizations, such as alpine gardeners, cactus growers, herb growers, perennial growers, citrus growers, and others. All these aspects supported the massive and well-planned establishment and development of new allotment gardens, in the form of permanent or temporary use of rented state land. Interestingly, during the 1970s and 1980s, when the communist regime applied various methods of repression to choke any kind of rising democratic tendencies, gardening also served as a psychological compensation. For instance, in Spišská Nová Ves, Kežmarok, and Poprad (SK), allotments were established by state enterprises for their workers and were not registered with the national union of gardeners. Thus, some urban inhabitants found escape either to the countryside as a second living (cottages), or to allotments in the urban environment.

Table 1: Total Area of Allotment Gardens in Slovakia from 1979 to 1990.

Character / Year	1979	1980	1981	1982	1983	1990
Total land of allotment gardens in Slovakia (km²)	17.503	19.585	23.995	31.812	36.849	55.000

The total area of allotment gardens was continuously expanding in the second half of the twentieth century. Sources: Benčať et al. 1997; Slovak Association of Gardeners 2012.

After 1989: The Period of Transition and Breakup

This period started with the breakup of the communist regime, which caused some radical changes in the position of allotment gardening in cities and urban planning. Land ownership took on more significance than users' rights, and land under allotment cultivation has been returned to its original owners in the process of restitution. In this period, several attempts have been made to protect land devoted to gardening. In 1990, the Federal Congress adopted a resolution that the Czechoslovak Union of Gardeners and Fruit Growers will stand up for democratic change in the society and for the decentralization process in the union while adjusting

to new conditions, continuation of professional and education activities, and protection of gardeners' rights and interests in the process of land ownership transitions.

In 1991, land law was amended within the Act No. 229/1991 on Altering the Ownership of Land and Other Agricultural Property, governing the conversion of land rights, including allotment gardens, from collective to municipal or private ownership. Allotment users became temporal tenants of their gardens, since the status of permanent land use by the gardeners' union was ended. After long-term negotiations, the aim to protect allotments finally succeeded and conditions have been set up to solve ownership relations with new landowners and to integrate allotments into urban development. In clear land ownership situations, individual members got permission to buy the land from the State Land Fund. In 1993, the breakup of Czechoslovakia followed, and the positions of the two independent countries have slightly diverged. Slovakia has strengthened the legislative position of allotments since the National Council of the Slovak Republic adopted Act. No. 64/1997 on the use of land in established allotments and on the settlement of their ownership relations (NCSR 1997). According to this law, gardeners in legally established allotments may become owners of the land for state-guaranteed prices. These plots have to be redeemed from the original owners or have to undergo restitution (Benčat' et al. 1997).

The development of allotments in Czechoslovakia had a progressive character until 1989, when it reached a peak with more than 620,000 members of the national gardeners' union. After the political and social changes in Czechoslovakia in 1989, the number of local associations, their members, and the total area of allotments has been continuously declining (Table 2). In Slovakia, the number of local gardening associations has dropped by 54 percent and the number of their members by 69 percent between 1989 and 2012 (Slovak Association of Gardeners 2012). In the Czech Republic, the total area devoted to gardening registered in the union (allotment gardens and house gardens) has decreased by 63 percent, from 256.7 square kilometers in 1991 to 95.4 square kilometers in 2014 (Czech Union of Allotment and Leisure Gardeners 2016c). However, there are also some exceptions where this decline was less significant. For instance, in Poprad (SK), there is a quite stable membership in the local association. Since the collapse of communism, the number of members decreased only by 12 percent, while there was an overall decrease at the national level by almost 70 percent.

However, these figures consider only the decrease of local associations and their members caused among other reasons by the fact that many family gardeners and several allotment sites have left the union after having bought the land in private ownership. Most of the allotments, for instance, in Poprad, Svit, Spišská Nová Ves, and Brezno (Slovakia), have not disappeared but have only changed their legal form, mainly to citizens' associations. Therefore, they have not appeared in the membership of the union since then. The decline in members is also attributable to economic factors. For instance, in some households, only some members remained in the union, in order to lower the membership expenses per household. Despite the significant decline in union members and registered allotments, gardeners united within the national union still play a vital and beneficial role for the public in general. For example, Czech gardeners offered much of their equipment for fruit processing (346 juice makers, 36 distilleries, 41 drying fruit facilities, and 52 fruit jam makers) to the public in 2014. They organized 684 exhibitions, 962 lectures, and 586 events for children in the same year (Czech Union of Allotment and Leisure Gardeners 2016c).

Table 2: Personal and Organizational Development of Gardeners' Unions between 1960 and 2016.

Characteristics/ Period and year		The early years of allotments (data: 1960)		The period of empowerment of allotments (data: 1979)		After the collapse of Communism (data: 1990/91)		Present time (data: 2014–2016)	
Members of the union (CZ+SK)		101,735		341,218 ↑		623,023 ↑		208,934 ↓	
CZ	SK	95,372	6,363	231,541 ↑	109,677 ↑	406,909 ↑	216,114 ↑	141,727 ↓	67,207 ↓
Local branches of the union (CZ+SK)		1,734		5,341 ↑		6,975 ↑		3,869 ↓	
CZ	SK	1,439	295	3,761 ↑	1,580 ↑	4,353 ↑	2,622 ↑	2,660 ↓	1,209 ↓

The number of local associations and their members in Czechoslovakia was continuously increasing until the collapse of communism in 1989 and has consecutively decreased since then. The table presents all gardeners' union members, including both allotment gardeners and gardeners in home gardens. Sources: Ambrožová et al. 2011; Czech Union of Allotment and Leisure Gardeners 2016c; Slovak Association of Gardeners 2012.

The Spatial, Economic, and Social Circumstances of the Decline of Urban Allotment Gardens in the Post-communist Period

Several factors influenced a radical decline of allotment gardening in the post-communist period. The breakup of the communist regime and its centrally planned economies in Central and Eastern European countries brought about massive, multiple transformation processes on the institutional, social, and spatial level (Sýkora and Bouzarovski 2012). Following vast economic reforms, the market economy replaced the centrally planned economy. This contributed to the breakdown of the planning system, which used to follow administrative indicators and spatial standards, without reference to the market. One of the most important aspects of the socialist urban planning system was the fact that it did not matter where the place was located, whether in the inner city or its hinterland; it was assigned the same value and appreciation (Bertaud 2007).

Following the era of massive planning and investments into housing estates in cities due to increased needs for labor force in heavy industries (Nevima and Majerová 2015), a period of significant social and spatial polarisation occurred in cities after 1989 (Mulíček et al. 2016). New market principles of resource allocation stimulated the change in urban planning and design attitudes. The establishment of real estate market and price maps of cities intensified a differentiation of urban structures. The real estate market and development interests have spatially calibrated cities into the economically more attractive parts in the city center, and less attractive parts on the urban periphery. Spatial development processes, such as suburbanization and urban sprawl common in many cities of Western Europe, suddenly appeared in large post-communist cities in Central and Eastern Europe with an intensity that surprised urban planners (Tafel-Viia et al. 2015).

The number of allotment sites in Prague (CZ) has radically shrunk from 578 in 1997 (Vinterová 1997) to 261 in 2014 (Spilková and Vágner 2016), which means a decrease by 55 percent. Of these, only 45 percent were used for gardening or one-day recreation, 8.4 percent were transformed into second homes, and 12.3 percent into residential dwellings. Parts of the land are still used as private gardens. More than one-third (34 percent) of allotment sites have lost their gardening function due to abandonment, decline, or construction projects (Spilková and Vágner 2016). Allotments have been most frequently transformed into residential and housing estates, such as in Prague, Brno, Uherské Hradiště (CZ), and Bratislava (SK). Other reasons for allotment transformations were the construction of highways (e.g., Highway D47 near Ostrava, CZ), commercial

facilities, shopping malls, and warehouses, as in Prague, Brno, Ostrava (CZ), Bratislava, Nitra, Banská Bystrica, and Košice (SK). However, it is not always construction that threatens allotments. There have been efforts in recent years to convert allotment sites Kraví Hora I and II in Brno (more than 500 allotments occupying more than 117,000 square meters in the wider city center since the 1940s) into a public park. This has not happened yet, but the City Master Plan currently under consultation designates the allotments as a future public park (Zahrádkáři Kraví Hora II n.d.; Zahrádkáři Kraví Hora I n.d.). Other allotment sites survived because of their location close to rivers, floodplains, and flood-prone areas where building development is prohibited, as in the allotment site of Kačinec in Ostrava (CZ) or several allotment sites in Nové Zámky (SK).

Social and economic changes led to the abandonment of many allotments where succession has created novel urban wilderness, such as in Brno (CZ). At the same time, the abandonment of postindustrial sites resulted in brownfields (Bartke et al. 2016; Krzysztofik et al. 2016; Osman et al. 2015) that gave way to novel temporary uses such as community gardening and later to permanent uses such as new housing estates arising as a result of inner-city repopulation processes (Ouředníček et al. 2015). Indeed, many new community gardens have emerged from bottom-up initiatives, for instance, in Bratislava, Nitra, Banská Bystrica, Zvolen, Košice (SK), Prague, and Brno (CZ). They are much more flexible than conventional allotments and use “empty” spaces or brownfields located close to housing estates, primary schools, or kindergartens (Duží et al. 2014). Their aim is to involve a wider group of users, including socially deprived groups, while creating space for program promotion, labor, and educational activities in relation to schools and youth. Such newly created community gardens or allotments are mostly temporary, as they are usually established on public land designated for future investment plans. Traditional “soil” gardeners perceive community gardens as “starting points” for people with no experience of gardening. During an interview, the chairman of the Czech Union of Allotment and Leisure Gardeners expressed his conviction that once community gardeners get more experienced in gardening, they will not be satisfied only with “some bags” and will want to grow a wider range of agricultural crops in soil, which will lead them to allotments (Kozlík 2016). The phenomena outlined above have led to a socially and economically more polarized urban environment than decades ago. This trend has brought new challenges for urban planning and has raised new issues in contemporary urbanism. New settlements of middle-class residents are now located on the urban boundaries of cities. The urban fringe is characterized by industrial zones, shopping malls, and logistic centers usually established on greenfield sites (Klapka et al. 2013; Kunc et al. 2016). This development has resulted in a massive urban sprawl and a continuous increase in individual car traffic (Halás et al. 2014). From the social point of view, less attractive peripheral belts of older housing estates have transformed into zones of poverty and social exclusion (Sýkora 2013). These spatial changes have had a great impact on location, size, and social status of urban allotments, which have found themselves subject to the pressure of urban development. Some allotment sites on unattractive soils were deemed “unsuitable for agricultural use,” but their location made them attractive for developers. On the other hand, new vacant places with a potential for gardening have emerged (Bartke et al. 2016).

From the economic point of view, the decline of allotment gardening has been strongly influenced by an increase in global market supply (Klapka et al. 2013; Kunc et al. 2016). Cheap imported horticultural products offered in large supermarket chains caused a considerable decrease in product sales by horticultural societies and allotment associations, which could not compete in price (Teislerová 2006). Due to the absence of collective product marketing, individual transport costs have increased, as have expenditures on seeds, fertilizers, and protective chemistry against diseases and pests. Moreover, climate change has brought about the need for more intensive watering of crops, especially in locations and regions with a low mean annual rainfall, which are more vulnerable to droughts (Tóth et al. 2016).

The social background of the decline is partly attributable to distinct changes in the society, its economic system, and the residents’ lifestyles. The demand for allotments as substitute” recreational spaces has decreased, since the supply of recreational possibilities has been internationalized and diversified. Another significant challenge is the aging process. Many long-term urban gardeners have already retired, and the interest of the younger population in gardening has been very low since the 1990s, mainly due to job migration and the different lifestyles of younger users, who use allotments mainly for leisure and recreation (Deák 2016).

Post-2000: Shrinking Allotments, Rising Public Engagement

The period after 2000 has been a time of great changes in the ownership structures of allotments (Jakubek et al. 2011). From the urban planning point of view, allotments are included in master plans, but mostly allotments feature as zones for individual recreation, which overshadows their traditional food production function. Municipalities are obliged to prepare and approve master plans by 2020. They have to cope with the location and size of urban allotments and label some of them as territorial reserves or zones for land use transformation. Thus, some municipalities, especially in larger cities, strive to reduce the overall size of allotments located on municipal land.

Moreover, the incorporation of allotments into the urban green infrastructure is not a unified process, and some cities, such as Ostrava (CZ), have excluded them from territorial systems of ecological stability due to their inability to support the migration of animals. Allotments have problems also with gray infrastructure. Their accessibility by public transport causes problems, for instance, in Poprad, Spišská Nová Ves, or Svit (SK) though many allotments are accessible by walking or cycling, as in Nové Zámky or Nitra (SK). Waste management causes problems mainly in allotments that are more distant from the place of users' residence.

Changes in urban plans have elicited resistance from gardeners, as in Brno in 2007 and 2013, in order to defend endangered allotments close to the inner city (vš 2013). Another example of active gardeners is in Libeňský ostrov in Prague, where members negotiated with the municipality to save endangered allotments (Gibas et al. 2013). In Ostrava (CZ), regional representatives actively negotiated with local representatives concerning the allocation and lease of vacant public land to gardeners, but they did not succeed (Novotný 2016). Thanks to a greater public discussion, gardeners received support from environmentally oriented NGOs (e.g., Arnika in Prague, Veronica in Brno, Slatinka in Zvolen, or Ecopolis in Banská Bystrica), researchers, urban designers, and landscape architects. For example, researcher Petr Gibas organized an exhibition devoted to allotment gardening in Prague's city hall in 2013. Gardeners have also drawn the attention of newspapers and mass media, which resulted in Czech TV documentaries called *Our Czech Nature: The End of Gardeners in Bohemia and Moravia* (Teislerová 2006) and *Falling Pot: Gardens and Gardeners—Importance of Urban Gardening* (Schmidt 2006).

Current allotment land prices in Slovakia are about €10 per square meter. Price depends on soil quality and the location in the urban landscape. Allotments can also be leased from original owners for 3 to 5 percent of the land price, which means approximately €0.5 per square meter per year (Deák 2016). The rental price according to the Act No. 38/2005 is at least 1 percent of the land price (MARDSR 2005). In many cases, the original landowners do not respect the law and offer the land for sale or lease at market prices, which is against the law and is too expensive for mainly retired gardeners. This conflict between the allotment law and the private ownership law causes a stagnating situation and many complications. Landowners usually do not consider long-time investments of gardeners into soil improvement, landscaping, or building constructions on the land throughout the previous 30 or 50 years. The problem of ownership and user relations is still unresolved and legislatively stalled. The Republic Committee of the Slovak Association of Gardeners has therefore established legal advisory services.

In the Czech Republic, the gardening law has been consecutively prepared with the aim to declare gardening as a public beneficiary activity, to delineate overall conditions for allotments, and to support their long-term existence, but it was vetoed by the president in 2009. In 2016, government negotiations were reopened by a parliamentary proposal. However, another law enabled gardeners to buy state land. In 1999, Act No. 95/1999 specified conditions for the transfer of agricultural and forest land from state ownership to other bodies, including allotment gardeners (PCR-CD 1999). This led to the establishment in 2000 of the Office for Government Representation in Property Affairs, which continues to negotiate sales of state facilities or properties to private ownership of gardeners' associations. Currently, local organizations of the Czech Union of Allotment and Leisure Gardeners as tenants may negotiate with their (state or municipal) owners lease and

stable prices for rented lands and have achieved a guaranteed range of price (from €0.22 to €0.41 per square meter, per year).

In recent years, complex property and land ownership issues have started to complicate further the existence and development of allotments. In many cases, former state or fallow land has been sold out, returned to its original owners in the process of restitution, or has ended up in a conflict of interests of various groups, such as developers or real estate speculators. In many allotments, ownership relations remain unresolved because of complications with identification and restitution of original landowners. In Poprad (SK), for instance, 23 of 47 allotment sites still do not have settled ownership relations, and this affects two thousand union members (71 percent). The purchase of land for private ownership brought about several changes in allotments, which is reflected in their appearance and equipment. In the urban peripheries of Brno (CZ) and Spišská Nová Ves (SK), there is a tendency to transform allotments into permanent residences. This causes problems with the legalization of buildings, and residents have to fight for permission for their permanent housing in former allotments (Karasová 2011). Gardeners who own their allotments invest in infrastructure and new cottages. These allotments are often sold to new owners, which leads to a generational exchange. This has also had negative effects, such as breach of rules by building high fences and illegal constructions. In allotments where land ownership is not yet settled, tenants do not invest in their development. In these allotments, recreational pressure is significantly lower and does not tend to cause massive spatial transformations. The establishment of new organized allotments is not generally supported by municipalities. There are some exceptions to this, such as Otrokovice (CZ), where the gardeners' request for additional land was granted by the municipality (izi 2012), or Dobříš near Prague (CZ), where, after seven years of negotiation with the municipality and private owners, an area of almost 10,000 square meters was provided for new gardens (Czech Union of Allotment and Leisure Gardeners 2016a). In Karlovy Vary (CZ), an allotment site had to give way to a sport center and swimming pool, but the municipality compensated the gardeners with spare land for setting up new allotments in the urban periphery (Kalinová 2013). Allotments used by the older generation are strongly oriented toward self-supply through intensive production of fruits and vegetables, while younger users prefer recreation to gardening (Gibas et al. 2013; Zahrádkáři Kraví Hora I n.d.; Zahrádkáři Kraví Hora II n.d.). The Czech Union of Allotment and Leisure Gardeners responds to this tendency by calling for a change in orientation from production toward promotion, counseling, education, and communication with the wider public, especially with young families (Hinterholzinger 2014).

The main changes in allotments after the breakdown of communism in 1989 can be observed in their numerical size, forms of establishment, ownership, organization, size, accessibility, products, garden beds, ways of gardening, and other activities (Table 3).

Table 3: Summary of the Main Characteristics and Trends of Urban Allotment Gardening in the Czech Republic and Slovakia Before and After 1989

	Communist period	Post-communist period
Trends In Quantity	Increase, especially in 1970s and 1980s.	Decrease (conversion to other types of land use, private ownership or abandonment).
Forms of Establishment	Top-down prevails; spatial planning and state/municipality support.	Mix of top-down and bottom-up; communication of gardeners and municipalities.
Forms of Ownership	Rented land (state or municipal); guaranteed long term rent or permission to use the land.	Combined – rented and private ownership; various rent periods: indefinite/fixed term (often short); high level of uncertainty in future.
Organisation	Strict rules – membership in the Czechoslovak Union of Gardeners; systematic state-wide organization; code of behavior in allotments; common activities and mandatory work (defined number of hours).	More democratic conditions; allotment gardens are usually citizens' associations – may be part of the Czech or Slovak national union of allotment and leisure gardeners; codes of behaviors are individual for allotments; though there is a demand for mandatory work and behavior limits.
Size and Accessibility	Standardized and planned allotments; a typical plot had usually 400 m ² in average; allotments were fenced off and not accessible to public.	Allotments are still mostly fenced off and not accessible to public; pressure for a better permeability.
Products and Garden Beds	Soil gardening was predominant; wide range of vegetables, fruits and fruit trees; food self-provisioning and sell of surplus; ornamental flowers and other decorative species.	Soil gardening is most important; new forms: elevated gardens, bags and containers, roof and wall gardens, hydroponics etc.
Ways of Gardening	Standard ways of gardening focused on production, including synthetic fertilizers and biocides; Top-down recommendations from the Czechoslovak Union of Gardeners (e.g. in official magazines).	Standard ways of gardening still continue but there is a higher diversity and more information; new trends of environmentally friendly gardening.
Other Activities	Many public events throughout the year; exhibitions, lectures, action for children, facilities for gardeners.	Activities continue, but to a smaller extent.

Sources: Synthesis of findings from literature review (Ambrožová et al. 2011; Bihuňová 2015; Central Slovak Regional National Committee, Department of Territorial Planning 1988; Czech Union of Allotment and Leisure Gardeners 2016a, 2016b, 2016c; Dekánek 1971; Demo et al. 2001; Duží et al. 2014; Gibas et al. 2013; Jakubek et al. 2011; Benčať et al. 1997; Slovak Association of Gardeners 2012; Spilková and Vágner 2016; Vinterová 1997); field research; interviews (Deák 2016; Kozlík 2016; Novotný 2016); media review (Izi 2012; Kalinová 2013; Schmidt 2006; Teislerová 2006; vž 2013); and legislation review (Act. No. 64/1997 SK; Act No. 95/1999 CZ; Act No. 38/2005 SK).

Conclusions

The aim of this article was to address the question: What does research into allotment gardening in the Czech and Slovak contexts add to the existing knowledge at the European level? We have endeavoured to extend the state of the art in European urban agriculture by providing an in-depth, descriptive account of historical and recent developments of allotment gardening in the Czech Republic and Slovakia as representative of Central European post-communist societies given their common history and the diversity of social systems they have undergone in the nineteenth, twentieth, and twenty-first centuries.

We have elaborated on allotment gardening in the context of European and more specifically Central European urban agriculture. The eighteenth and nineteenth centuries were periods of importing and adopting the concept of allotments from what is today Germany, as well as the initiation of organized gardening and associational life. The early twentieth century and the interwar period was characterized by a flowering of civil societies and gardening associations. In the period after 1948, gardening was largely a strategic tool of the communist regime and was influenced by the centrally planned development model. Despite the common preconception, allotment regulations were relatively flexible under socialism, and the regime was quite supportive and protective of allotment gardening, though in a systematic, top-down way. After 1975, allotments were significantly empowered, and their development was systematically organized. The period of transition and breakup after 1989 brought about an overall decline of allotments and gardeners' unions. This decline was the outcome of a complex set of spatial, economic, and social factors.

Reviewing the historical development and transformation of allotment gardening, one might state that it has become an important aspect of cultural heritage that deserves greater recognition. In specific cases, when older allotment sites are of outstanding urban design and architectural quality, their declaration as national cultural monuments should be considered. It would be a significant cultural loss if this long-term social practice was lost due to unscrupulous urban development. The current period after 2000 can be characterized by shrinking allotments on the one hand, and a rising public engagement on the other hand. In the last decade, new alternative forms of urban gardening have emerged to complement allotment gardening. Currently, allotments face many spatial, social, functional, structural, and demographic transformations. Their future in the Czech Republic and Slovakia seems to depend on public awareness, environmental education, structural changes, and innovations. Municipalities and state institutions have strong instruments for supporting urban gardening in Czech and Slovak towns and cities. The draft bill of the Czech gardening law (PCR-CD 2015) suggests that allotment owners (state, municipal, or private) may offer a long-term rent of abandoned land

to gardeners, under specific conditions. The current position of allotments in local and regional master plans needs to be strengthened so that allotments do not represent simply residual land for further development, but acquire full recognition as vital green infrastructure. Municipalities have to recognize that allotment gardening is a valuable recreational resource for urban inhabitants, which can supplement sports centers, playgrounds, and parks and should therefore be a central concern of local governments (Pawlikowska-Piechotka 2012; Kozlík 2016).

It is also important to think of local food system resilience: “Imagine, where food would be produced, if all urban green spaces were built up? What would we do, if all achievements and privileges of the modern time collapsed?” (Kozlík 2016). It is therefore important to keep open green spaces as reserves for gardening in the event of diverse (and negative) externalities, such as an economic crisis or food shortage, in order to ensure local food security, resilience, and ability to respond to impacts like climate change, local disasters, and other situations causing system failures (Tóth et al. 2016).

Finally, national gardeners’ unions will have to deal with a challenging transition from single-purpose to multifunctional use of allotments (Ambrožová et al. 2011). Furthermore, Czech and Slovak allotments will have to respond to diverse challenges, such as changes in the political and social system, demographical development, biodiversity loss, and climate change in the context of novel urban environments (Neumann 2013).

Acknowledgments

The authors would like to express their gratitude to two recent COST actions for facilitating European research into urban agriculture (TD1106) and urban allotment gardens (TU1201). The team of authors from the Slovak University of Agriculture in Nitra would like to thank the Ministry of Education, Science, Research and Sport of the Slovak Republic for supporting their research through KEGA research project nos. 008SPU-4/2016 and 001SPU-4/2017 and VEGA research project no. 1/0044/17. The team of authors from The Czech Academy of Sciences, Institute of Geonics would like to thank the European Union for supporting their research through the Horizon 2020 project Inspiration—Integrated Spatial Planning, Land Use and Soil Management Research Action no. 642372.

References

- Ambrožová, Vlasta, Jan Benda, Josef Ernest, Božena Hamplová, Jan Hinterholzinger, Blažej Ingr, František Kerhart et al. 2011. *Zahrádkáři v Čechách a na Morave: Historie, současnost, budoucnost* [Gardeners in Bohemia and Moravia: History, present, future]. Prague: Czech Union of Allotment and Leisure Gardeners.
- Arosemena, Graciela. 2012. *Urban Agriculture: Spaces of Cultivation for Sustainable Cities*. Barcelona: Gustavo Gilli.
- Bartke, Stephan, Stanislav Martinát, Petr Klusáček, Lisa Pizzol, Filip Alexandrescu, Bohumil Frantál, Andrea Critto, and Alex Zabeo. 2016. “Targeted Selection of Brownfields from Portfolios for Sustainable Regeneration: User Experiences from Five Cases Testing the Timbre Brownfield Prioritization Tool.” *Journal of Environmental Management* 184 (1): 94–107. doi:10.1016/j.jenvman.2016.07.037.
- Benčat', František, Ivan Hricovský, Katarína Kettmannová, Juraj Korček, Dalibor Kubáček, and Jana Polakovicová. 1997. *40 rokov organizovaného záhradkárstva na Slovensku* [40 years of organized gardening in Slovakia]. Bratislava: ZÁHRADKA.
- Bertaud, Alain. 2007. “Prostorová struktura střeďo a východoevropských měst: Jsou více evropská než socialistická?” [Spatial structure of Central and Eastern European cities: Are they more European than socialistic?]. *Era2*: 48–53.
- Bihun'ová, Mária. 2015. *Allotment Gardens in Slovakia*. National report to project COST UAG-TU 1201.
- Brown, Ralph B., Xia Xu, and John F. Toth Jr. 1998. “Lifestyle Options and Economic Strategies: Subsistence Activities in the Mississippi Delta.” *Rural Sociology* 63 (4): 599–623.
- Cameron, Ross W. F., Tijana Blanuša, Jane E. Taylor, Andrew Salisbury, Andrew J. Halstead, Béatrice Henricot, and Ken Thompson. 2012. “The Domestic Garden—Its Contribution to Urban Green Infrastructure.” *Urban Forestry & Urban Greening* 11: 129–137. doi:10.1016/j.ufug.2012.01.002.

- Caputo, Silvio, Eva Schwab, and Kostas Tsiambaos. 2016. "Emergent Approaches to Urban Gardening." In *Urban Allotment Gardens in Europe*, ed. Simon Bell, Runrid Fox-Kämper, Nazila Keshavarz, Mary Benson, Silvio Caputo, Susan Noori, and Annette Voigt, 237–262. London: Routledge.
- Central Slovak Regional National Committee, Department of Territorial Planning. 1988.
- Generel lokalít pre záhradkárské osady v území 44 miest stredoslovenského kraja [Master plan of localities for allotment colonies in the territories of 44 towns of the central Slovak region]. Banská Bystrica: Stredoslovenský krajský národný výbor v Banskej Bystrici—Odbor územného plánovania.
- Clarke, Simon, Lena Varshavskaya, Sergei Alasheev, and Marina Karelina. 2000. "The Myth of the Urban Peasant." *Work, Employment & Society* 14 (3): 481–499. doi: 10.1017/S0950017000000283.
- Clayton, Susan. 2007. "Domesticated Nature: Motivations for Gardening and Perceptions of Environmental Impact." *Journal of Environmental Psychology* 27: 215–224. doi:10.1016/j.jenvp.2007.06.001.
- Czech Union of Allotment and Leisure Gardeners. 2016a.
- Akce: Pozemek pro novou zahrádkovou osadu Bzdinka I v Dobříši [Action: Land for new allotment garden Bzdinka I in Dobříš]. <http://www.zahradkari.cz/zo/dobris/index.php?str=3327>. Czech Union of Allotment and Leisure Gardeners. 2016b.
- Bezplatná inzerce [Free advertisement]. <http://www.zahradkari.cz/odborne/index.php?str=76>.
- Czech Union of Allotment and Leisure Gardeners. 2016c. "Statistical Evidence of the Development of Union from 1991 to 2014." Unpublished document.
- Deák, L'udovít. 2016. Interview with the representatives of the Slovak Association of Gardeners in Žilina on allotment gardens in Slovakia, their historical development, and current situation. Interviewed by Ján Supuka and Attila Tóth [notes]. Žilina, 6 July 2016.
- Dekánek, Štefan. 1971. *Zahrádkové osady—vzorková predloha prednášky* [Allotment colonies—patterns and models]. Bratislava: Slovenský ovocinársky a záhradkársky zväz, Ústredný výbor.
- Demo, Milan, Pavol Bielek, Margita Canigová, Jozef Dudak, Alexander Fehér, Štefan Hraška, Ivan Hričovský et al. 2001. *Dejiny poľnohospodárstva na Slovensku* [History of agriculture in Slovakia]. Nitra: Slovak University of Agriculture.
- Domene, Elena, and David Saurí. 2007. "Urbanization and Class-produced Natures: Vegetable Gardens in the Barcelona Metropolitan Region." *Geoforum* 38: 287–298. doi: 10.1016/j.geoforum.2006.03.004.
- Duží, Barbora, Attila Tóth, Mária Bihunová, and Robert Stojanov. 2014. "Challenges of Urban Agriculture: Highlights on the Czech and Slovak Republic Specifics." In *Current Challenges of Central Europe: Society and Environment* ed. Jan Vávra, Miloslav Lapka, and Eva Cudlínová, 82–107. Prague: Charles University.
- Duží, Barbora, Bohumil Frantál, and Marian Simon-Rojo. 2017. "The Geography of Urban Agriculture: New Trends and Challenges." *Moravian Geographical Reports* 25 (3): 130–138. doi: 10.1515/mgr-2017-0012.
- Gibas, Petr, Lucie Matejovská, Arnošt Novák, Eliška Rolfová, Veronika Tvardková, Irena Valešová, and Martin Veselý. 2013. *Zahrádkárské osady: Stíny minulosti nebo záblesky budoucnosti?* [Allotment gardens: Shadows of past or glimpses of future?]. Prague: Charles University.
- Gray, Leslie, Patricia Guzman, Kathryn Michelle Glowa, and Ann G. Drevno. 2014. "Can Home Gardens Scale up into Movements for Social Change? The Role of Home Gardens in Providing Food Security and Community Change in San Jose, California." *Local Environment* 19 (2): 187–203. doi:10.1080/13549839.2013.792048.
- Halás, Marian, Pavel Klapka, and Petr Kladivo. 2014. "Distance-Decay Functions for Daily Travel-To-Work flows." *Journal of Transport Geography* 35: 107–119. doi:10.1016/j.jtrangeo.2014.02.001.
- Hinterholzinger, Jan (speaker). 2014. "Zhodnocení uplynulého volebního období 2010–2014—souhrnná zpráva PRR predložená na snemu CZS" [Evaluation of previous election period 2010–2014—synthesis report]." Reporter of the Czech Union of Allotment and Leisure Gardeners 4: 7–10.
- izi. 2012. "Zájem o zahrádky roste, vstříc vycházejí jen některá města" [Growing interest in gardening: Only some municipalities support this trend]. Czech television: TV Studio Brno. <http://www.ceskatelevize.cz/zpravodajstvi-brno/zpravy/180457-zajem-o-zahradky-roste-vstrec-vychazeji-jen-nektera-mesta/>.
- Jakubek, Eduard, František Bejda, Emil Petřík, Sona Makarová, Anton Goláb, Július Bekéni, Malva Pokorná et al. 2011. *50 rokov organizovaného záhradkárstva na Východnom Slovensku* [50 years of organized gardening in eastern Slovakia]. Prešov: OV SZZ v Prešove.

- Jehlička, Petr, Tomáš Kostecký, and Joe Smith. 2012. "Food Self-provisioning in Czechia: Beyond Coping Strategy of the Poor: A Response to Alber and Kohler's 'Informal Food Production in the Enlarged European Union' (2008)." *Social Indicator Research* 111 (1): 219–234. doi:10.1007/s11205-012-0001-4.
- Kalinová, Ivana. 2013. "Zahrádky bojují o místo na slunci" [Allotments struggle for their place in the sun]. *Karlovarský deník.cz*, 1 August. http://karlovarsky.denik.cz/zpravy_region/zahradky-bojuji-o-misto-na-slunci-20130801.html.
- Karasová, Erika. 2011. "Majú domy, úradne sú bezdomovcami: Záhradkári sa roky sporia s mestom o trvalý pobyt" [They have houses, officially they are homeless: Gardeners have been disputing their permanent residence with the municipality for years]." *Korzár spiš*, 27 October <http://spis.korzar.sme.sk/c/6114617/zahradkari-sa-roky-sporia-s-mestom-o-trvaly-pobyt.html#ixzz4JO3wnoL7>.
- Keshavarz, Nazila, Simon Bell, and contributing authors. 2016. "The Idea of Allotment Gardens and the Role of Spatial and Urban Planning." In Bell et al., *Urban Allotment Gardens in Europe*, 8–32.
- Kiesling, Frances M., and Christie M. Manning. 2010. "How Green Is Your Thumb? Environmental Gardening Identity and Ecological Gardening Practices." *Journal of Environmental Psychology* 30: 315–327. doi:10.1016/j.jenvp.2010.02.004.
- Klapka, Pavel, Martin Erlebach, Ondrej Král, Michal Lehnert, and Tomáš Micka. 2013. "The Footfall of Shopping Centres in Olomouc (Czech Republic): An Application of the Gravity Model." *Moravian Geographical Reports* 21 (3): 12–26. doi: 10.2478/mgr-2013-0013.
- Kortright, Robin, and Sarah Wakefield. 2011. "Edible Backyards: A Qualitative Study of Household Food Growing and its Contributions to Food Security." *Agriculture and Human Values* 28: 39–53. doi: 10.1007/s10460-009-9254-1.
- Koopmans, Marlinde E., Daniel Keech, Lucie Sovová, and Matt Reed. 2017. "Urban Agriculture and Place-Making: Narratives about Place and Space in Ghent, Brno and Bristol." *Moravian Geographical Reports* 25 (3): 154–165. doi: 10.1515/mgr-2017-0014.
- Kozlík, Stanislav. 2016. Interview with the chairman of the Czech Union of Allotment and Leisure Gardeners, historical development and current situation. Interviewed by Barbora Duží [dictaphone, notes]. Kyjov, 26 July 2016.
- Krzysztofik, Robert, Maria Tkocz, Tomasz Spórna, and Iwona Kantor-Pietraga. 2016. "Some Dilemmas of Post-Industrialism in a Region of Traditional Industry: The Case of the Katowice Conurbation, Poland." *Moravian Geographical Reports* 24 (1): 42–54. doi:10.1515/mgr-2016-0004.
- Kunc, Josef, František Křižan, Kristína Bilková, Peter Barlík, and Jaroslav Maryáš. 2016. "Are there Differences in the Attractiveness of Shopping Centres? Experiences from the Czech and Slovak Republics." *Moravian Geographical Reports* 24 (1): 27–41. doi:10.1515/mgr-2016-0003.
- Larder, Nicolette, Kristen Lyons, and Geoff Woolcock. 2014. "Enacting Food Sovereignty: Values and Meanings in the Act of Domestic Food Production in Urban Australia." *Local Environment* 19 (1): 56–76. doi:10.1080/13549839.2012.716409.
- Ministry of Agriculture and Rural Development of the Slovak Republic (MARD SR). 2005. Vyhláška c. 38/2005 Z. z. o určení hodnoty pozemkov a porastov na nich na účely pozemkových úprav [Act No. 38/2005 on Determining the Value of Land and Crops Growing on them for the Purposes of Land Consolidation].
- Mulíček, Ondrej, Robert Osman, and Daniel Seidenglanz. 2016. "Time-Space Rhythms of the City—The Industrial and Postindustrial Brno." *Environment and Planning A* 48 (1): 115–131. doi:10.1177/0308518X15594809.
- National Council of the Slovak Republic (NCSR). 1997. Zákon c. 64/1997 Z. z. o užívaní pozemkov v zriadených záhradkových osadách a vyporiadaní vlastníctva k nim, v znení neskorších predpisov [Act. No. 64/1997 on the Use of Land in Established Allotments and on the Settlement of their Ownership Relations; as Subsequently Amended].
- Neumann, Klaus. 2013. *International Seminar of the Office International: Final Brochure*. Berlin: BDG.
- Nevima, Jan, and Ingrid Majerová. 2015. "The Application of Two Econometric Models in the β -Convergence Approach in the Case of Visegrad Four Regions." *Transformation in Business & Economics* 14 (2A): 549–562.

- Novotný, František. 2016. Interview with the regional chairman of the Czech Union of Allotment and Leisure Gardeners, Regional Organization Ostrava, historical development and current situation. Interviewed by Barbora Duží [notes]. Ostrava, 16 June 2016.
- Osman, Robert, Bohumil Frantál, Petr Klusáček, Jan Kunc, and Stanislav Martinát. 2015. "Factors Affecting Brownfield Regeneration in Post-Socialist Space: The Case of the Czech Republic." *Land Use Policy* 48: 309–316. doi:10.1016/j.landusepol.2015.06.003.
- Ouredníček, Martin, Martin Šimon, and Martina Kopečná. 2015. "The Reurbanization Concept and Its Utility for Contemporary Research on Post-Socialist Cities: The Case of the Czech Republic." *Moravian Geographical Reports* 23 (4): 26–35. doi:10.1515/mgr-2015 - 0 022.
- Paradis, Sylvie, Agata Cieszewska, Attila Tóth, and Ina Šuklje-Erjavec. 2016. "Agriculture in Urban Space." In *Urban Agriculture Europe*, ed. Frank Lohrberg, Lilli Lic'ka, Lionella Scazzosi, and Axel Timpe, 120–125. Berlin: Jovis Verlag GmbH.
- Parliament of the Czech Republic, Chamber of Deputies (PCR-CD). 1999. Zákon c. 95/1999 Sb., o podmínkách převodu zemědělských a lesních pozemků z vlastnictví státu na jiné osoby, ve znění pozdějších předpisů [Act No. 95/1999 on the Conditions of Agricultural and Forest Land Transfer from State Ownership to Persons or Organizations, as Subsequently Amended]. Parliament of the Czech Republic, Chamber of Deputies (PCR-CD). 2015.
- Návrh na vydání zákona o podpoře zahrádkářské činnosti a o úpravě ne kterých podmínek jejího provozování (zahrádkářský zákon) [Draft bill of the Czech gardening law].
- Pawlikowska-Piechotka, Anna. 2012. "Urban Green and Sustainability Land Policy Management: Case Study of Warsaw." *European Countryside* 4: 251–268. doi: 10.2478/v10091- 012- 0027-2.
- Rose, Richard, and Yevgeniy Tikhomirov. 1993. "Who Grows Food in Russia and Eastern Europe?" *Post-Soviet Geography* 3 4 (2): 111–126.
- Schmidt, Otakáro Maria. 2006. *Padající květináč: Zahrádky a zahradníci. Jaký význam může mít pro člověka vlastní zahrádka v centru města* [Falling pot: Gardens and gardeners—importance of urban gardening] (documentary film). <http://www.ceskatelevize.cz/porady/10095359318-padajici-kvetinac/306295350050007/>.
- Schupp, Justin L., and Jeff S. Sharp. 2012. "Exploring the Social Bases of Home Gardening." *Agriculture and Human Values* 29: 93–105. doi: 10.1007/s10460 - 011-9321-2.
- Seeth, Harm Tho, Sergei Chachnov, Alexander Surinov, and Joachim von Braun. 1998. "Russian Poverty: Muddling Through Economic Transition with Garden Plots." *World Development* 26 (9): 1611–1623. doi: 10.1016/s0305-750x(98)00083-7.
- Simon-Rojo, Marian, Xavier Recasens, Sonia Callau, Barbora Duží, Sebastian Eiter, Veronica Hernandez-Jimenez, Raffaella Laviscio, et al. 2016. "From Urban Food Gardening to Urban Farming." In Lohrberg et al., *Urban Agriculture Europe*, 22–28.
- Slovak Association of Gardeners. 2012. *Spravodajca RV SZZ c. 1/2012, 55. Výročie 1957–2012—Informačná brožúra pre členov* [Report of the Republic Committee of the Slovak Association of Gardeners No. 1/2012, 55th Anniversary 1957–2012—Information booklet for members]. Bratislava: Slovenský zväz záhradkárov.
- Smith, Joe, and Petr Jehlička. 2013. "Quiet Sustainability: Fertile Lessons from Europe's Productive Gardeners." *Journal of Rural Studies* 32: 148–157. doi: 10.1016/j.jrurstud.2013.05.002.
- Spilková, Jana, and Jiří Vágner. 2016. "The Loss of Land Devoted to Allotment Gardening: The Context of the Contrasting Pressures of Urban Planning, Public and Private Interests in Prague, Czechia." *Land Use Policy* 52: 232–239. doi:10.1016/j.landusepol.2015.12.031.
- Sýkora, Ludek, and Stefan Bouzarovski. 2012. "Multiple Transformations: Conceptualising Post-Communist Urban Transition." *Urban Studies* 49 (1): 41–58. doi: 10.1177/0042098010397402.
- Sýkora, Ludek. 2013. "Promeňny post-socialistických metropolis" [Transformation of postsocialist metropolises]. *Geografické rozhledy* 4: 2–4.
- Šimek, Jakub. 2005. *De cultura hortorum (o zahradnictví)* [De cultura hortorum (about gardening)]. Translation, introduction and commentary to original by Walahfrid Strabo. Uherský Brod, Czech Republic: Florart.

- Tafel-Viia, Kulliki, Erik Terk, Silja Lassur, and Andres Viia. 2015. "Creative Industries in the Capital Cities of the Baltic States: Are There Innovations in Urban Policy?" *Moravian Geographical Reports* 23 (4): 47– 58. doi:10.1515/mgr-2015 - 0 024.
- Taylor, John R., and Sarah Taylor Lovell. 2013. "Urban Home Food Gardens in the Global North: Research Traditions and Future Directions." *Agriculture and Human Values* 31 (2): 285–305. doi:10.1007/s10460-013-9475-1.
- Teislerová, Hana. 2006. *Ta naše povaha česká: Konec zahrádkáru v Cechách a na Moravě* [Our Czech nature: The end of gardeners in the Bohemia and Moravia] (documentary film). <http://www.ceskatelevize.cz/porady/1100627928-ta-nase-povaha-ceska/406235100011020-konec-zahradkaru-v-cechach-a-na-morave/>.
- Teitelbaum, Sara, and Thomas Beckley. 2006. "Harvested, Hunted and Home Grown: The Prevalence of Self-Provisioning in Rural Canada." *Journal of Rural and Community Development* 1: 114–130.
- Timpe, Axel, Agata Cieszewska, Jan Supuka, and Attila Tóth. 2016. "Urban Agriculture Goes Green Infrastructure." In Lohrberg et al., *Urban Agriculture Europe*, 126–137.
- Torsello, Davide. 2005. "Neviditeľné základy dôvery: Domáca produkcia, práca a výmena na slovenskej dedine" [The invisible bases of trust: Household production, work and exchange in Slovakian villages]. *Slovenský národopis* 53 (1): 5–19.
- Tóth, Attila, and L'ubica Feriancová. 2014. "Landscape as a Resource for Squat Farming." *Acta Horticulturae et Regiotecturae* 17 (2): 35–37.
- Tóth, Attila, Stacy Rendall, and Femke Reitsma. 2016. "Resilient Food Systems: A Qualitative Tool for Measuring Food Resilience." *Urban Ecosystems* 19 (1): 19–43. doi: 10.1007/s11252-015-0489-x.
- Tóth, Attila, and Axel Timpe. 2017. "Exploring Urban Agriculture as a Component of Multifunctional Green Infrastructure: Application of Figure-Ground Plans as a Spatial Analysis Tool." *Moravian Geographical Reports* 25 (3): 208–218. doi: 10.1515/mgr-2017-0018.
- Vinterová, Alena. 1997. *Generel zahrádkových osad* [Master plan of allotment colonies]. Praha: Útvar rozvoje hlavního města Prahy. v.ž. 2013. "Zahrádkáři bojují za zelené plíce Brna" [Gardeners fight for the green lungs of Brno]. *Brno žurnál*, 27 June. <http://www.brnozurnal.cz/z-bloku-a-per/zahradkari-bojuji-za-zelene-plice-brna/>. Zahrádkáři Kraví Hora I, ZO ČS. n.d. [Local organization of the Czech Union of Allotment and Leisure Gardeners Kraví Hora I]. <http://www.zokravihora.cz/> (accessed 9 September 2016).
- Zahrádkáři Kraví Hora II, ZO ČS. n.d. [Local organization of the Czech Union of Allotment and Leisure Gardeners Kraví Hora II]. <http://www.zahradkari.cz/zo/kh2/> (accessed 9 September 2016)