Protection of Landscape Values of Historical Post Military Objects - Complexes in Spatial, Urban and Architectural Planning of Polish Cities

Dorota Gawryluk [1], Marek Zagroba [2]

[1] Bialystok University of Technology, Department of Construction and Environmental Engineering, Wiejska str. 45A, 15-351 Bialystok, Poland
[2] University of Warmia and Mazury, Faculty of Geodesy, Geospatial and Civil Engineering, Institute of Building Engineering, Department of Building Engineering and Building Physics, Heweliusza str. 4, Olsztyn 10-724, Poland

d.gawryluk@pb.edu.pl

Abstract. Within the borders of modern Poland there are numerous barracks units erected at the turn of the 19th and 20th centuries by the invaders from Russia, Austria and Prussia. Former barracks are a clear element of the history of the place. Historical complexes have a strong influence on the urban landscape and on building their former and contemporary identity. The analysis of functional and landscape absorption of postmodern complexes allows for their adaptation and modern use without limiting the readability of historical values. For this reason, their landscape should be protected comprehensively within the scope of subsequent exposure scales. The aim of the work is to justify the conditions of comprehensive protection of the fortified landscape of the former barracks of the former Russian partition in the landscape of contemporary Polish cities. The article contains a review of the literature on the protection, supplement and access to fortified buildings from the turn of the 19th and 20th centuries in contemporary Poland. A review of current research conducted at various academic centres in Poland, concerning the exposition of fortified buildings in the landscape, is presented. Particular attention was paid to the scales and forms of exposition, proposed for the fortifications and barracks. The paper presents justification for the protection of barracks complexes from the turn of the 19th and 20th centuries in the landscape of Polish cities of the former Russian partition area. Protection of the landscape was proposed in the following scales: superregional, landscape (panorama of the centre), urban (urban structure of the complex in the context of the urban space), architectural and landscape interiors of the complex (WAK) such as alleys, alarm squares, greenery) and detail (view of the building from the outside), interior of the building (characteristic interior spaces, e.g. home chapels, staircases). Taking account of exposures analysis of individual scales should result in appropriate records at all levels of planning documents to protect the fortified landscape of the historic barracks. The article points to the use of greenery as a means to correct barracks exposures and to improve the standard of using historic complexes for new, contemporary functions.

1. Introduction

The beginning of 21-st century brought in Poland numerous examples of modernization and revaluation of historic barracks units. Given that a large number of such complexes dating back to the turn of the 19th and 20th centuries have survived in the country, the problem of their modern revitalization and

Content from this work may be used under the terms of the Creative Commons Attribution 3.0 licence. Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.
Published under licence by IOP Publishing Ltd

restoration is significant. Within the limits of the former Russian partition, there were more than 60 garrison locations in parts of modern Poland, and in some of them even several barracks were erected [1]. So the issue is extensive. Historical complexes are a testimony to the history of the town, and at the same time an important element shaping their identity in the past and in the present. Particular attention in this process deserves care to preserve the landscape values of barracks complexes in different scales of their perception. This will allow for an appropriate evaluation of the landscape and functional absorption of objects without detriment to the values of historical monuments.

The purpose of this paper is to indicate the scale of historical objects (the tsarist barracks) in the landscape, and to identify the main characteristics for each level of perception. This will allow to take and formulate appropriate planning decisions to protect these objects.

Guidance and analogy to help determine the scale of exposures related to the protection of the fortified barracks should be searched in the literature of historical complexes of similar scale, i.e. old factories, fortresses and fortifications from the 19th and early 20th centuries. The beginning of the process of deindustrialisation of historic factories in Poland was in the 1960s. In the mid-1980s, methods of adaptation of atypical building complexes - post-industrial complexes and methods of their commercial and tourist accessibility were developed [2]. In the 1970s, postmodern buildings (fortresses, fortifications, barracks of the late nineteenth and early twentieth centuries) began to be regarded as monuments, and about 20 years later they were protected [3]. The conclusions drawn from the analysis of existing actions show that the military structures in the contemporary protection and disclosure should be treated holistically [4] at all levels of planning decisions [3].

The study was based on the definition of a fortified object and its essential landscape feature - the ancient fire links that are now visual connections [2,5]. In order to indicate the exposure scale, the architectural-landscape method (WAK) developed in the Cracow centre was used [6]. The research was conducted on the tsarist barracks units and was confronted with the methods and practices postulated and applied to the fortification units. This was done due to the similar period and reason of their construction (the turn of the 19th and 20th centuries) (tsar's authority actions aimed at strengthening the western frontier of then Russia and preparation for the First World War, defense area - theatre of war). These actions in relation to modern administrative division were supraregional. At present, the protection of already existing barracks should be carried out comprehensively from the general (nationwide scale) to the detail (the town and the object scale).

2. Review of literature

Exposure and protection of the fortified barracks landscape has not yet reached a separate study. Issues related to it are presented in numerous scientific papers. Basic in this group is the history of the fortifications in Poland, including the leading work of professor J. Bogdanowski summarizing the changes taking place in defense architecture in the Polish landscape from the Middle Ages to World War II [5]. For understanding the fortified landscape, the study prepared by A. Krol in the interwar period [7] is also of great importance. Numerous objects have been found in individual monographic works (Kraków, Poznań, Wrocław, Olsztyn, Warsaw). Single barracks complexes have been described by the prism of the importance of greenery for their landscape [8,9,10]. The last decade has also brought scientific research into the issue of revitalization and modernization of antique barracks in Poland [11,12,13] as well as in Europe [14,15]. This thread is increasingly being analyzed by further researchers. The forms of protection and availability of the fortifications, as well as their adaptations and supplements, are topics which are researched by the main scientific centres in Poland, among others in Warsaw, Cracow, Poznan, Torun, Szczecin, Gdansk [2,3,16,17,18,19,20]. Among them there are also presentations of studies on particular fortified objects [17,22]. The theme of the scientific work is also the issue of making the objects tourist accessible as a form of protection of historic fortifications [2]. The literature on the topic also includes studies on the importance of greenery as an element of the fortified landscape and its importance for modern urban green systems [3,13] and the impact on the exposition of historic complexes in urban landscapes [23]. The historic green composite barracks was also considered in terms of importance for the contemporary local community [9].

The topic of this paper is also related to the use of greenery as an element of revitalization of degraded areas, e.g. post-industrial areas [24,25]. Proper use of greenery influences the improvement of the standard of living and the quality of life in the revitalized areas - *"go greener feel better"* [26] and the identification the inhabitants with the area [9,25]. Introducing diversity of forms and species of new plantings improves the green system within the facility, the district and the entire center [27].

3. Exhibition of fortified landscape

The definition of fortified landscape, which was developed by professor Janusz Bogdanowski at the turn of the 1970s and 1980s, is the starting point for determining the landscape values of military objects. It corresponds to the German Wehrlandschaft and to the English Strategic Landscape and stands for a comprehensively chosen configuration and covering of the area, which was designed for the defense purpose. Therefore, the fortified landscape takes into account all the combat objects as well as the defense structures together with the terrain in which they are entered. Its essential feature is that these objects contained *"fire and signalling links that now translate into view associations"* [2,5]. With respect to fortifications or barracks units from the turn of the nineteenth and twentieth centuries, these visual connections translate into a large spatial scale resulting from the technological range of the weapon, the dislocation capacity of the army, the potential needs of the developed theatre of war of that time, and the political and symbolic decisions of the occupying forces concerning the location of military facilities against cities. The definition of fortified landscaping makes it clear that the readability of fortified buildings should therefore be preserved in the context of the landscape in which they functioned (for which they were intended). This will allow for its proper understanding and interpretation, and thus the reading of the history and identity of the place.

Due to the multi-scale complexity of the fortified landscape, Jadwiga Środulska-Wielgus [2] established several levels of its perception. Based on the method of structuring the landscape of the architectural-landscape interiors WAK, developed at the Cracow University of Technology [6], she indicated the following scales of fortified landscape exposure, referring mainly to the fortresses and fortifications: 1) the macro-interior scale corresponding to the panorama scale (including the foreground), 2) a meso-interior scale corresponding to a medium-distance view covering one object; 3) a micro-interior scale corresponding to a view inside a fortified unit, e.g. a courtyard,4) infra-interior scale - corresponding to the view of the interior of the building, the specific room, 5) the scale of the event - corresponding to the momentary "scenographic" view of a certain background, for the episode presented. Reconstruction of a historical event that has a didactic significance while influencing the emotions of the participants of the event [2].

When Dorota Gawryluk was investigating fortified landscape of tsarist barracks in Zambrów (Poland) [28], she proposed analysing their expositions to the towns in the following scales: 1) the scale of the panorama of the city, 2) the architectural and urban scale of the area of the former barracks, 3) scale of architectural detail in relation to buildings. They were determined in relation to the characteristic architectural and landscape interiors (WAK) in which groups were defined in the area of the barracks - their historical and contemporary layout (e.g. alarm square, alley, individual buildings and architectural details).

Particular attention, due to functional and compositional reasons, deserves greenery in the fortified landscape. With regard to the fortifications, it had the importance of obstacle, masking and decorative [2,5]. As far as the barracks units are concerned, they had decorative and utilitarian function in the form of squares, tree lanes along the alley, borders of barracks and commercial gardens [8,9,10].

4. Forms of protection of fortified buildings in spatial and urban planning

Research on the adaptation and facilitating historic fortifications has become the basis for identifying the forms of protection of these facilities. An authoritative method of conservatorial valorisation of fortified buildings, which should precede each process of adaptation and supplementing the monument

to the new function was formulated at the Department of Architecture Conservation of the Faculty of Architecture of the Warsaw University of Technology. This method is intended to protect historical values of objects as their superior values [16,17]. It leads to the appropriate choice of adaptation of the object, allows to determine its functional and landscape absorbency [2,16,23]. Authors of the aforementioned methods indicate two possible approaches to design in the historical context: pro- and ahistorical. At the same time, they point to the need to preserve legibility of the original and complementary tissue of the monument.

In the case of fortified buildings, especially fortifications, their protection should concern both the architectural and building objects as well as related to them earthen objects. Hence the need for comprehensive protection [16]. For this reason, the researchers indicate in particular the following forms of protection within the framework of Polish law: 1) cultural park, including fortress cultural park, 2) entry in the register of monuments, 3) protection in local spatial development plan [4]. These are forms corresponding to European solutions, i.e. Eco museum, open-air museum, museum, cultural park within the framework of broadly understood protection of heritage. These forms require planning documentation at all levels from supraregional to local.

Proper facilitating of tourist landscaping is an effective way of protecting it. It should be based on historical veracity (faithful message with minimal additions), bring important educational values and keep the historical values. The process, often slow, should be led consistently (3K Consecutive Step by Step) [2]. An important element of making a tourist facilitating is its appriopriate interpretation. It is the key to cognition, but more importantly it allows *"to preserve the identity and tradition of the place. Landscape is an expression of identity"*[20]. Understanding the functioning of the fortress is the key to correct interpretation of intricate interconnections between objects and is a criterion for enhancing the attractiveness of the fortification as an element of the fortified landscape. For this purpose, appropriate markers should be provided for visitors. Their location must be well thought out so that the markers do not obscure the legibility of essential elements of the landscape [2].

In many areas, green is an important element in the protection and availability of fortified buildings. It is a carrier of history due to its former destiny (in the case of the green fortifications it played the role of: obstacle, masking and decoration [2], in the case of tsarist barracks - decoration, composition and utilitarian [10]. Nowadays, it is a great way to improve the exposure of fortified buildings in the landscape [23], but at the same time builds a green system of cities, such as Warsaw [3], Kraków [2,23] or Poznan [21], but also smaller Zegrze, Deblin or Modlin in the vicinity of Warsaw.

5. The postulated scales for protection the fortified landscape of barracks

Historic barracks should be protected in planning activities analogous to fortifications. Their deployment in the field, extensive urban scale and programmatically introduced sightings due to military and political objectives, predestinate barracks complexes to protect them from macro to micro levels. As a result of the research, it was found the need to comprehensively protect the landscape of the fortified barracks in the following proposed scales:

- supraregional scale -due to historical reason of erecting at the turn of the 19th and 20th centuries many barracks complexes in almost 60 cities and towns located in Poland. The system of tsarist garrisons and fortresses was at that time the strengthening of the western boundary of the Russian Empire, the line of defense and the strategy of the planned theatre of war. Preserved fortified buildings form a modern supraregional (in geographical and administrative sense) complex, confirming location of the non-existing boundary of the partitions. In this sense, they are a testament to Poland's difficult and complex history. Keeping it legible requires action in the area of planning at the state-wide level.
- landscape scale - understood in panorama of the city, with particular attention to smaller towns. At the beginning of the twentieth century, tsarist barracks complexes were located locally in the

nearby neighbourhoods of the towns. Extensive military units often represented a landscape dominant in the city skyline, matching or exceeding the size of a town. At the beginning of the twentieth century it was manifesto of domination and power of the occupying army. Nowadays, the vast swaths of the city are their individual landscape features (Suwałki, Zambrów, Zegrze, Skierniewice, ..), they are building a new identity of the city due to military and civilian functions after the First World War.

- urban scale - due to the structure, order and spatial regularity of the old barracks teams. They became the basis for the construction of the present space grid. The orthogonality of the streets, squares and buildings is the consequence of the first warp of former barracks erected from the outset on a free area like the historic "castrum romanum". It is of particular value to incorporate the historic layout of the barracks into the structure of developing cities, to link the barracks to the city border and to impose a new urban grate on the grid set by the first planners and builders. It is important to preserve the exposition of the former dominant (e.g. orthodox churches) and architectural accents (e.g. gates, facade details) which location was programmatically determined. The overlap of successive layers of spatial structure builds the present urban identity of the city.
- architectural-landscape interior scale (WAK) established as characteristic of the barracks complexes. In this group there are old interiors of vast alarm squares, streets and alleyways leading to the barracks and running within them, spaces between barrack, technical, economic, warehouse buildings, military facilities paces like shooting ranges. Architectural and landscape interiors of barracks are readable walls of military housings of an orderly, perpendicular and parallel course. For particular complexes and their parts the characteristic height of masonry buildings was 1-4 storeys , and wooden buildings 1-2 storeys. The element which organises compositionally - architectural-landscape interior scale (WAK) established as characteristic of the barracks complexes. In this group there are old interiors of vast alarm squares, streets and alleyways leading to the barracks and running within them, spaces between barrack, technical, economic, warehouse buildings, military facilities paces like shooting ranges. Architectural and landscape interiors of barracks are readable walls of military housings of an orderly, perpendicular and parallel course. For particular complexes and their parts the characteristic height of masonry buildings was 1-4 storeys , and wooden buildings 1-2 storeys. The element which organises compositionally the architectural-landscape interior was construction material (yellow and / or red brick and wood) . The protection of the architectural and landscape interiors of the historic barracks in the contemporary landscape of the cities aims to preserve their expositions in relation to the repeatedly carried out restorations. Analysis of this scale of protection will also indicate possible areas in which new buildings can be erected without detriment to the readability of the historic post-military complex.
- object and detail scale - understood as a view of one building, allowing the readability of architectural details. The care to maintain the exposure of this barracks scale is particularly important due to the stylistic differences in the barracks architecture, allowing for the identification of belonging to the partition in the early 20th century. The architectural style of the barracks of the former Russian partition is defined by various researchers as Old Russian, classicist, and historian. Clarification requires further investigation. However, the sum of its features makes it easy to identify them as Russian barracks, in opposition to the Prussian or Austrian. In spite of the typical typology and the repeated repetition of barracks buildings in different complexes (typical projects such as orthodox churches, barracks and other functions), individual examples (e.g. Kozłówka in Legionowo and characteristic classicism -renaissance windows) are also available. Architectural details that individualize the functions of the individual objects were the consequence of the general design style of the building and the type (brick and / or wood) and colour of the used material. Protection on the object and detail scale

concerns the processes of modernization of buildings to contemporary needs and functions, such as the provision of technical infrastructure, carpentry replacement, thermomodernisation, roof repairs ... This will avoid degradation of their historical originality [14].

- object interior scale - understood as the characteristic interiors of the rooms in the building, their size, proportions, height, decoration and equipment. Due to their functions they were given different decor, more or less decorative. Typical solutions were used, for example window and door woodwork, balustrades and steps on staircases, interior finishing materials. In this group, the interiors of sacred objects deserve special attention.

The analysis of the landscape of the fortified barracks in the above scales will allow for an appropriate determination of the landscape and functional absorptivity of the objects, and thus to indicate the appropriate path of adaptation and supplementation of objects to new functions without detriment to the exposure of historical values. This is in line with the so-called reverse approach in designing adaptation of historical objects to new functions [13]. This approach will allow protection at every level of planning decisions, resulting in the adoption of the appropriate form: cultural park, entry in the register of monuments, establishment of protection in the local spatial development plan and others, comparable to activities conducted in relation to the fortifications from the turn of the nineteenth and twentieth centuries.

6. Greenery in the activities of renewal and facilitation of the fortified landscape of the tsarist barracks

Improving the exposition of the old tsarist barracks in the urban landscape can be done today by using various forms of greenery. Characteristic forms of greenery such as alleys, planting tree lanes along the barracks border, decorative squares and flower beds, utility gardens were used in the development of the barracks during the tsarist period, and then continued in the interwar period by the Polish army [10]. Utilizing the tradition of green presence in the context of the barracks, it is now possible to improve both the readability of historic buildings in the city landscape (on various scales of exposures), and to improve the standard of barracks for present non-military functions. This is confirmed by the studies carried out by students of Landscape Architecture and Spatial Management of Bialystok University of Technology. The work was done under the supervision of D. Gawryluk (figure1). Green projects and revitalization programs have been developed by students for whole post-barracks complexes or their selected fragments in cities: Augustów, Suwałki, Zambrów, Komorowo (Poland). Design decisions are based on guidelines that point to historical and architectural-landscape values of complexes as overriding. As a result, in the study work, the solutions for the objects of landscape architecture were considered and proposed - the forms of greenery, which simultaneously:

- recall and emphasise the legibility of the former spatial composition of the barracks (boundaries, main composite axes) in the context of supplementing housing after World War II. This is an aid in the interpretation of the historic landscape of a fortified barracks on various scales of exposure (urban pattern, urban grid, network),
- introduce greenery, which is the foreground of selected barracks essential for ancient complexes due to their historic function and location in the urban composition. At the same time, they influence the improvement of the image of the institutions which use these facilities (such as the social welfare house, the chamber of remembrance - the house of culture, various businesses and businesses, the hotel, the school ...),
- they propose selection of species of plants, their form and shape of plantings (rhythmicity, regularity, repetition, orthogonal matrix) with features evoking associations with the military history of the place. At the same time, they enrich the species diversity of hitherto green (biodiversity)

- they adapt existing, valuable green squares of historical origin (e.g. alleys, tree lanes, squares, ...), introduce recreational green areas (in the form of squares, walkways, playgrounds, utility gardens) for inhabitants of housing estates located in barracks. They use the traditional forms of greens for the old barracks (squares with monuments, existing alleys, tree lanes along the border, ...). They also introduce green areas decorated with old alarm squares, so as not to interfere with the exposition of barracks at the same time implementing the postulate "greenery enough" (the needs and financial potential of the current inhabitants of the housing so that there is no overinvestment leading to a sudden increase in property values and in the consequence ejection of their former inhabitants).
- propose the introduction of community gardens (communal-common) in the form referring to the tradition of military gardens. They have the effect of improving the identification of residents (garden users) with housing and increasing the integration of residents between themselves. This is a proposal to solve the social problem of many housing estates located in the former tsarist barracks, which over the years has been affected by social degradation, especially concerning the image of a place considered a "worse neighbourhood" in the city, dangerous, not attractive
- enter proposed green areas from the barracks area to the urban green system by expanding the ecological and recreational system of the resort
- suggest the introduction of hiking trails with designated characteristic barracks exposures on various scales equipped with appropriate markers - information on the history of the barracks. The purpose of this action is to make the locals aware of the place's history and to improve the tourist attractiveness of the town, to provide tourist facilities of barracks for intensively developing military tourism.



Figure 1. Revitalisation of Tsarist barracks in Suwalki [29]

7. Conclusions

At the turn of the nineteenth and twentieth century the location of the fortified buildings was conditioned by functional, technological and political-symbolic aspects. This had an influence on their extensive fire and sight links, which over the years have transformed their function into landscape function. Over the years, post-tsarist barracks have integrated into the landscape of many Polish cities, a testament to the difficult and complex history of Poland. They built the former and contemporary identity of the city. They are the distinguishing feature of many landscapes.

Therefore, it was proposed to protect their exposures in the following scales: supraregional, landscape, urban, architectural and landscape interiors, object and detail, interior of the building. Protection should result in appropriate records at all levels of planning documents (from supraregional l to local) and cover entire complexes. It was also indicated that the possibility of using forms of protection of antique barracks analogous to those proposed for the fortification exists. The article pointed to the use of greenery as a matter used to adjust the barracks' exposition in landscape, urban and architectural-landscape interior scales. At the same time the use of greenery influences the improvement of the standard of using historic complexes for new, contemporary functions.

Acknowledgment(s)
The study has been implemented from the resources of the S/WBiIŚ/2/16 statutory work financed by the Ministry of Science and Higher Education of Poland.

References

[1] D. Gawryluk, "Spatial featuers of historical tsarict barracks in contemporary landscape of selected Polish towns", *space & FORM. przestrzen i FORMA*, vol 28, pp. 227-238, 2016.
[2] J. Srodulska – Wielgus, "The role of tourism in protection of military landscape. Rola turystyki kulturowej w ochronie i udostępnieniu krajobrazu warownego" Wydawnictwo Politechniki Krakowskiej, Krakow, 2016.
[3] K. Pałubska, „The role of historical fortress landscape in development of Warsaw's natural system. Rola historycznego krajobrazu fortecznego w rozwoju systemu przyrodniczego Warszawy", *Archaeologica Hereditas*, vol. 3, pp.103-115, 2014.
[4] L. Klupisz, „Ochrona, konserwacja i kształtowanie krajobrazu dzieł fortyfikacji nowożytnej w Polsce" in L. Narębski Ed., "Modern fortification in Poland – researchs, ralizations, designs. Developing to the contemporary function. Fortyfikacje nowożytne w Polsce – badania, realizacje, projekty. Zagospodarowanie do współczesnej funkcji", Toruń, pp.113- 119, 2013.
[5] J. Bogdanowski, "Defensive architecture in Polish landscape. Architektura obronna w krajobrazie Polski", Wydawnictwo Naukowe PWN, Warszawa – Kraków, 1996.
[6] J. Bogdanowski, „Metodology of JARK and WAK in analises and designing", Kraków, 1999.
[7] A. Krol, „Military Architecture 1918- 1935. Budownictwo wojskowe 1918-1935", Warszawa, 1936.
[8] J. Lewicki, „Gardens, cherries and flowers, i.e. nature, tradition and fine architecture. Housing estate of officers' houses in Lvov. Ogrody, czereśnie i kwiaty, czyli przyroda, tradycja i piękna architektura. Osiedle domów oficerskich we Lwowie" [w:] Architektura znaczeń. Studia ofiarowane prof. Zbigniewowi Bani w 65. rocznicę urodzin i w 40-lecie pracy dydaktycznej, http://www.ihs.uksw.edu.pl/sites/default/files/architektura_znaczen/ksiega_zbigniew_bania_22.pdf , pp. 198-207, Warszawa, 2011.
[9] M. Furtak, „The nature and function of green space associated with residential development. Połprywatne ogródki frontowe- ważny element kształtowania aktywności stacjonarnej, na przykładzie Osiedla Oficerskiego w Krakowie", *space & FORM. przestrzeń i FORMA*, vol. 20, pp. 337-350, 2013.
[10] D. Gawryluk, "Landscape Importance of Greenery in the Context of Historic, Post-Tsar Barracks in the North-East Poland" , *Formation of Urban Green Areas*, vol.1, pp. 77-83, 2016.
[11] M. Zagroba,"Concept of revitalization of selected military facilities of dragoons barracks in Olsztyn", C*ivil and Environmental Engineering Reports ,* vol.19 (4), pp. 133-140, 2015.
[12] D. Gawryluk, „Playing at barracks or playing with barracks", *Technical Transactions. Architecture,* vol. 9A, pp. 89-95, 2015.
[13] S. Rosolski, „City Park – identity of the place in city in contects of opposite issues. City Park – tożsamość miejsca w mieście w aspekcie zagadnień odwrotnych", *Science Issues of Poznan Technical University. Architecture and Urban. Zeszyty Naukowe Politechniki Poznańskiej. Architektura i Urbanistyka*, vol. 31, pp. 19-30, 2014.
[14] J. Krcho, "From Military Bakery to Kulturpark: The Problematics of the Regeneration of the

Former Military Warehouse Complex in Košice. Od Vojenských Pekární Po Kulturpark K problematike obnovy bývalého areálu vojenských skladov v Košiciach" *Architecture & urbanism* ,vol. 3–4 , pp. 254-265, 2013.

[15] C. Coscia, Ch. Senatore, "Difence heritage: strategies for disposal and use", *World Heritage and Disaster. Knowledge, Culture and Representation. Le Vie dei Mercanti. XV International Forum*, p. 40, 2017.

[16] P. Molski, "Ochrona i zagospodarowanie wybranych zespołów fortyfikacji nowszej w Polsce", Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 2007.

[17] C. Gluszek, "Revaluation of relic fortifications of the turn of 19th/20th century in Poland. Architecture of contemporary addition/Rewaloryzacja zabytkowych fortyfikacji przełomu XIX I XX wieku w Polsce. Architektura współczesnych uzupełnien", Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa, 2012.

[18] L. Narębski Ed., "Modern fortification in Poland – researchs, ralizations, designs. Developing to the contemporary function. Fortyfikacje nowożytne w Polsce – badania, realizacje, projekty. Zagospodarowanie do współczesnej funkcji", Toruń, 2013.

[19] B. Szmygin Ed., „Valuation in architectural monuments' protection and conservation. Wartościowanie w ochronie i konserwacji zabytków", Lublin, ICOMOS 2012.

[20] Z. Myczkowski, K. Wielgus, J. Środulska-Wielgus, W. Mazur-Rymsza, K. Chajdys, „Rejestration of military landscapes as base of revitalisation former fortreses. Rejestracja krajobrazów warownych jako podstawa rewitalizacji dawnych twierdz" *Conserwator's Messages. Wiadomości Konserwatorskie*, vol. 23, pp. 36, 2008.

[21] A. Wilkaniec Ed., M. Wichrowski Ed., "Fortification in city's space. Fortyfikacje w przestrzeni miasta", Wydawnictwo Akademii Rolniczej w Poznaniu, Poznań, 2006.

[22] K. Dobrowolski, "Fortification Areas in the City as Formations of Urban Greenery – Nysa" *Formation of Urban Green Areas, vol.* 1(11) pp. 50–57, 2014.

[23] W. Kosinski, „Turist activisation of small towns: architectural and urban issues. Aktywizacja turystyczna małych miast: aspekty architektoniczno-krajobrazowe", Kraków, 2000.

[24] M. Wilczkiewicz, "Green space as a method of revitalization on post-industrial urban places following the New York's Parks (the High Line and Brooklyn Bridge Park). Wprowadzenie zieleni komponowanej metodą na rewitalizację obszarów miejskich poprzemysłowych na przykładzie nowojorskich parków: High Line Park, Brooklyn Bridge Park i Freshkills Park" *Technical Transaction. Architecture*, vol. 109/19/6A, pp. 223-233, 2012.

[25] J. R. Wolch, J. Byrne, J. P. Newell, "Urban green space, public helth, and environmental justice: The challenge of making cities 'just green enough'" *Landscape and Urban Planning*, vol. 125, pp. 234-244, 2012.

[26] G. Carrus, M. Scopelliti, R. Lafortezza, G. Colangelo, F. Ferrini, F. Salbitano, M. Agrimi, L. Portoghesi, P. Semenzato, G. Sanesi, "Go greener, feel better? The positive effects of biodiversity on the well-being of individuals visiting urban and peri-urban green areas" *Landscape and Urban Planning,* vol. 134, pp. 221-228, 2015.

[27] W. C. Thompson, J. Roe, P. Aspinall, R. Mitchell, A. Clow, D. Miller, "More green space is linked to less stress in deprived communities: Evidence from salivary cortisol patterns" *Landscape and Urban Planning,* vol. 105, pp. 221-229, 2012.

[28] D. Gawryluk, „Keeping the legibility of historic tsarist barracks in the landscape of Zambrów. Zachowanie czytelności zabytkowych koszar carskich w krajobrazie Zambrowa", [w:] M. Klopotowski, D.Gawryluk Ed., „Landscape Identity" vol. 4. „About diversity of contemporary landscape", http://18forumak.pb.edu.pl/wp-content/uploads/2015/03/tom4.pdf , Białystok, 2016.

[29] M. Samelko, "Revitalization of tsarist barracks in Suwałki" Thesis work prepared under supervision of D. Gawryluk, Bialystok University of Technology, Białystok, 2016.