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Changes in rural farmstead layouts in the Knyszyn Forest area

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Abstract: Traditional farmstead layouts of the borderland of Podlasie and Grodzieńszczyzna, together with their associated greenery, constitute an important element of the rural cultural landscape, fulfilling identity-related, aesthetic, and functional roles. In recent years, however, their systematic decline has been observed. The aim of this study was to analyse the scale of this phenomenon. Research conducted in the years 2017–2025 included the layout of buildings in relation to surrounding vegetation in 14 street-pattern villages located in the vicinity of the Knyszyn (Knyszyńska) Forest. The results indicate the disappearance of traditional farmstead layouts, mainly as a result of changes in the spatial arrangement of buildings within the farmstead plot and the influence of new trends in landscape design. Possible solutions to counteract this loss of traditional farmsteads are proposed, including the implementation of legal regulations and emphasising the importance of education in the field of cultural heritage.

Keywords: landscape architecture, cultural landscape, rural farmsteads, history of garden art

1. Introduction

The traditional form of farmsteads, based on a close spatial relationship between buildings and surrounding greenery, is disappearing from Polish villages, blurring the landscape characteristic of the borderland of Podlasie and Grodzieńszczyzna. The original, repetitive spatial layout of buildings, which for centuries shaped the legibility of this space, is gradually vanishing. Along with it, elements of garden composition are disappearing: representative flower beds, impressive home orchards and the crowns of solitary trees towering above cottage roofs. These elements are being displaced by contemporary garden trends, schematic planting beds, extensive, low-mown lawns and tightly trimmed hedges. Contemporary transformations in the design of rural properties lead to the blurring of the traditional rural settlement landscape and to the gradual loss of part of its cultural and aesthetic heritage. An analysis of these changes makes it possible to indicate potential actions to counteract this process and to support the protection of the rural cultural landscape.

2. An overview of the literature

The topic of shaping the Polish rural landscape has been the subject of numerous studies. Among the available publications are works addressing both the spatial layouts of villages and rural gardening.

The characteristics of spatial layouts in street-pattern villages are described by Cybulko [3]. He addresses the transformations in farmstead organization using the example of Podlasie villages, focusing on spatial aspects. He also notes the constraints on village expansion imposed by the system of land cultivation, which encourage residents to densify buildings and alter their arrangement within the plot. He mentions houses oriented with their gable to the road and the original transverse positioning of barns within plots. The consolidation of this pattern, determined by the street-type settlement characteristic of the Białystok region, is discussed by Szewczyk [11].

Zątek [13] provides a detailed description of the history of the development of rural gardens and their influence on shaping the cultural landscape of rural areas. The author also draws attention to the transformations occurring within farmstead layouts.

The tradition of rural gardening as a carrier of national identity and a component of cultural heritage is analyzed by Szewczyk [12]. The author emphasizes the significance of the garden as a symbolic space reflecting values and aesthetics characteristic of Polish folk culture. Meanwhile, Sulima [10] draws attention to the role of rural gardens in shaping local identity and their contemporary disappearance under socio-cultural transformations. He focuses on the significance of gardens in folk culture and associated beliefs, rather than on the vegetation itself as a component of compositional layout.

Changes in the perception and design of rural gardens are analyzed by Citko and Kępa [2]. The authors compare the features of rural gardens in northeastern Poland with those in English villages, highlighting numerous similarities in spatial organization and species selection. These analogies can be further explored in the literature by the gardener Jekyll G., where she discusses the role of rural gardening in shaping England's cultural landscape [7].

The topic of rural gardening also appears in studies on other regions of Poland. For example, Bach and Wajda [1] discuss the role of gardens in the Przemyśl region in shaping local cultural heritage, presenting them as evidence of social and aesthetic transformations in Polish villages. A similar subject is addressed by Lipińska H., Harkot W., and Kępka M., who describe the state of preservation of gardens in the Lublin region [8].

Contemporary popular-science literature much less frequently addresses the topic of historical rural gardening. An example is the work by Iwaniuk and Kowalik [5], which serves as a practical guide for those wishing to create a home garden in a rural style. The authors present ornamental plant species and discuss the principles of composing traditional flower beds, indicating ways to adapt the traditional style to the needs of modern users.

3. Research method

The research involved an analysis of changes in traditional farmstead layouts, along with an assessment of the degree of preservation of their historical features. The study was both quantitative and qualitative, encompassing an analysis of historical sources as well as field research. The analysis covered 388 farmsteads located in 14 street-pattern villages, established between the 16th and the late 18th centuries in the western part of the Knyszyn Forest, or situated no more than 5 km from the forest boundary. Only plots located in the historical part of the villages—characterized by dense building development and a repetitive plot width—were selected for the study.

In the first stage, information from literature, cartographic materials, and archival photographs was analyzed. The aim was to outline the basic features of the traditional compositional-functional layout, including the positioning of buildings and the arrangement of accompanying greenery within a single plot.

In the second stage, the collected data were combined with the results of fieldwork, which included inventories of building layouts along with their associated ornamental and utilitarian vegetation. These activities allowed for the documentation of changes within both the building arrangement and the accompanying vegetation.

Based on a comparison of two model types of farmsteads (single- and double-sided) with the 388 farmsteads located in 14 street-pattern villages, an analysis was conducted to assess the degree of preservation of farmstead layouts in each of the studied villages.

4. Results of the research

Based on the analysis of source materials (cartographic materials, literature), two traditional farmstead layouts along with their accompanying garden arrangements were reconstructed (Fig. 1). Both created schemes served as a comparative element used to assess the extent of changes that rural farmstead layouts had undergone. The farmsteads

featured a single-sided layout (Fig. 1. I)—with all buildings located on one side of the road—or a double-sided layout, with outbuildings placed on the opposite side of the street from the residential building (Fig. 1. II). In both variants, the residential building was situated at the front of the plot, with its gable facing the road. Regardless of the layout type (single- or double-sided), the barn was erected transversely, at the rear of the plot.

An integral part of the farmstead was also the greenery: the front garden, the wall-adjacent garden, the orchard, and a tree. The front garden referred to the flowerbed located in front of the residential building, in the part of the plot most visible from the street [10, p. 64]. It served a representational role and reflected the status and diligence of the owners. Moreover, the vegetation planted there was influenced by folk beliefs [10, p. 65]. Plantings along the wall, on both sides of the house entrance, formed the wall-adjacent garden, also called the window-adjacent garden [5, p. 14]. The vegetation of the front and wall-adjacent gardens was intended to highlight the form of the residential building. Within a single-sided farmstead yard, the dominant element was a large tree (e.g., ash, oak, linden), which protected the buildings from lightning strikes and served as a "guardian tree" [10, p. 67]. In the case of double-sided layouts, a tree was planted near the residential building. The orchard was located behind the barn, utilizing the available space for cultivating large fruit trees. Placing the orchard behind the buildings also had practical maintenance reasons—the tall structure acted as a windbreak and protected the trees from early spring frosts [6, pp. 32–33]. The orchard additionally served recreational purposes and functioned as a shaded area, where free time was spent during summer days.

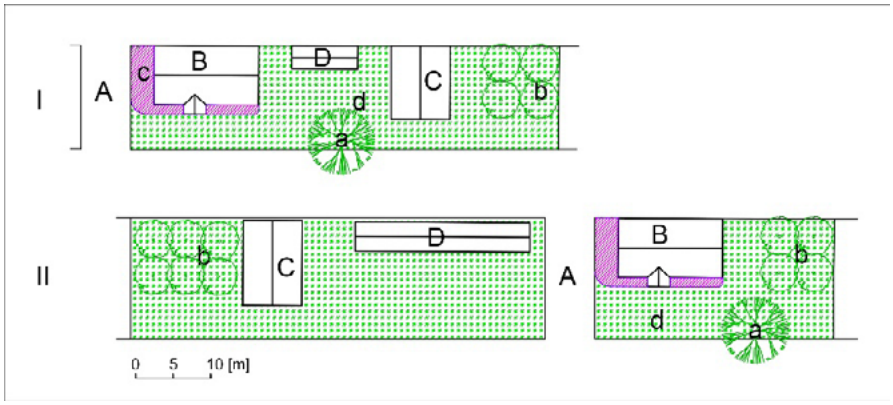

Figure 1. I – Model yard layout for a single-sided street farmstead. II – Model yard layout for a double-sided street farmstead. A – street, B – residential building, C – barn, D – outbuilding, a – dominant tree, b – orchard, c – ornamental flowerbeds, d – turf (lawn). *Source: Author's work*

An example of a **completely preserved** single-sided street farmstead is the plot located in Zamczysk, in the Czarna Białostocka municipality, Białystok County (Fig. 2. III). In accordance with the outlined model single-sided yard layout, this farmstead retains the full spatial arrangement of buildings and all elements of accompanying greenery. Conversely, an example of a fully preserved double-sided farmstead is the property in Rybniki, in the Wasilków municipality, Białystok County (Fig. 2. IV). In this case, the residential building along with the front garden is located on the opposite side of the street relative to the outbuildings, including the transversely positioned barn and the orchard situated behind it.

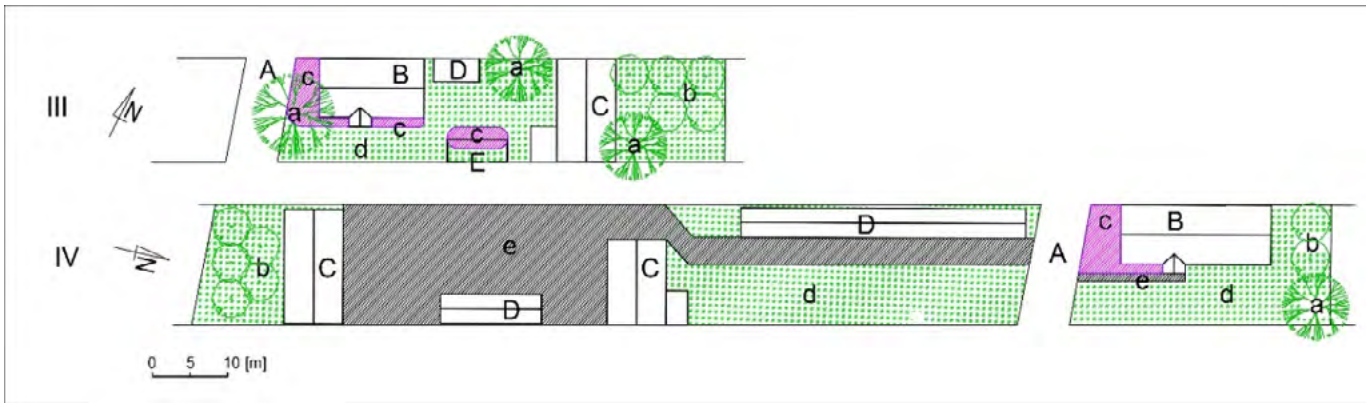

Figure 2. III – Completely preserved single-sided farmstead yard from the village of Zamczysk. IV – Completely preserved double-sided farmstead yard from the village of Rybniki. A – street, B – residential building, C – barn, D – outbuilding, E – cellar, a – dominant tree, b – orchard, c – ornamental flowerbeds, d – turf (lawn), e – paved surface. *Source: Author's work*

After World War II, an intensive process of transforming the spatial layouts of farmsteads began. Changes affected both the arrangement of greenery and the placement of buildings [9, p. 79–81]. The traditional composition of greenery was modified through the relocation of individual elements or their complete elimination, primarily concerning orchards and tall trees. The decline of traditional plant layouts is attributed to changing gardening trends [4, p. 272] and evolving user needs—now focused on recreational rather than symbolic or utilitarian functions of greenery. The disappearance of original plant arrangements also occurs as a result of farm abandonment. Under such circumstances, the vegetation that was once part of the original composition naturally dies out. Transformations involving changes in vegetation layout are considered **potentially reversible**, as the original arrangements can be relatively easily restored through new plantings. Examples of farmsteads with altered greenery layouts include those located in the villages of Klimki (Fig. 3. V) and Wólka Ratowiecka (Fig. 3. VI), in the Czarna Białostocka municipality, Białystok County. In both farmsteads, the traditional arrangement of buildings has been preserved, but the greenery composition has been lost (Fig. 3). The layout of the plots allows for the reconstruction of missing elements such as the front garden, wall-adjacent garden, solitary tree, and orchard located behind the barn.

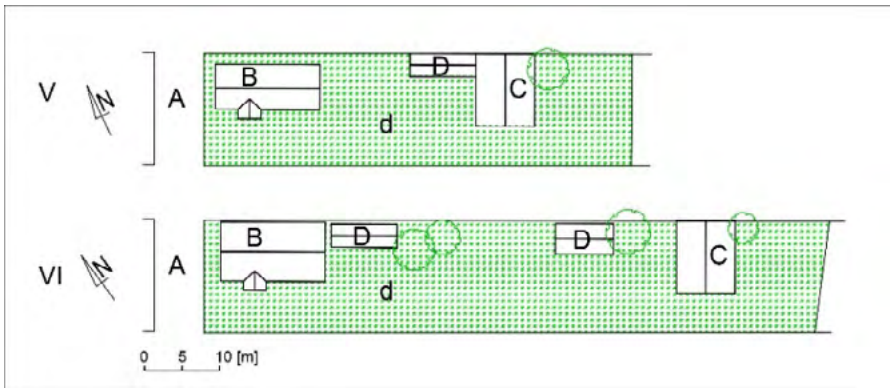

Figure 3. V – Farmstead yard with potentially reversible changes from the village of Klimki. VI – Farmstead yard with potentially reversible changes from the village of Wólka Ratowiecka. A – street, B – residential building, C – barn, D – outbuilding, d – turf (lawn). *Source: Author's work*

Irreversible changes occur in two cases:

- Occurring within the building layout of the farmstead (Fig. 4.)

These include situations in which one of the two key compositional elements is missing—the residential building oriented with its gable to the road or the barn positioned transversely relative to the plot. The disappearance of the original building layout most often occurred as a result of replacing former structures with new ones arranged differently from the historical layout or through the removal of one of the originally placed buildings.

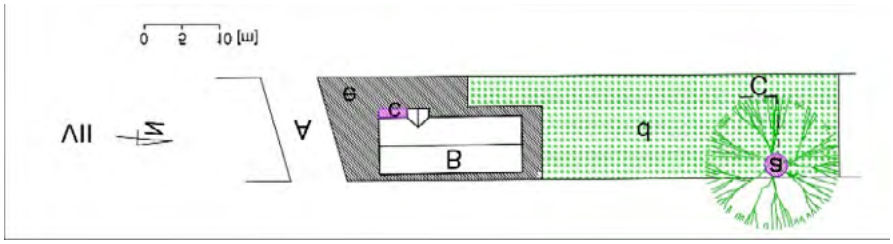

Figure 4. VII – Farmstead yard with irreversible changes from the village of Wólka Przedmieście. A – street, B – residential building, C – barn foundation, a – dominant tree, c – ornamental flowerbeds, d – turf (lawn), e – paved surface. *Source: Author's work*

An example of irreversible changes is the transformation of the farmstead in Wólka Przedmieście, in the Wasilków municipality, Białystok County (Fig. 4. VII), which exhibits a severely disrupted functional-compositional layout. On the plot, the residential building is oriented with its gable to the road, and only the foundation of the barn remains. Apart from the large, dominant tree, no other elements of the greenery composition have been preserved. Part of the yard area has been paved. The farmstead in Wólka Przedmieście was arranged according to urban land-use patterns, and the house on the plot is occasionally inhabited.

- Resulting from the merging of two adjacent street plots (Fig. 5.)

This allowed the enlargement of the farmstead yard and, consequently, the dispersal of both buildings and elements of the greenery composition.

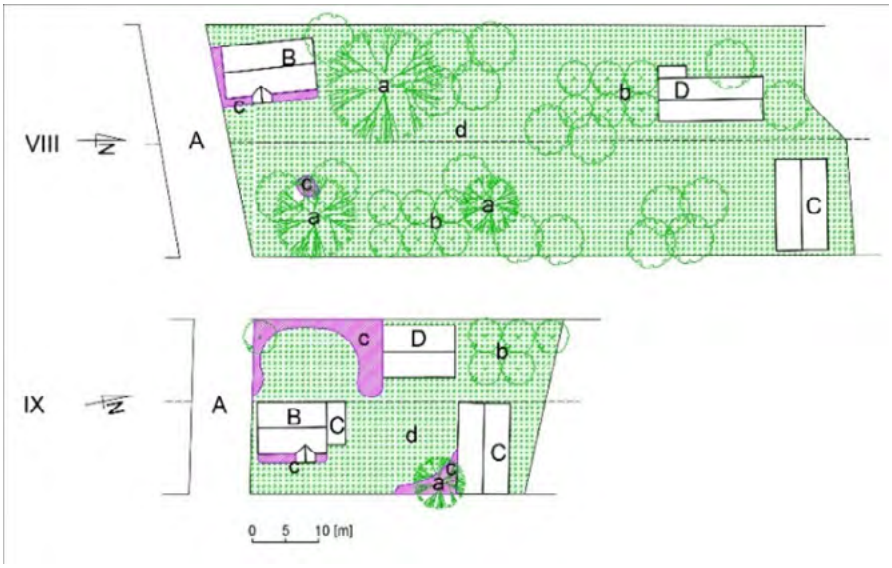

Figure 5. VIII – Farmstead yard with irreversible changes from the village of Nowiny Zdroje. IX – Farmstead yard with irreversible changes from the village of Niemczyn. A – street, B – residential building, C – barn, D – outbuilding, a – dominant tree, b – orchard, c – ornamental flowerbeds, d – turf (lawn). *Source: Author's work*

An example of such a situation is the farmstead in the village of Nowiny-Zdroje (Fig. 5. VIII), located in the Knyszyn municipality, Mońki County. On the plot, a second outbuilding was erected. Orchard trees were planted in two groups, located in the central part of the plot, at a considerable distance from the barn. The location of a large, solitary tree near the residential building and the positions of two flowerbeds adjacent to the house—the front garden and the wall-adjacent garden—have been preserved. The plot is overgrown with many trees and shrubs resulting from ongoing succession and many years of farm abandonment. A similar transformation occurred on the plot in Niemczyn (Fig. 5. IX), in the Czarna Białostocka municipality, Białystok County. On this plot, the residential building and barn are traditionally positioned. A second, additional outbuilding was placed perpendicular to the barn, and an orchard was located behind it. The wall-adjacent garden was also reconstructed, and a large, dominant tree was planted. Despite the substantial area covered with ornamental vegetation, the farmstead lacks a key element of the greenery composition, namely the representative front garden. The farmstead is permanently inhabited, while the outbuilding and the plant composition are newly created elements.

Finally, the farmsteads included in the analysis were divided into three categories: plots in very good condition (with preserved building layouts and greenery elements), plots with potentially reversible changes (with preserved building layouts), and plots with irreversible changes (lacking both the traditional building layout and greenery elements) (Table 1).

Table 1. Analysis of the degree of farmstead preservation within individual villages. *Source: Author's work*

No.	Village name	Plots included in the study		Plots in very good condition		Plots with potentially reversible changes		Plots with irreversible changes	
		pcs.	%	pcs.	%	pcs.	%	pcs.	%
1.	Brzozówka Koronna	7	100	1	14.3	4	57.1	2	28.6
2.	Brzozówka Ziemiańska	7	100	1	14.3	3	42.9	3	42.9
3.	Czarna Wieś Kościelna	56	100	0	0.0	5	8.9	51	91.1
4.	Dobrzyniówka	7	100	0	0.0	3	42.9	4	57.1
5.	Klimki	38	100	2	5.3	12	31.6	24	63.2

No.	Village name	Plots included in the study		Plots in very good condition		Plots with potentially reversible changes		Plots with irreversible changes	
6.	Kopisk	31	100	0	0.0	5	16.1	26	83.9
7.	Niemczyn	38	100	0	0.0	1	2.6	37	97.4
8.	Nowiny Kasjerskie	39	100	1	2.6	10	25.6	28	71.8
9.	Nowiny-Zdroje	8	100	0	0.0	1	12.5	7	87.5
10.	Oleszkowo	33	100	1	3.0	6	18.1	26	78.8
11.	Rybniki	34	100	1	2.9	1	2.9	32	94.1
12.	Wólka Przedmieście	37	100	2	5.4	6	16.2	29	78.4
13.	Wólka Ratowiecka	45	100	1	2.2	11	24.4	33	73.3
14.	Zamczysk	8	100	1	12.5	3	37.5	4	50.0
	TOTAL:	388	100	11	2.8	71	18.3	306	78.9

From the above summary, it follows that among the 388 farmsteads studied, only 11 plots (2.8%) are characterized by a very well-preserved building and greenery layout. In the case of 71 plots (18.3%), full restoration of the farmstead layout is possible. The vast majority, however, consists of plots whose compositional and spatial layouts have undergone nearly irreversible degradation due to permanent transformations affecting both greenery and buildings—these plots number 306 (78.9%).

5. Conclusion

Research conducted in the analyzed villages revealed significant degradation of farmsteads, leading to progressive degradation of the cultural landscape. This phenomenon results from the replacement of traditional elements of the farmstead layout with new ones arranged differently from the historical pattern, or the complete removal of some elements. The process is driven by changing needs of residents and strong pressure from contemporary design trends. Its basis lies in social transformations, such as the abandonment of former patterns now perceived as incompatible with modern living standards. The development of visually closed farmsteads, disconnected from the surrounding landscape, is facilitated by weakened neighborly ties and increased anonymity. The abandonment of farm use also contributes to the degradation of historical farmstead layouts. In view of the above, it seems reasonable to introduce legal regulations that could support the protection of historical building layouts and their accompanying elements. Financial support from local authorities and the state, in the form of subsidies aimed at preserving the original form of farmsteads, may also be important. Education plays a crucial role as well, raising awareness among users and designers regarding cultural heritage. Actions supporting the maintenance of local identity are also essential.

References

[1] Bach A, Wajda A. Przeobrażenia ogrodów wiejskich ziemi przemyskiej jako wyraz zmian w tradycji ludowej. *Architektura Krajobrazu*. 2005;3–4.

[2] Citko K, Kępa E. Kategoria piękna a współczesne wiejskie ogródki przydomowe. In: Kisielewska A, Kisielewski A, editors. *Mity, legendy i historie*. Białystok: Wydawnictwo Uniwersytetu w Białymstoku; 2016. p. 173–204.

[3] Cybulko Z. Formy przestrzenne zagród w dawnych wsiach szeregowych na przykładzie Nowoberezowa, Ryboł i Trześcianki. *Biuletyn Konserwatora Województwa Białostockiego*. 1998;4:6–28.

[4] Gargała M, Stompor-Chrzan E, Pisarek M. Kwiaty wiejskich ogródków przydomowych – czy jeszcze je pamiętamy? *Czasopismo Techniczne. Architektura*. 2010;5-A:271–277.

[5] Iwaniuk A, Kowalik E. *Polski ogród wiejski*. Warszawa: Bellona; 2013.

[6] Jankowski E. *Sad przy chacie*. Łódź: Zeta Ars; 2016.

[7] Jekyll G. *Old West Surrey: Some Notes and Memories*. London: Forgotten Books; 2018.

[8] Lipińska H, Harkot W, Kępka M. Współczesne formy zagospodarowania wiejskich ogrodów przydomowych na Lubelszczyźnie. *Nauka Przyroda Technologia*. 2009;3(1).

[9] Sobczak K, Trzaskowska E. Miedze, samotniki, czyżnie – wyznaczniki tożsamości krajobrazu rolniczego Polski. In: Janecki J, Borkowski Z, editors. *Krajobraz i ogród wiejski*. Vol. 4. Lublin: Katolicki Uniwersytet Lubelski Jana Pawła II; 2004. p. 79–86.

[10] Sulima M. Sacrum i profanum ogrodu przydomowego wsi pogranicza polsko-białoruskiego. *Architecturae et Artibus*. 2017;1.

[11] Szewczyk J. Przemiany krajobrazu na Białostocczyźnie. *Prace Komisji Krajobrazu Kulturowego*. 2008;10:256–266.

[12] Szewczyk J. Staropolski ogród jako archetyp i relikt tradycji. *Czasopismo Techniczne. Architektura*. 2012.

[13] Zątek W. Przydomowy ogród wiejski – dawniej i dziś. *Zeszyty Naukowe Akademii Rolniczej w Krakowie. Ogrodnictwo*. 2003;402:271–276.

Zmiany w układach zagród wiejskich na terenie Puszczy Knyszyńskiej

Streszczenie: Tradycyjne układy zagród pogranicza Podlasia i Grodzieńszczyzny wraz z towarzyszącą im zielenią stanowią istotny element wiejskiego krajobrazu kulturowego, pełniąc funkcję tożsamościową, estetyczną i użytkową. W ostatnich latach obserwuje się jednak ich systematyczny zanik. Celem pracy była analiza skali tego zjawiska. Badania przeprowadzone w latach 2017–2025 uwzględniły układ zabudowy powiązany z otaczającą roślinnością na obszarze 14 wsi w układzie ulicowym, zlokalizowanych w sąsiedztwie Puszczy Knyszyńskiej. Wyniki wskazują na zanikanie tradycyjnych układów zagród, będące głównie skutkiem zmian w rozmieszczeniu zabudowy w obrębie siedliska oraz wpływem nowych trendów w urządzaniu zieleni. Zaproponowano możliwe rozwiązania przeciw zanikaniu tradycyjnych zagród, obejmujące wdrożenie regulacji prawnych oraz podkreślające znaczenie edukacji w zakresie dziedzictwa kulturowego.

Słowa kluczowe: architektura krajobrazu, historia sztuki ogrodowej, krajobraz kulturowy, ogród wiejski