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DENDROFLORA, STATE OF PRESERVATION AND POSSIBLE RESTORATION OF THE ŁĘCZNA PODZAMCZE MANOR IN THE LUBLIN VOIVODESHIP

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Summary

This paper presents the results of a detailed inventory of the historic manor park in Łęczna in the Lublin Voivodeship, conducted in the year 2011. This object is an example of combining elements of the eighteenth-century Italian garden with the nineteenth-century landscape park. The park area is 12 hectares. A user of the area is the King Casimir School. A detailed dendrological inventory of the park revealed 932 items, including 852 trees and 25 large groups of shrubs. Tree stand of the park in Łęczna is represented by 32 species and varieties of trees. In terms of numbers prevail: Tilia cordata Mill., Acer platanoides L., Fraxinus excelsior L., Carpinus betulus L. and Robinia pseudoacacia L. Rare species of the foreign origin are Acer platanoides 'Schwedleri', Acer saccharinum 'Wieri', Cladrastis lutea Rudd., Gleditsia triacanthos L., Platanus ×hispanica ‚Acerifolia', Quercus macrocarpha Michx. and Pinus nigra J. F. Arnold. The possibilities and directions of restoration presented in this work are based on the collected data.

Key words: dendroflora, park, Łęczna

INTRODUCTION

As a result of the political changes after the World War II the residential properties changed their owners. The objectives and functioning of the objects have also changed. This resulted in progressive degradation of the historic buildings and parks. In most cases, the legal protection of park units and the

care of them were limited to the inventory and conservation register. Currently, 60-year-old self seeders grow in parks and the shape of old trees left unattended gets worse. Shrubs and brushwood grow in an uncontrolled way, which is very often a barrier to enter the park. After the war, many parks were not a subject of preservation activities.

The residential garden establishments of Łęczna district represent a fairly high level of artistry. An example of this is the Łęczna Podzamcze Manor complex located 20 km east of Lublin, on a high hill at the mouth of the Świnka River to the Wieprz River. A manor complex has significant natural and landscape value and is the only green complex arrangement in the area with such a long tradition. It is an example of combining elements of the eighteenth-century Italian garden and the nineteenth-century landscape park. The park area is 12 hectares. In 2011, the area belonged to the King Casimir School.

Historical Gardens, as natural objects are of ecological importantce and require adjusting to the local natural environment [Majdecki 1993]. The Łęczna District is located on the border of three major geographical Lublin regions, such as Lublin Upland, Polesie Lubelskie and Polesie Wołyńskie. The most interesting part of the Lublin Upland region is the Wieprz Valley between Łańcuchów and Kijany. Extensive and extensively used meadows with variable humidity dominate in the valley. Locally, there are patches of alder and willow thickets and patches of grasslands. Natural river valley with numerous meanders and oxbow lakes is an important mainstay of wetlands and seasonally inundated grasslands. Eight types of habitats have been identified there, covering a total of 37% of the area. In addition, there are six animal species listed in Annex II of the Habitats Directive. The Wieprz Valley is an important mainstay of waterfowl as well. This vast and open area has very large landscape value [Chmielewski 2006].

Almost half of the Łęczna County area is legally protected. Within its borders there are: Poleski National Park, Nadwieprzański Nature Park and Lake District Landscape Park. Extensive bogs are a distinctive feature of the Poleski Park area among all the others in Poland. Flora of the Poleski National Park is very rich and diverse. So far, 257 species of algae have been identified, 127 species of moss and 928 species of vascular plants [Kozak 2012]. The Lake District Landscape Park is also characterized by marshy areas, numerous lakes and bogs.

MATERIALS AND METHODS

The park and manor in Łęczna Podzamcze is a landmark on the map of 12 residential and manor parks in the Łęczna County. The research work carried out in the years 2009-2011 ran in two parallel routes and relied on archival query and field research. A historical analysis was performed on the basis of the archival documents including: mapping, iconographic and descriptive. These are materials located in archives, libraries, private collections and reports. Field work included an inventory of the various elements of the park. The field work consisted of a detailed inventory of the stand, the overall inventory of architectural buildings and photographic documentation. Parts of the park with significantly forest character located mainly in the west and south part of the park were inventoried in general. A detailed inventory was done in the rest of the park.

A dendrological inventory included the measurement of trunks and heights of trees and the information about their health status. A localization of monumental trees was done with the use of GPS. Circuits of trees were measured at a height of 130 cm from the ground level with an accuracy of 1 cm. The measurements were done on trees with a circumference at breast height greater than 15 cm. Diameter of a crown of a tree was measured with an accuracy of 0.5 m. To determine the height of trees the trigonometric method was used. In the case of bushes a projected area of the crown was given in square meters. All inventoried trees and shrub groups were marked on a geodetic map with the use of simple orthogonal coordinates measured with a Leica DISTO A5 laser rangefinder. Additionally, the stand was positioned with the use of a GPS DAKOTA positioning device. The orthophoto of the area was also used. The analysis of the estimated age of the trees was based on the Majdecki table of trees age [1980-1986]. Time periods of plantings are based on the known dates of changes in ownership of properties or conversion of manors that involves the reconstruction of parks.

RESULTS

Short history of the object

Łęczna received its city rights in 1467, and the period of the greatest prosperity of the city was in the Renaissance. Łęczna was owned by the great aristocratic families of Tęczyńscy, Firlej, Potoccy, Noskowscy, Rzewuscy, Szeptyccy, Braniccy and Sapieha. "*The Guide to the South-Eastern Poland*" in 1937 informs that on the left side, at the ramp to the town from the site of Lublin there is

an old castle hill with ruins of the palace surrounded by an old park. One of the distinguished guests at the Łęczna property was Ignacy Jan Paderewski. In the postwar period the manorial buildings were used by the Ministry of Education for vocational education. Adaptation works carried out in the 1950's brought about the destruction of the interior decor of the building and made it not being historical any more [Bobińska 1964]. In 1964, modern intensive apple orchards were established in Łęczna.

Analysis of vegetation

A detailed dendrological inventory of the Łęczna Podzamcze park includes 932 items, including 852 trees, 37 ornamental shrubs and 25 major groups of shrubs, 3 hedges and 14 undergrowth trees (Table 1, Fig. 1).

The stand of the park in Łęczna is represented by 33 species and varieties of trees. In terms of numbers prevail: *Tilia cordata* Mill. (166 units), *Acer platanoides* L. (162 units), *Fraxinus excelsior* L. (156 units), *Carpinus betulus* L. (118 units) and *Robinia pseudoacacia* L. (112 units). The rare species and varieties are: *Acer platanoides* ‚Schwedleri' (1 pc), *Acer saccharinum* ‚Wieri' (1 pc), *Cladrastis lutea* Rudd. (1 piece), *Gleditsia tricanthos* L. (1 piece), *Platanus* × *hispanica* ‚Acerifolia' (1 pc), *Quercus macrocarpha* Michx. (1 pc) and *Pinus nigra* J. F. Arnold (6 pcs). There are 4 natural monuments in the park. On the basis of the inventory conducted in 2011 another 22 specimens were selected for protection.

Table 1. Register of species and varieties of trees in the Podzamcze Manor park in Łęczna in the year 2011

No.	Name	Number of trees	The largest specimen dimensions		
			The girth at a height of 1.3 m [cm]	Height [m]	The crown spread [m]
1.	*Acer negundo* L.	6	100	4	3
2.	*Acer platanoides* L.	162	380	4	6
3.	*Acer platanoides* 'Schwedleri'	1	250	9	8
4.	*Acer pseudoplatanus* L.	22	200	7	7
5.	*Acer rubrum* L.	1	220	10	13
6.	*Acer saccharinum* 'Wieri'	1	340	12	10

No.	Name	Number of trees	The largest specimen dimensions		
			The girth at a height of 1.3 m [cm]	Height [m]	The crown spread [m]
7.	*Aesculus hippocastanum* L.	23	285	15	10
8.	*Betula pendula* Roth	5	200	8	9
9.	*Carpinus betulus* L.	118	340	14	15
10.	*Cladrastis lutea* Rudd.	1	180	6	8
11.	*Crateagus monogyna* Jacq.	2	35+75	5	5
12.	*Fraxinus excelsior* L.	156	450	12	15
13.	*Gleditsia triacanthos* L.	1	205	12	8
14.	*Juglans regia* L.	2	150	8	8
15.	*Larix decidua* Mill.	4	170	7	6
16.	*Philadelphus coronarius* L.	1	30+40	4	7
17.	*Picea abies* H.Karst.	13	320	10	10
18.	*Pinus nigra* J. F. Arnold	5	220	9	9
19.	*Pinus strobus* L.	1	220	9	10
20.	*Platanus ×hispanica* Mill. ex Münch. 'Acerifolia'	1	160	15	10
21.	*Populus nigra* L.	8	490	12	10
22.	*Populus tremula* L.	3	130	9	7
23.	*Prunus triloba* Lindl.	1	15	1,5	2
24.	*Quercus macrocarpha* Michx.	1	330	20	15
25.	*Quercus robur* L.	4	260	7	6
26.	*Robinia pseudoacacia* L.	112	300	9	10
27.	*Salix alba* L.	10	520	9	10
28.	*Salix babylonica* 'Tortuosa'	1	50	4	4
29.	*Sambucus nigra* L.	3	55	3	5
30.	*Thuja occidentalis* L.	4	70+70	10	5
31.	*Tilia cordata* Mill.	166	410	20	15
32.	*Tilia* 'Euchlora'	1	80	9	5
33	*Ulmus laevis* Pall.	12	250	15	10
Total:		**852**			

Figure 1. The post manor park in Łęczna – dendrological inventory in 2011 (M. Dudkiewicz)

Since 1976, a decrease in the number of trees and depletion of species composition has been observed (Table 2). In comparison to the 1984 inventory, when there were many more dendroflora species (59 species) (Table 3), in 2011 the lack of valuable specimens such as *Abies concolor* Lindl. ex Hildebr., *Acer negundo* 'Aurea', *Acer platanoides* 'Reitenbachii', *Acer pseudoplatanus* 'Purpureum' and 'Worleei', *Acer saccharinum* 'Wieri', *Aesculus flawa* (*A. octandra*), *Cladrastis lutea* Rudd., *Fraxinus pensylvanica* Marshall, *Gleditsia triacanthos* 'Inermis', *Tilia platyphyllos* Scop., *Ulmus minor* Mill. and *Ulmus glabra* Huds was observed.

Table 2. Comparison of the results of the 1976 and 1981 inventories of the Podzamcze Park

1976 by A Obrębska		**1981** by D. Fijałkowski and M. Kseniak	
3 000 trees (number of species is not listed)		**2 000 trees of 23 species**	
Main species:	*Tilia cordata* Mill.	**Main species:**	*Robinia pseudoacacia* L.
	Robinia pseudoacacia L.		*Carpinus betulus* L.
	Fraxinus excelsior L.		*Tilia cordata* Mill.
	Betula pendula Roth		*Acer platanoides* L.
	Larix decidua Mill.		*Tilia platyphyllos* Scop.

Table 3. Comparison of the results of the 1984 and 2011 inventories of the Podzamcze Park

1984 by E. Maj		**2011 by** M. Dudkiewicz and M. Dąbski	
2 660 trees of 59 species		**852 trees in the manor part and about 300 in the forest on the slopes of the Wieprz River**	
main species:	*Tilia cordata* Mill.	**main species:**	*Tilia cordata* Mill
	Carpinus betulus L.		*Acer platanoides* L.
	Quercus robur L.		*Fraxinus excelsior* L.
	Fraxinus excelsior L.		*Carpinus betulus* L.
	Acer platanoides L.		*Robinia pseudoacacia* L.

In 2011, the undergrowth in the area covered by a detailed dendrological inventory consisted of 8 species of trees and shrubs. These were: the brushwood *Acer platanoides* L., *Carpinus betulus* L., *Frangula alnus* Mill., *Fraxinus excelsior* L., *Robinia pseudoacacia* L., *Sambucus nigra* L., *Symphoricarpos albus* SF Blake and *Tilia cordata* Mill.

The analysis of aging of trees

Two main parts of the park can be distinguished within its borders, formed as a result of subsequent historical transformations. The oldest part are the remains of the regular eighteenth-century quarter garden at the northern side of the palace – two rectangular *Tilia* quarters measuring 100 × 50 m (photo 1). They form a modularized system probably based on a multiple of the former measure of rope and rod. The nineteenth-century landscape park system was developed on the boundary in relation to the older part of the garden. This was supported by the picturesque location and use of existing motifs of the surrounding landscape in the form of a high riverside slope, at the confluence of two rivers and open surfaces in wide meadow valleys [Bobińska 1964].

Table 4. The age structure of trees in the post manor park in Łęczna in 2011

Planting time period	Age of the trees	Number of trees	Percentage
1990–2009 – trees planted in the last two decades	Up to 20 years	321	38 %
1946–1989 – trees planted after the World War II in the park used by the school	21–65 years	486	57 %
1881–1945– trees planted in the period of forming area in the landscape park	66–129 years	40	4,5 %
Time before 1881 – castle quarter garden	trees older than 129 years	5	0,5 %

Compositional and spatial relationships with the surrounding landscape

A castle and later the palace were located near the high slopes of the Wieprz valley. It is another, after Zawieprzyce and Kijany, typical location of

the palaces, most of which were built on the hills, on the sunlit side. The location was advantageous for health (place on a hill – airy and sunny), favorable to farm management (proximity to water and easy communication), and emphasized the prestige of the owner (the view of the city Łęczna). The property was a vantage point and dominated over the city. It was located in a strategic position in terms of defense and it was the most beautiful one as well. The park still has a very good exposure in the landscape. It smoothly changes into the Wieprz valley landscape. The park is closely related to the panorama of the city viewed from the side of Lublin.

Photo 1. A fragment of the composition of the eighteenth's century park (M. Dudkiewicz)

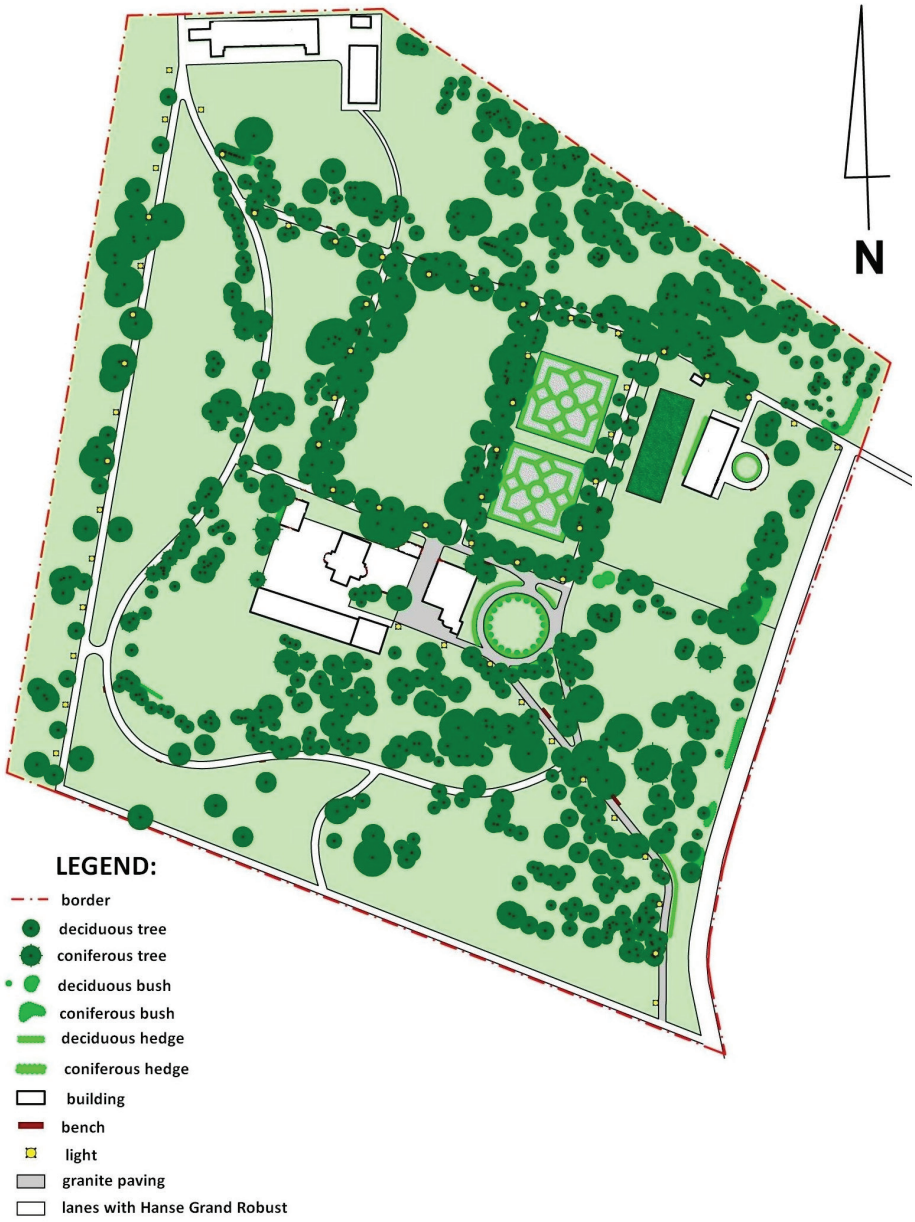

Figure 2. The post manor park in Łęczna – concept of restoration project (M. Dudkiewicz)

The evaluation of the preservation of the historical composition of the manor

Analysis of the preservation of the Podzamcze manor complex showed that the least changed parts are two old *Tilia* quarters, garden salon in the palace garden, outbuildings and grounds of the former yard. Disadvantageous changes in the interiors of the buildings consist of neglected overgrown undergrowth or incidental plantings of trees and shrubs. As the areas of average value were included the following: agricultural field, the area enclosed with a brick wall and the valley of the Wieprz River in a place of the old crossing. The urban area of the park, adjacent to the old part of the outbuildings is the most transformed part. The advantage of the park, which lies outside its borders, is a lime concourse on the other side of the Wieprz River.

Possibility of restoration

In 2009 the Podzamcze manor was used by several owners. Disintegration caused new random divisions, making it difficult to control conservation. As a result of divisions, manor and outbuildings were isolated from the park. New facilities were designed in the park without respect to historical and aesthetic values of the place.

The main factors that reduce the landscape park values are stylistic chaos in the facilities, inadequate care of the tree stand, the disappearance of valuable landscape interiors as a result of their overgrowth and lack of park equipment such as benches and waste bins.

At a distance of 20 km from the park, in the village of Zawadów, there are plans to build a coal power station for the city and its surroundings. The station is to be launched in 2018. There is a risk that it can be a source of pollution with sulfur dioxide, which readily reacts with water vapor present in the atmosphere to form sulfuric acid, one of the components of acid rain.

A concept of restoration should be an attempt to connect the needs of historicism with needs of the present users (Fig. 2). It is proposed to restore a part of the eighteenth-century landscape garden and a composition based on the plan of Obrębska from 1976 and to further develop the school garden. The most urgent conservation work is to care of historic old trees. The main objectives of the project are to restore the park interior by removing trees and restocking lines such as limes in place of the 18th century regular garden. A restoration of the existing park paths and addition of new paths and park alleys should be done

(recommended the change of the asphalt surface into the stone). The next task is to reveal the view from the Wieprz valley slope. It is advised to join scenic attractions of Podzamcze with architectural dominants of Łęczna, i.e., the former synagogue, a the church and the parish house. It is necessary to remove the dilapidated caravans from the place of the former the castle present location is now different from the former location of the castle. In the edge zone of the Podzamcze hill, the relations between the former castle and park should be reconstructed. It becomes necessary to reveal the relics of the former castle, especially the towers and walls. An adjustment of the vegetation covering southern slopes of the hill at such an angle to reveal the outline of the supposed bastion fortification should be done. It is proposed to create a lapidary of found architectural elements coming from the site of the castle and the Old Town.

CONCLUSION

852 trees belonging to 33 species and varieties were inventoried in the Podzamcze manor complex in Łęczna. In terms of numbers prevail: Tilia cordata Mill. (166 units), *Acer platanoides* L. (162 units), *Fraxinus excelsior* L. (156 units), *Carpinus betulus (*118 units) and *Robinia pseudoacacia* L. (112 units). The rare trees include *Acer platanoides* 'Schwedleri', *Acer saccharinum* 'Wieri', *Cladrastis lutea* Rudd., *Gleditsia tricanthos* L., *Platanus* × *hispanica*, *Quercus macrocarpha* Michx., *Pinus nigra* J. F. Arnold and *Pinus strobus* L. There were marked 37 shrubs and 25 groups of bushes belonging to 17 species. On the area covered by the detailed dendrological inventory, the undergrowth consisted of 8 species of trees and shrubs: *Acer platanoides* L., *Carpinus betulus* L., *Frangula alnus* Mill., *Fraxinus excelsior* L., *Robinia pseudoacacia* L., *Sambucus nigra* L., *Symphoricarpos albus* SF Blake *Tilia cordata* Mill.

Parceling of the park resulted in loss of natural, historical and aesthetic values. An uncontrolled sprawl of green and progressive changes in the former compositional and spatial arrangement are also observed. The disappearance of the interiors and park roads as well as plant compositions can be noticed.There is an urgent need to perform maintenance works of the stand.

Lack of care results in the destruction of historic substance of the park and buildings and contributes to the decline of security of the object users. Livestock buildings deteriorate, so that it is an important task to find the proper way to use them, with respect to the historical value.

A proposed restoration of the park will contribute to the preservation of the Łęczna Podzamcze manor, improve aesthetics and functionality of the establishment.

REFERENCES

Bobińska M. 1964. *Łęczna park Podzamcze. Projekt zagospodarowania i inwentaryzacja.* Archiwum WKZ Lublin, sygn. 3277.

Chmielewski T. 2006. *Natura 2000 – Standardowy formularz danych dla OSO i SOO.*

Kozak A. 2012. *Potencjał turystyczny obszarów przyrodniczo cennych na przykładzie poleskiego parku narodowego*. [w:] Zeszyty Naukowe Uniwersytetu Szczecińskiego nr 700 Ekonomiczne Problemy Usług nr 85.

Leśniewska E. 1989. *Czy wiecie, że...* [w:] Merkuriusz Łęczyński 4: 31.

Majdecki L. 1980– 1986. *Tabela wiekowa drzew*. Rkps, Oddział Architektury Krajobrazu SGGW, Warszawa.

Majdecki L. 1993. *Ochrona i konserwacja zabytkowych założeń ogrodowych*. Wydawnictwo Naukowe PWN, Warszawa. .

Obrębska A. 1976. *Katalog parków województwa lubelskiego – Łęczna*. Archiwum WKZ Lublin, sygn. 1722.

Osiecki S., Kołodziejczyk J., Lenartowicz S.(red.) 1937. *Przewodnik po Polsce w 4 Tomach. Polska południowo–wschodnia.* Warszawa.

Seneta W., Dolatowski J. 2009. *Dendrologia.* Wydawnictwo Naukowe PWN, Warszawa.

Sulimierski F., Chlebowski B., Walewski B. 1884. *Słownik geograficzny Królestwa Polskiego i innych krajów słowiańskich*, Tomy I–XVI. Warszawa.

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