

## SPLENDID PEAR TREES OF THE CITADEL PARK IN POZNAŃ

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**Abstract.** The total of 35 splendid pear trees was inventoried in the Citadel Park and they constitute approximately 13% of the most valuable trees in this park. The circumferences of the measured trees ranged from 150 to 264 cm. Considerable circumferences were determined in the case of 32 pear trees, of which 11 trees had monumental circumferences and 21 specimens – close to monumental circumferences. From among 14 trees found to be in a very good health condition and having monumental or close to monumental circumferences, “candidates” for legal protection in the form of nature monuments should be selected.

**Key words:** *Pyrus pyraster*, *Pyrus communis*, *Pyrus ×amphigenea*, Citadel Park, Poznań

### INTRODUCTION

The *Pyrus* (*Rosaceae*, *Maloideae*) genus comprises about 80 taxons (including 38 species) growing in Europe, North-Western Africa, western, central and eastern Asia and Japan [Browicz 1993, Aldasoro et al. 1996]. Kutzelnigg and Silbereisen [1995] maintain that the genus comprises from 20 to 74 species, depending on the type of the adopted approach.

Pear trees have been known and utilized by man for about 3000 years but their mass cultivation began only in the 18th century.

The classification of this genus poses certain difficulties due to the fact that cultivated pear trees easily run wild [Terpó 1992] and cultivated cultivars tend to cross with the wild growing ones [Dostálek 1991]. The first classification of the *Pyrus* genus into 23 species from six groups was proposed by Decaisne [1871/72]. Koehne [1890] described two sections: *Pashia* and *Achras*. Fedorov [1954] proposed the following four sections: *Pashia*, *Pyrus* (= *Achras*), *Xeropyrenia* and *Argyromalon*, whereas Tuz [1972] reduced their number to two sections: *Pashia* and *Pyrus* with several subsections. Terpó [1985] added the *Pontica* section. Browicz [1993] adopted Tuz's [1972] concept with the reservation that the diagnostic traits for the *Pashia* and *Pyrus* section had not been

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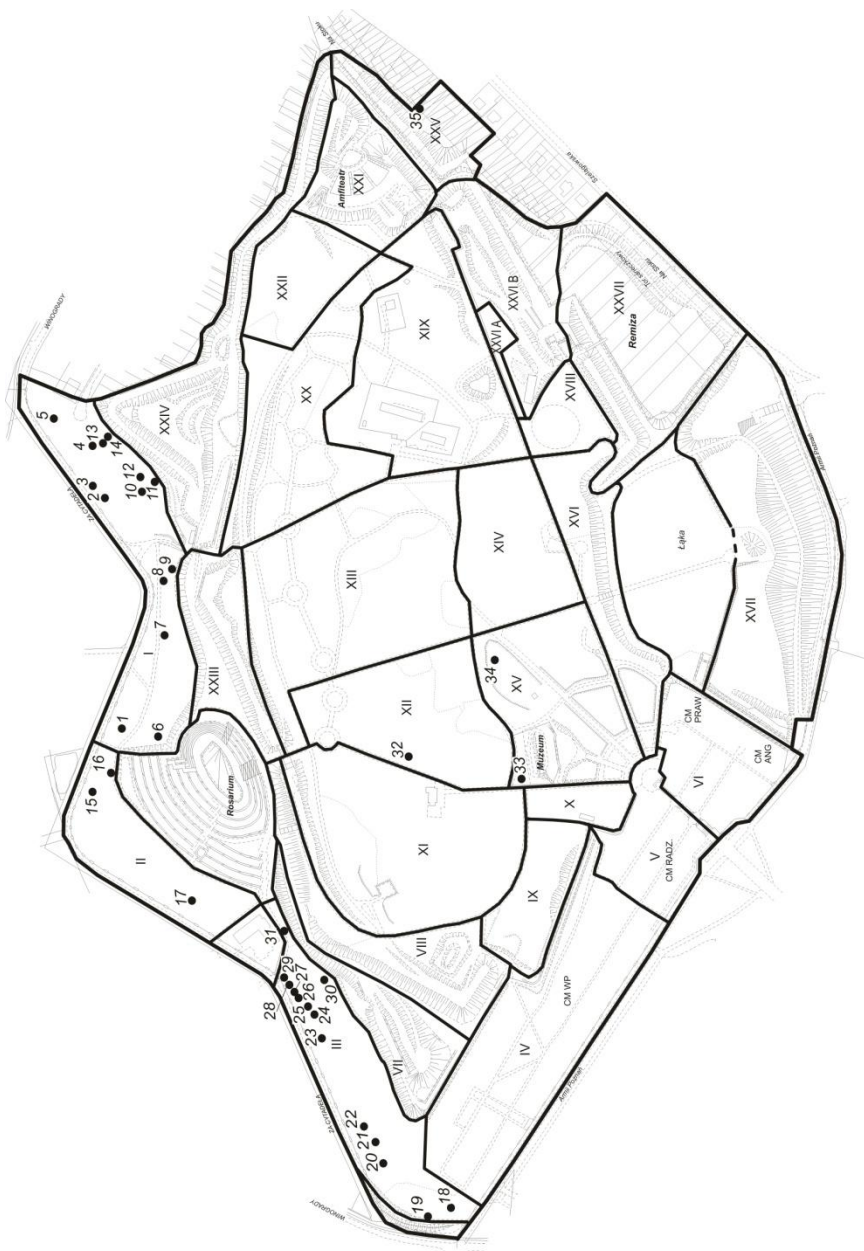


Fig. 1. Distribution of the splendid pear trees in the Citadel Park of Poznań  
 Rys. 1. Rozmieszczenie najokazalszych grusz na terenie Parku Cytadela w Poznaniu

selected optimally and suggested their supplementation with several new ones indicated by himself.

In Poland, in natural sites, only one pear tree species, namely *Pyrus pyraster* Burgsd. can be found, known as common pear, sometimes also called field or wild pear. Apart from the above-mentioned pear tree, we can frequently find the cultivated species *Pyrus communis* L. which is a multiform complex of hybrid origin. The European pear cultivars were developed from *Pyrus pyraster* Burgsd., *P. nivalis* Jacquin, *P. elaeagrifolia* Pall., *P. salicifolia* Pall., *P. spinosa* Forssk., *P. syriaca* Boiss. *Pyrus pyraster* Burgsd. and *Pyrus communis* L. crosses are known as *Pyrus* ×*amphigenea* Domin ex Dostalek [Kutzelnigg and Silbereisen 1995]. All the three above-mentioned pear tree taxons can be found in the Citadel Park.

The tree inventory of the Citadel Park proved, that there are many splendid pear trees in the park [Wrońska-Pilarek et al. 2007, Wrońska-Pilarek and Maliński 2008]. This is the greatest locality of splendid pear trees in Poznań. The main aim of the author was to conduct an inventory of the trees, and to provide the distribution of the splendid pear trees in the Citadel Park in Poznań.

## STUDY AREA

The Citadel Park is situated in the Old Town district in the central part of the City of Poznań. Its confines are designated by the Szelałowska and Winogrody Streets and the Army Poznań Alley (Fig. 1). The object is administered by the Municipal Greenery Board of Poznań.

The Citadel Park together with the cemeteries and areas belonging to museums occupies the area of 97.2 ha. The St. Adalbert and orthodox cemeteries jointly taking up the area of 2 ha are also administered by the Municipal Greenery Board of Poznań, whereas the military cemeteries of the total area of 5.7 ha are the property of the State Treasury and are administered by the Governor of the Voivodeship.

## METHODS

The tree inventory was carried out during the period lasting from July to October 2007. The investigated area was divided into 27 plots (I to XXVII) of varying areas (Fig. 1). The division into plots as well as their numbers were adopted in accordance with the suggestion of the Municipal Greenery Board of Poznań with only minor alterations.

Trees fused together at the base or separating at the height of over 1.3 m were treated as single trees, whereas those which separated at the height lower than 1.3 m were treated as separate trees and their trunks were measured and calculated as individual trees. In the case of a four-trunk pear tree, the thickest trunk was selected for calculations of circumferences.

The most valuable tree specimens were selected for each plot and were designated in the park with appropriate numbers applied using a biodegradable spray paint (each plot has a separate numeration) which were then marked on a map in 1:4000 scale.

The circumference and height were measured for each of the selected specimens and, using the scale developed by Kamiński and Czerniak [2000], their health condition were described.

In the course of the next stage of the research, all pear trees with splendid dimensions were measured and the most valuable ones were selected allocating them to one of the following groups: trees with monumental circumferences [Instrukcja... 1996], trees with circumferences close to monumental (with circumferences up to 20% smaller than monumental trees). The monumental circumference for a pear tree is 160 cm [Instrukcja... 1996].

## RESULTS

The total of 194 pear trees was inventoried in the Citadel Park [Wrońska-Pilarek and Maliński 2008]. From among 257 most valuable trees found in the park derived from 29 taxons, there were 35 splendid pear trees which constituted 13.2% [Wrońska-Pilarek and Maliński 2008; Table 1]. The distribution of the most splendid trees is presented on the map (Fig. 1). The most valuable trees of this species grow in plots designated as I, II and III located in the northern part of the park where many pear trees of smaller dimensions can also be found.

Table 1. The list of the splendid pear trees (*Pyrus*) inventoried in the Citadel Park of Poznań  
Tabela 1. Wykaz najcenniejszych drzew grusz (*Pyrus*) zinwentaryzowanych w parku Cytadela w Poznaniu

Number on the map Numer na mapie	Circumference Obwód cm	Height Wysokość m	Health condition Stan zdrowotny
1	2	3	4
Plot I – Kwatera I			
1	177	16	5
2	212	14	5
3	184	12	5
4	196	11	4
5	227	10	3
6	176	12	4
7	166	12	5
8	175	12	5
9	163	8	5
10	264	14	5
11	263	15	5
12	194	12	4
13	221	12	4
14	193	10	4

Table 1 – cont. / Tabela 1 – cd.

1	2	3	4
Plot II – Kwaterna II			
15	190	15	5
16	180	15	4
17	184	15	3
Plot III – Kwaterna III			
18	164	8	4
19	210	12	5
20	150	12	2
21	216	12	4
22	202	12	4
23	177	10	3
24	183	15	4
25	163	12	4
26	162	13	2
27	152	10	4
28	153	10	4
29	220	12	5
30	185	13	4
31	223	14	5
Plot XII – Kwaterna XII			
32	178, 83, 92,73	11	5
Plot XV – Kwaterna XV			
33	180	18	4
34	232	19	3
Plot XXV – Kwaterna XXV			
35	160	12	5

The circumferences of the measured trees ranged from 150 to 264 cm. The only exception was a four-trunk tree whose thickest trunk measured 178 cm, while the remaining trunks measured: 73.83 and 92 cm, respectively. Circumferences of more than half of the specimens ranged from 160 to 199 cm (Table 1). Thirty two pear trees achieved considerable circumferences, of which 11 trees had monumental circumferences and 21 specimens – close to monumental circumferences. Fourteen trees were characterised by very good health conditions and had monumental or close to monumental circumferences.

The inventoried pear trees were found to be from 8 to 19 m tall. Their most frequent height ranged from 11 to 15 m (71.4%). The lowest (from 5 to 10 m) and the highest (from 16 to 20 m) height intervals were not represented very numerously (Table 1).

The health condition of the majority of the examined trees was found to be good or very good which indicates that the performed nursing operations were carried out properly (Table 1). From among 35 most valuable trees, 29 trees were in a very good or good health conditions.

## CONCLUSIONS

The Citadel Park situated within the confines of the City of Poznań is the largest clumping of pear trees with 194 trees of *Pyrus pyraeaster*, *Pyrus communis* as well as hybrid *Pyrus ×amphigenea*, including 35 trees characterised by splendid dimensions.

The circumference of the thickest pear tree growing in the Citadel Park is 264 cm. For comparison, the thickest pear tree growing in the State Forests (Łopuchówko Forest District, RDSF Poznań) and probably the thickest tree of this species in Poland has the circumference of 415 cm [www.przegladlesniczy.com.pl]. Another tree, only slightly thinner, of 385 cm circumference can be found close to a place called Sława Wielkopolska in Wielkopolska Voivodeship [Pacyniak 1992].

It seems necessary to select, from the 14 specimens found to be in a very good health condition with monumental or near-monumental circumferences, “candidates” to be placed under legal protection, especially, in view of the fact that none of the trees of this species found in the Citadel Park is protected. Perhaps, monumental protection in the form of a group of pear trees would be advisable. Pear trees growing in the Citadel require a special protection because they grow in easily accessible plots adjacent to residential housing areas and a road characterised by a considerable traffic concentration. Another factor in favour of their protection is the fact that these trees constitute a fodder base for many animals living in the Citadel. In addition, this sizable site of pear trees is of considerable scientific significance as a valuable object of investigations on the morphological variability of three taxons from the *Pyrus* genus. It appears desirable to conduct detailed morphological investigations (primarily trait analyses of leaves and fruits) with the aim to determine the proportion of individual taxons in the dendroflora of the Citadel Park.

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## OKAZAŁE GRUSZE PARKU CYTADELA W POZNANIU

**Streszczenie.** Na terenie parku Cytadela zinwentaryzowano 35 okazałych grusz, które stanowią około 13% najcenniejszych drzew parku. Obwody pomierzonych drzew wynoszą od 150 do 264 cm. Znaczne obwody osiągnęły 32 grusze, w tym 11 okazów ma obwody pomnikowe, a 21 zbliżone do pomnikowych. Spośród 14 drzew znajdujących się w bardzo dobrym stanie zdrowotnym oraz mających obwody pomnikowe lub zbliżone do pomnikowych należałoby wytypować „kandydatów” do objęcia ochroną prawną w formie pomników przyrody.

**Słowa kluczowe:** *Pyrus pyraeaster*, *Pyrus communis*, *Pyrus ×amphigenea*, park Cytadela, Poznań

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