



Urszula Nawrocka-Grześkowiak, Jarosław Zieliński

Rhododendrons in gardens in the city of Szczecin

Abstract: Rhododendrons in the cities are relatively rare planted shrubs. Climatical requirements in Szczecin allowed for good growth of those plants. There are grown old specimens planted before many years. In the last time there are often meet in gardens of Szczecin (plants 6–10 years old).

Additional key words: Rhododendron, city, distribution

Address: U. Nawrocka-Grześkowiak, J. Zieliński. Department of Dendrology and Landscape Architecture, Agricultural University, Janosika 8, 71-424 Szczecin

Introduction

Rhododendrons are some of the most beautiful ornamental shrubs. Because of the charm of their flowers, they are cultivated by many people. However, because of their specific climatic and soil requirements, collections of old specimens are relatively rare. Czekałski (1991) reports that Pomerania is a region suitable for cultivation of rhododendrons, so they were commonly grown there before the 2nd World War, but now old specimens are infrequent. Observations made during an inventory carried out in Szczecin indicate that rhododendrons have been planted recently in many places and old specimens are also present. Because of this, we decided to undertake detailed research on the population of rhododendron shrubs in Szczecin.

Study area

Szczecin lies at the mouth of the river Oder. The city can be divided into 4 major zones: the Goleniów Plain (most of the area east of the river), the Police Plain (northern part of the area west of the river), the Gumieńce Plain (central and southern parts of the area west of the river), and Międzyodrze (between the two branches of the river). Additionally, three microregions can be distinguished: Warszewo Hills, the

woodless Bezrzecze–Siodło Ridge, and Beech Hills. Those microregions surround the western part of the city and form the southern border of the Goleniów Plain in the eastern part (Mazur 1993).

Weather conditions in Szczecin and its environs have been characterized by Koźmiński and Czarnecka (1993). Those authors report that the mean annual temperature of the air in 1956–1990 in Szczecin was between 8.0°C – 8,4°C, while absolute annual temperature minimum in that period was –28.6°C, –28.8°C and –30.0°C, respectively. The second major factor affecting plant growth and development is precipitation. Mean annual precipitation was 528 mm. The mean number of days with precipitation ranged from 177 (Goleniów Plain) to 209 (Międzyodrze). Because of such a distribution of precipitation, dry periods very are rarely longer than 20 days. The high relative humidity, amounting to 80–82%, compensates for the rather low annual precipitation. According to Koźmiński and Czarnecka (1993) the most unfavourable characteristics of the climate of Szczecin include strong and very strong winds, frequent especially from November till March, and very rare snowfall forming snow cover. On the basis of an analysis of weather conditions, Czekałski (1991) considers the Szczecin region as one of the most favourable for cultivation of rhododendrons. About rhododendrons in Szczecin were written many publications for exam-

ple by Stachak and Grinn (1993), Stachak and other (1997), Stachak and Nowak (1998), Stachak and other (1996). This recent work is a form of continuation those researches.

Szczecin and its environs are characterized by a relatively high diversity of soils (Borowiec 1993). The dominant soil types – especially in the Police Plain and the Goleniów Plain – include podzols, podzolic soils and rusty soils formed of poor quartz sands. In the area of Warszewo Hills and Beech Hills, brown soils and soils lessivés are frequent; they are formed of boulder clay. Proper and degraded black-earth soils can be found within the woodless Bezrzecze–Siodło Ridge, while peat soils and peat-mud soils formed of fens, as well as muck soils occur in Międzyodrze and along the river. Wojcieszczuk (1977) notes that in the area of the city most soils have been degraded to a greater or lesser extent as a result of human activity (excavation of clay, construction works, dislocation of earth, war damages, etc.).

As a result of spatial development of the city, several types of districts have been formed. The city centre is occupied by tall buildings with rented flats, characteristic of the late 19th and early 20th century. Only the northern part of the city centre is dominated by old villas. Districts covered with villas or low houses for many families include Pogodno, Głębokie, Gumieńce, Żelechowa, Zdroje, Jezierzycy, Wielgowo, and a new part of the district Dąbie. Districts Pomorzany, Świerczewo, Zawadzkiego, Niebuszewo, Kłęskowo, and some parts of Dąbie and Podjuchy are covered with blocks of flats. The low-lying areas along the Oder (Pomorzany, Drzetowo-Grabowo, Gołęcino-Gośćław, Stołczyn and Skolwin) are industrial districts including some old buildings with rented flats. Some areas within the borders of the city are used for agriculture, but most of them have been recently transformed into residential districts of detached and semi-detached houses (e.g. Pilichowo, Bezrzecze, Osów, Warszewo, Bukowo, and the higher parts of Gołęcino and Stołczyn).

Material and methods

In 2000 and 2001 an inventory of living rhododendrons was carried out in Szczecin. Species and cultivars were identified on the basis of descriptions found in the literature (Czekalski 1991, Davidian 1995, Gelderen, Hoey Smith 1992, Hieke 1978, 1985, Hume 1949, Krüssmann 1962). The identity of cultivars that are very rare in Poland was confronted also with specimens offered at the major points of sale of nursery material: Mrs I. Wojtusiszyn-Łącka's nurseries of ornamental trees and shrubs, and firms 'Rajski Ogród' and 'Nartowscy'. The division of varieties of hybrid origin into groups follows that found in the literature. The following parameters of the

shrubs were measured: shrub height and width, number of shoots, and shoot diameter at base. The investigations were conducted in gardens adjoining private houses and in green spaces around various public buildings.

The collected data were tabulated and a map of distribution of rhododendrons in the area of Szczecin was prepared.

Results

Our observations indicate that evergreen rhododendrons and azaleas grown in private gardens and near public buildings in Szczecin belong to 5 botanical species, 4 cultivars of those species, and 95 cultivars of hybrid origin. Only 8.2% of the recorded shrubs represent the botanical species and their cultivars, although marked differences can be observed between districts of the city (Fig. 1). The percentage of those plants was the highest (30.5%) in districts Głębokie and Pilichowo.

Among the cultivars resulting from interspecific crossing, the most diverse were members of the group

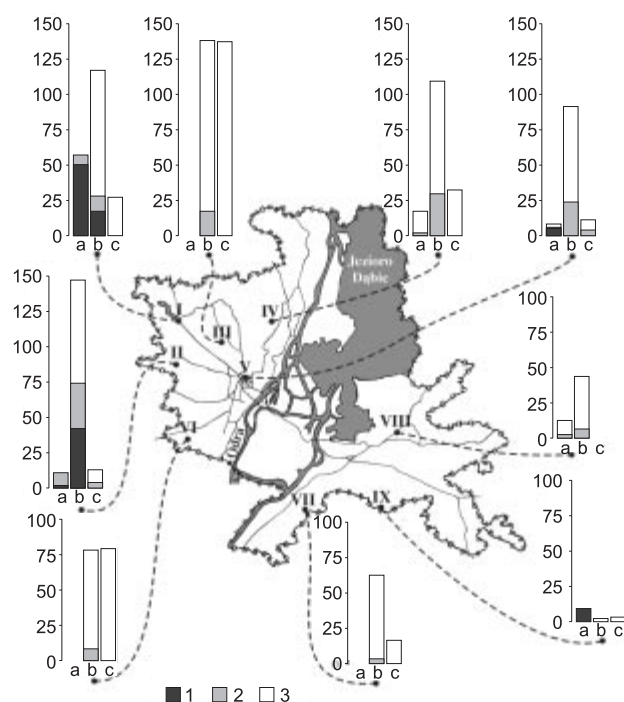


Fig. 1. Numbers of shrubs of the genus *Rhododendron* in the city of Szczecin.

Districts: I – Głębokie, Pilichowo; II – Pogodno, Krzekowo, Bezrzecze; III – Arkońskie, Osów; IV – Żelechowa, Warszewo, Gołęcino, Stołczyn, Skolwin; V – city centre; VI – Gumieńce, Pomorzany; VII – Zdroje, Podjuchy; VIII – Dąbie, Wielgowo, Załom; IX – Kłęskowo, Kijewo, Smerdnica, Jezierzycy; 1 – about 70-year-old shrubs; 2 – about 30-year-old shrubs; 3 – young shrubs; a – botanical species and their cultivars; b – evergreen cultivars of hybrid origin; c – deciduous cultivars (azaleas) of hybrid origin

Table 1. List of species and cultivars of the genus *Rhododendron* found in gardens in Szczecin**Botanical species and their cultivars**

Rhododendron catawbiense, *Rhododendron dauricum*, *Rhododendron impeditum*, *Rhododendron impeditum* 'Blue Tit Margot', *Rhododendron impeditum* 'Moerheim', *Rhododendron impeditum* 'Rampo', *Rhododendron luteum*, *Rhododendron ponticum*, *Rhododendron ponticum* 'Variegatum';

Evergreen Rhododendrons**Group *Rhododendron* Catawbiense-Hybridum**

'Album Novum', 'Bismarck', 'Caractacus', 'Catawbiense Album', 'Catawbiense Boursault', 'Catawbiense Grandiflorum', 'Catharine van Tol', 'Cynthia', 'Dr H. C. Dresselhuys', 'Everestianum', 'Goldflimmer', 'Gommer Waterer', 'Hassan', 'Lee's Dark Purple', 'Nova Zembla', 'Old Port', 'Oldevig', 'Purple Splendor', 'Purpureum Elegans', 'Roseum Elegans', 'Van der Hoop';

Group *Rhododendron* Caucasicum-Hybridum

'Christmas Cheer', 'Cosmopolitan', 'Cunningham's White', 'Jacksonii', 'Progres';

Group *Rhododendron* Fortunei-Hybridum

'Humoreska';

Group *Rhododendron* Maximum-Hybridum

'Lady Annette de Trafford';

Group *Rhododendron* Ponticum-Hybridum

'Azurro', 'Blue Peter';

Group *Rhododendron* Repens-Hybridum

'Baden Baden', 'Bengal', 'Scarlet Wonder';

Group *Rhododendron* Strigillosum-Hybridum

'Grace Seabrook'

Group *Rhododendron* Wardii-Hybridum

'Dora Amateis', 'Ehregold', 'Snow Lady';

Group *Rhododendron* Williamsianum-Hybridum

'Gartendirekter Glocker';

Group *Rhododendron* Yakushmanum-Hybridum

'Ardington', 'Alpen Rosa', 'Azurwolke', 'Fantastica', 'Flava', 'Grumpy', 'Morgenrot', 'Schneewolke', 'Silberwolke';

Cultivars of azaleas**Group *Gent***

'Pallas';

Group *Knap-Hill*

'Balzac', 'Ballerina', 'Berryrose', 'Buzzard', 'Fireball', 'Gibraltar', 'Ginger', 'Golden Dust', 'Golden Eagle', 'Homebush', 'Klondyke', 'Persil', 'Pink Delight', 'Royal Command', 'Sylphides', 'Tunis';

Group *Mollis*

'Apple Blosson', 'Bismarck', 'Chevalier de Reali', 'Comte de Gomer', 'Directeur Moerlands', 'Dr Osthoek', 'Evening Glow', 'Hugo Koster', 'Köningin Emma', 'Orange Glow';

Group *Occidentale*

'Irene Koster', 'Magnificum'

Group *Rustica*

'Il Tasso';

Group *Amoena*

'Orlice', 'Otava', 'Vltava';

Group *Arendsii*

'Kermesina', 'Kermesina Alba', 'Kermesina Rose';

Group *Kaempferi*

'Orange Beauty';

Group *Kurume*

'Amoena', 'Alladin', 'Favorite', 'Rubinstein', 'Silverstern';

Group *Vuykiana*

'Princes Irene', 'Vuyk's Rosyred', 'Vuyk's Scarlet';

Rhododendron Catawbiense-Hybridum (23 cultivars), followed by azaleas of the group Knap-Hill (16 cultivars) and of the group Mollis (10 cultivars), and evergreen rhododendrons of the group *Rhododendron Yakushimanum-Hybridum* (10 cultivars). The other groups were represented by only 1–4 cultivars. These included 7 groups of evergreen rhododendrons (*Rhododendron Caucasicum-Hybridum*, *Rhododendron Fortunei-Hybridum*, *Rhododendron Maximum-Hybridum*, *Rhododendron Ponticum-Hybridum*, *Rhododendron Repens-Hybridum*, *Rhododendron Wardii-Hybridum*, and *Rhododendron Williamsianum-Hybridum*), and 8 groups of azaleas (*Amoena*, *Arendsii*, *Gent*, *Kaempferi*, *Kurume*, *Occidentale*, *Rustica*, *Vuykina*).

Most of the specimens recorded in the study area are young, as they were planted in the 1990's. This age group accounted for 77.4% of recorded shrubs (Fig. 1). Many young shrubs were planted also during our observations. Shrubs whose age was estimated to be about 30 years accounted for 12.9%, while old individuals, planted before the 2nd World War, for 9.7%. It is noteworthy that nearly all the old rhododendrons were found in districts: Głębokie, Pilichowo and Pogodno.

The old shrubs, planted before the war, represent only 10 taxa: *Rhododendron flavum*, *R. catawbiense*, *R. ponticum*; cultivars 'Caractacus', 'Catawbiense Al-

bum', 'Catawbiense Grandiflorum', 'Everestianum', 'Gomer Waterer' of the group *Rhododendron Catawbiense-Hybridum*; 'Lady Anette de Trafford' of the group *Rhododendron Maximum-Hybridum*; and 'Cunningham's White' of the group *Rhododendron Caucasicum-Hybridum* (Table 2). Among them, the most common was *R. catawbiense*, as 51 individuals of this species were recorded, including two clumps of very large shrubs in a garden in Majowa Street. The first clump is composed of 5 shrubs with shoots of 24–36 cm in circumference (at base), while the other clump consists of 3 shrubs with shoots of 34–70 cm in circumference. All the specimens are about 4 m high. Frequent among old rhododendrons are also shrubs of the cultivar 'Catawbiense Grandiflorum'. The largest are the specimens growing in gardens in Pola Street. One of the specimens is 2.5 m high, 3 m wide, and has two shoots, of 34 and 44 cm in circumference. Besides, two clumps of shrubs can be found there. The first clump, 2.4 m high and about 4 m wide, consists of 3 shrubs with shoots of 9–54 cm in circumference; the other clump, 3.5 m high and about 4.5 m wide, consists of 3 shrubs with shoots of 19–57 cm in circumference. Very large specimens of this cultivar grow also in a garden in Skłodowskiej-Curie Street, where 20 shrubs with shoots of 14–57 cm in circumference form two clumps, both about 3 m high.

Table 2. Major parameters of the oldest specimens of the genus *Rhododendron* found in Szczecin

Taxon	No. of shrubs [pcs.]	Mean no. of shoots [pcs.]	Mean circumference of thickest shoot [cm]	Mean shrub height [m]	Mean shrub width [m]	Place of occurrence [str.]
<i>Rhododendron catawbiense</i>	51	3	34.7	2.1	2.4	Wolczkowska, Jaworowa, Majowa, Wojska Polskiego, Nauczycielska, Topolowa
<i>Rhododendron</i> 'Caractacus'	2	3	24.5	2.2	2.1	Michałowskiego, Wieniawskiego
<i>Rhododendron</i> 'Catawbiense Album'	1					Michałowskiego
<i>Rhododendron</i> 'Catawbiense Grandiflorum'	39	2	33.7	2.9	2.3	Skłodowskiej-Curie, Pola, Tetmajera, Waryńskiego, Stojałowskiego, Wojska Polskiego,
<i>Rhododendron</i> 'Everestianum'	3	2	36.3	2.3	2.3	Michałowskiego
<i>Rhododendron</i> 'Gomer Waterer'	5	3	34.6	2.1	1.9	Wolczkowska, Pola, Skłodowskiej-Curie
<i>Rhododendron</i> 'Cunningham's White'	2	9	27.5	1.8	2.7	Jaworowa, Tetmajera
<i>Rhododendron flavum</i>	2	12	15.0	1.7	2.1	Skłodowskiej-Curie, Michałowskiego
<i>Rhododendron</i> 'Lady Anette de Trafford'	2	3	41.0	2.5	2.4	Wolczkowska, Wieniawskiego
<i>Rhododendron ponticum</i>	6	3	29.4	2.6	2.1	Majowa, Jaworowa, Mostowa

Acknowledgements

We thank the owners of the gardens and the firms dealing with nursery material for help provided during our observations,

References

- Białecki T., Turek-Kwiatkowska L., 1991. Szczecin stary i nowy, Szczecińskie Towarzystwo Kultury, Szczecin.
- Borowiec S., 1993. Geologia i gleby okolic Szczecina. In: Stan środowiska miasta i rejonu Szczecina, Szczecińskie Towarzystwo Naukowe, Szczecin: 67–78.
- Czekalski M., 1991. Różaneczniki, PWRiL, Warszawa
- Davidian H.H., 1995. The rhododendron species, Timber Press, Portland, Oregon.
- Gelderen D.M., Hoey Smith J.R.P., 1992. Rhododendron Atlas, Timber Press, Portland.
- Hieke K., 1978. Prakticka dendrologie, SZN, Praga
- Hieke K., 1985. Československe šlachteni rodu *Rhododendron* L., Novimar, Praga.
- Hume H., 1949. Azaleas kinds and culture, The Macmillan Company, New York.
- Koźmiński C., Czarnecka M., 1993. Klimat miasta Szczecina i okolicy. In: Stan środowiska miasta i rejonu Szczecina, Szczecińskie Towarzystwo Naukowe, Szczecin: 49–66.
- Krüssmann G., 1962. Hanbuch der Laubgehölze, Paul Parey, Berlin, Hamburg.
- Mazur E., 1993. Fizjografia rejonu Szczecina. In: Stan środowiska miasta i rejonu Szczecina, Szczecińskie Towarzystwo Naukowe, Szczecin: 39–44.
- Stachak A., Grinn U., 1993. Drzewa i krzewy Cmentarza Centralnego Szczecina. Zeszyty Naukowe AR w Szczecinie 153 (53): 111–127.
- Stachak A., Kubus M., Nowakowska M., Wraga K., 1997. Drzewa i krzewy ogródków przykościelnych Szczecina. Zeszyty Naukowe AR w Szczecinie 178 (66): 35–62.
- Stachak A., Nowak G., 1998. Drzewa i krzewy osiedli w zachodniej i północnozachodniej części lewobrzeżnego Szczecina. Folia Universitatis Agricolae Stetin. 188 (71): 3–32.
- Stachak A., Zieliński J., Roniewicz P., 1996. Drzewa i krzewy osiedli w południowo-zachodniej i północnej części lewobrzeżnego Szczecina. Zeszyty Naukowe AR w Szczecinie 170 (61): 85–123.
- Wojcieszczuk T., 1997. Wpływ soli stosowanych do odśnieżania jezdni na chemizm gleb i rośliny zielców Szczecina, Doctor thesis AR Szczecin (mimeographed).

