

FLORA OF VASCULAR PLANTS OF SELECTED POZNAŃ CEMETERIES

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Received: 09.03.2011

Abstract

The presence of 395 species of vascular flora at four rarely used cemeteries within the Poznań city was confirmed in 2010. Apart from naturally occurring species, cultivated species were noted equally. Among species appearing spontaneously between the graves, species new for the flora of Poland: *Chionodoxa forbesii*, *Ch. luciliae*, *Puschkinia scilloides*, new for the flora of Wielkopolska: *Bidens ferulifolius*, *Hyacinthoides hispanica* and new for the flora of Poznań: *Erigeron ramosus*, *Lilium bulbiferum*, *Pimpinella nigra*, *Poa subcaerulea*, *Veronica hederifolia* s.s., were recorded. Names of taxa originating from cultivation are underlined.

Key words: vascular flora, cemetery, permanent cemetery species, Poznań, Wielkopolska

INTRODUCTION

Urban cemeteries are among generally accessible green areas. With regard for tradition, respect for the past and for the people who created them, cemeteries deserve careful maintenance. Cemeteries are planted with trees and shrubs which fulfil ecological and ornamental functions (Czekalski, 2001). Cemeteries are clearly divided into areas designated for burying the dead and also gardens with a particular type of mood of silence, reflection on mortality, and meditation. This is brought about by their exceptional scenery, composed of memorials and the inscriptions placed on them as well as by avenues planted with trees and plants ornamenting graves and growing around them (Czekalski and Furmańczyk, 2000; Dębicz and Czekalski, 2002).

The composition of cemeteries is dependent upon historical time span as well as cultural, religious, and burial customs. These factors influence the original arrangement of cemeteries as well as the changes

occurring in them in the later years. The local landscape also creates the surroundings of the gravestones, which from pagan times have been planted with species of symbolic and magical significance (Siewniak and Mitkowska, 1998).

Modern gravestones are decorated mainly with seasonal plants. Well-ordered cemeteries are considered to be those that are carefully raked. The graves in such a cemetery are surrounded by white gravel or stone-paved surface. Weeds and deciduous trees are unwelcome. Heavy stone memorials dominate, taking up the place of plants. In consequence, many of the contemporary cemeteries have lost their park character.

Poznań, as a city with many centuries of tradition, has 21 cemeteries within its area. Their total area, which is about 231 ha, covers 0.9% of the city area. Out of the 19 parochial cemeteries, 9 are considered to have historical significance (Mierzejewska, 2001).

Nowadays, cemeteries and their floristic composition are becoming the subject of many studies. There are many publications concerning spontaneous vascular flora of the cemeteries in Chełm District (Fi jałkowski and Kędzierska, 1982), Warsaw (Galera et al. 1993), Jarocin (Czarna, 2004), Ostrów Wlkp. and its surroundings (Celka and Żywica, 2004), Zakopane (Czarna and Piskorz, 2005), Jelenia Góra (Czarna et al. 2006), Ustrzyki Dolne (Czarna et al., 2007). Some works about ornamental plants at cemeteries are also present (Czekalski and Furmańczyk, 2000; Czekalski, 2001; Dębicz, 2002; Dębicz and Czekalski, 2002).

MATERIAL AND METHODS

Four Poznań cemeteries named the Jeżyce Cemetery, Górczyn Cemetery, Parochial Cemetery of

Corpus Christi, and St. Jan Vianney Parochial Cemetery, were chosen for the inventory and comparison of vascular plants. All of them are open, similar with respect to the year of founding, located in-between low buildings, and far away from main communication roads or natural ecological corridors. Two of them, the Jeżyce Cemetery and Parochial Cemetery of Corpus Christi, are of historical importance (Mierzejewska, 2001). Floristic research of these Poznań cemeteries was conducted in the 2010 vegetation season.

In order to determine the cover-abundance degree of vascular plant species, a 6-degree scale, out of Braun-Blanquet's scale, was applied with: 0 (1-5 individuals; < 5% cover of the cemetery area), 1 (> 5 individuals; < 5%), 2 (5-25%), 3 (> 25-50%), 4 (> 50-75%), 5 (> 75-100%). The large area of the examined sites justifies applying such 6-degree scale. The status of a 'permanent cemetery plant', which was distinguished in our flora descriptions, was related to the species which were planted in a cemetery area and currently are in a good condition, continue to grow or even are spreading without any care (Czarna, 2001).

Nomenclature of the spontaneous species follows Mirek et al. (2002) and of the cultivated plants Gawryś (2008). The geographic-historical status and socio-ecological groups are presented according to Chmiel (1993) and Czarna (2009), while life forms follow Zarzycki et al. (2002) and Rutkowski (2006). Species new for the flora of Poland are shown according to Mirek et al. (2002), new for Wielkopolska according to Szulczewski (1951), and new for Poznań according to Jackowiak (1993). Names of taxa originating exclusively from cultivation are underlined in the text.

Cemetery characteristics

CC – The Parochial Cemetery of Corpus Christi was established in 1912 on a rectangular plan. It covers an area of about 6 ha and is located beside Bluszczowa St. It is surrounded by fencing with an ornamental, brickwork entrance gate. Trees cover about 75% of the cemetery area. The following species grow along the main alley: *Acer platanoides*, *Platanus ×hispanica* and *Fraxinus excelsior*, whereas one of the side paths is planted with *Sorbus aria*. Alongside the fencing, an impressive alley composed of *Pinus nigra* is situated. Quarters are separated by numerous hedges composed of *Carpinus betulus* and other species.

J – The Jeżyce Cemetery was established in 1905. It is placed between Nowina and Szpitalna St. Currently it has an area of approx. 6.4 ha with a nearly four-sided shape with its longer axis in a north-south direction. The southern and western boundaries are enclosed by a wall, and by iron fencing from the side of the streets. The described cemetery has a quartered arrangement with one main composition axis, the second

one parallel to the first one, as well as some transverse small alleys. The cemetery is under legal protection according to the provisions of the law on conservation of monuments of art and history. The new part of the cemetery is raked and trodden, and the herbaceous layer is poor there. From the side of Szpitalna St., the cemetery is screened by a hedge of *Taxus baccata* and *Ligustrum vulgare*, while from Nowina St. the cemetery is sheltered by *Thuja occidentalis* and *Taxus baccata*. The majority of the surface between the graves is occupied by herbaceous plants. The alley of *Tilia cordata* runs from the main gate through the whole cemetery. Trees cover approx. 75% of the cemetery area. The presence of the following three species: *Pyrus salicifolia*, *Prunus angustifolia*, *Artemisia abrotanum*, in this cemetery (Podmostko-Kłos, 2010) was not confirmed in our observations.

G – The Górczyn Cemetery is situated beside Piotr Ściegienny St. The cemetery was established in 1910 on an area of approx. 8 ha, and it has a rectangular shape with its longer side oriented in the north-south direction. The cemetery is arranged in quarters formed by the main avenue and transverse paths. The whole area is enclosed by a wall with a double winged cast iron gate facing the street. The cemetery is under legal protection according to the provisions of the law on conservation of monuments of art and history. Trees cover about 60% of the area. The alley along the main cemetery axis is planted with *Robinia pseudoacacia*. The spaces between the graves are raked and frequently trodden, therefore the herbaceous layer is poor there.

V – The St. Jan Vianney Parochial Cemetery is situated at the crossing of Lutycka and Szczawnicka St. The cemetery was established in 1936. It occupies an area of 0.25 ha and has an approximately rectangular shape with the main avenue and quartered arrangement. It is surrounded by wrought iron fencing. The main avenue is planted with *Tilia platyphyllos* and column form of *Quercus robur*. Trees cover about 40% of the cemetery area. The shrub layer is abundant at that cemetery. *Thuja occidentalis*, *Chamaecyparis lawsoniana*, *Ch. pisifera*, *Juniperus chinensis*, *J. communis* and *Taxus baccata* varieties appear here plentifully. The hedges of deciduous plants have been planted between the graves. They consist mainly of *Ligustrum vulgare*, *Acer campestre*, *Symphoricarpos albus*. In the newer part of this cemetery, the herbaceous layer is significantly poor. The surface is predominantly frequently trodden and raked there.

RESULTS AND DISCUSSION

A total of 395 vascular plants were recorded growing in the area of the four examined Poznań cemeteries (Table 1). The highest number of species was recorded at the Parochial Cemetery of Corpus Christi

(218 species) and at the St. Jan Vianney Parochial Cemetery (210). At the Jeżyce Cemetery, 199 species were noted, and the least species (171) were noted in the area of the Górczyn Cemetery. At all of the the four examined cemeteries, 47 species of vascular plants were noted in the tree layer, 58 in the shrub layer, and 313 in the herbaceous layer. In the tree layer, the highest number of species was recorded at the Górczyn Cemetery (27 species) and at the St. Jan Vianney Parochial Cemetery (23 species). At the two remaining cemeteries – 19 species at the Parochial Cemetery of Corpus Christi and 18 species in the Jeżyce Cemetery were confirmed in the tree layer. In the

shrub layer, the highest number of species were noted at the cemeteries of the Corpus Christi (31 species) and at the St. Jan Vianney Parochial Cemetery (29 species), whereas at the Jeżyce Cemetery 27 species and at the Górczyn Cemetery 21 species were confirmed in the shrub layer. The herbaceous layer was the richest at the Parochial Cemetery of Corpus Christi (177 species). At the Jeżyce Cemetery and at the St. Jan Vianney Parochial Cemetery, a similar number of species was recorded (164 and 163 species, respectively). The lowest number of species in the herbaceous layer was recorded in the area of the Górczyn Cemetery (128 species).

Table 1.
List of vascular plants recorded at the four examined cemeteries in Poznań, Poland

Species	Cover-abundance class				Species characteristics		
	CC**	J	G	V	GHs	LF	SEg
Tree layer							
<i>Abies concolor</i> (Gordon & Glend.) Lindl. ex Hildebr.	.	.	0 cul*	0 cul	D	M	19
<i>Acer campestre</i> L.	.	.	.	1 cul	Ap	M	1
<i>Acer negundo</i> L.	.	1 cul	1 cul	0 cul	Ken	M	3
<i>Acer platanoides</i> L.	1 cul	1 cul	1 cul	1 cul	Ap	M	1
<i>Acer pseudoplatanus</i> L.	.	1 cul	1 cul	1 cul	Ap	M	1
<i>Aesculus hippocastanum</i> L.	1 cul	1 cul	1 cul	.	D	M	19
<i>Betula pendula</i> Roth	2 cul	1 cul	1 cul	1 cul	Ap	M	2
<i>Carpinus betulus</i> L.	1 cul	.	.	1 cul	Sp	M	1
<i>Cerasus avium</i> (L.) Moench	.	0 cul	.	.	Ken	M	2
<i>Chamaecyparis pisifera</i> (Siebold & Zucc.) Endl.	.	.	0 cul	.	D	N	19
<i>Crataegus xmacrocarpa</i> Hegetschw.	0 cul	.	.	.	Ap	N	1
<i>Crataegus monogyna</i> Jacq.	.	0 cul	.	.	Ap	N	1
<i>Fagus sylvatica</i> L.	0 cul	0 cul	.	.	Sp	M	1
<i>Fraxinus excelsior</i> L.	1 cul	.	1 cul	.	Ap	M	1
<i>Gleditsia triacanthos</i> L.	.	.	.	0 cul	D	M	19
<i>Hedera helix</i> L.	0 cul	0 cul	0 cul	0 cul	Ap	Ch	1
<i>Juglans cinerea</i> L.	.	.	0 cul	.	D	M	19
<i>Larix decidua</i> Mill.	.	.	.	0 cul	Sp	M	2
<i>Malus xpurpurea</i> Rehder	.	.	0 cul	.	D	M	19
<i>Morus alba</i> L.	.	.	.	1 cul	D	M	19
<i>Picea abies</i> (L.) H. Karst.	2 cul	1 cul	1 cul	1 cul	Sp	M	2
<i>Picea pungens</i> Engelm.	.	.	0 cul	0 cul	D	M	19
<i>Pinus rhaetica</i> Brügger	.	.	.	0 cul	D	M	19
<i>Pinus nigra</i> J. F. Arnold	1 cul	1 cul	.	1 cul	D	M	5
<i>Pinus sylvestris</i> L.	.	.	1 cul	1 cul	Ap	M	5
<i>Platanus xhispanica</i> Mill. ex Münchh.	2 cul	.	1 cul	.	D	M	19
<i>Populus xcanadensis</i> Moench	.	.	0 cul	.	D	M	19
<i>Populus gileadensis</i> Rouleau	.	.	0 cul	.	D	M	19
<i>Populus nigra</i> L. 'Italica'	0 cul	.	.	.	D	M	19
<i>Prunus cerasifera</i> Ehrh.	0 cul	.	.	.	Ken	M	3
<i>Pseudotsuga menziesii</i> (Mirb.) Franco	.	1 cul	1 cul	.	D	M	2
<i>Pterocarya fraxinifolia</i> (Poir.) Spach	.	.	1 cul	.	D	M	19
<i>Quercus robur</i> L.	1 cul	1 cul	1 cul	1 cul	Sp	M	1
<i>Quercus rubra</i> L.	.	.	.	1 cul	Ken	M	2
<i>Robinia pseudoacacia</i> L.	.	1 cul	1 cul	1 cul	Ken	N	14
<i>Salix alba</i> L.	.	.	0 cul	.	Ap	M	7

Species	Cover-abundance class				Species characteristics		
	CC**	J	G	V	GHs	LF	SEg
<i>Salix alba viteliana pendula</i> Rehd.	0 cul	.	0 cul	.	D	M	19
<i>Salix babylonica</i> var. <i>pekinensis</i> ,Tortuosa'	.	.	.	0 cul	D	M	19
<i>Sorbus aria</i> (L.) Crantz	1 cul	.	.	.	Sp	M	19
<i>Taxus baccata</i> L.	.	.	0 cul	.	Sp	N	1
<i>Thuja occidentalis</i> L.	2 cul	1 cul	.	1 cul	D	M	19
<i>Thuja orientalis</i> L.	.	.	1 cul	.	D	M	19
<i>Thuja plicata</i> Donn ex D. Don	0 cul	.	.	.	D	M	19
<i>Tilia cordata</i> Mill.	1 cul	1 cul	.	1 cul	Ap	M	1
<i>Tilia euchlora</i> C. Koch	.	.	0 cul	.	D	M	19
<i>Tilia platyphyllos</i> Scop.	.	1 cul	1 cul	1 cul	Ap	M	1
<i>Ulmus laevis</i> Pall.	.	1 cul	.	.	Ap	M	1
Shrub layer							
<i>Acer negundo</i> L.	.	.	.	1	Ken	M	3
<i>Acer platanoides</i> L.	.	1	1	.	Ap	M	1
<i>Acer pseudoplatanus</i> L.	1	.	.	.	Ap	M	1
<i>Berberis verruculosa</i> Hemsl. & E. H. Wilson	1 cul	.	.	.	D	N	19
<i>Berberis vulgaris</i> L.	.	1 cul	1 cul	.	Ap	N	4
<i>Betula pendula</i> Roth	.	1	.	1	Ap	M	2
<i>Buxus sempervirens</i> L.	1 cul	1 cul	.	1 cul	D	N	19
<i>Calluna vulgaris</i> (L.) Hull	1 cul	.	.	1 cul	Sp	Ch	5
<i>Caragana arborescens</i> Lam.	.	1	1 cul	.	D	N	19
<i>Carpinus betulus</i> L.	1	.	.	.	Sp	M	1
<i>Cerasus avium</i> (L.) Moench	.	1cul	.	.	Ken	M	2
<i>Cerasus mahaleb</i> (L.) Mill.	1	.	.	1	Ken	N	19
<i>Chamaecyparis lawsoniana</i> (A. Murray) Parl.	.	1 cul	.	1 cul	D	N	19
<i>Chamaecyparis pisifera</i> (Siebold & Zucc.) Endl.	.	.	1 cul	1 cul	D	N	19
<i>Cotoneaster xsueticus</i> G. Klotz	.	.	.	1	D	N	19
<i>Cotoneaster hjelmqvistii</i> Flinck et Hylmö	1 cul	.	.	.	D	N	19
<i>Crataegus monogyna</i> Jacq.	1	.	.	1	Ap	N	1
<i>Euonymus europaea</i> L.	1	.	.	1	Ap	N	1
<i>Euonymus fortunei</i> (Turcz.) Hand.-Mazz.	1 cul	1 cul	1 cul	1 cul	D	N	19
<i>Fagus sylvatica</i> L.	.	1	.	.	Sp	M	1
<i>Forsythia xintermedia</i> Zabel	.	1 cul	.	.	D	N	19
<i>Hydrangea macrophylla</i> (Thunb. ex Murray) Ser.	.	.	0 cul	.	D	N	19
<i>Juglans regia</i> L.	0	.	.	.	D	M	19
<i>Juniperus chinensis</i> L.	.	.	.	1 cul	D	N	19
<i>Juniperus communis</i> L.	.	.	1 cul	1	Sp	N	5
<i>Ligustrum vulgare</i> L.	.	1 cul	1 cul	1 cul	Ken	N	19
<i>Lonicera caprifolium</i> L.	.	.	0 cul	.	D	N	19
<i>Lonicera maackii</i> (Rupr) Herder	.	.	0 cul	.	D	N	19
<i>Lonicera pileata</i> Oliv.	0 cul	.	.	.	D	N	19
<i>Lonicera tatarica</i> L.	1 cul	.	1 cul	1 cul	Ken	N	19
<i>Lonicera xylosteum</i> L.	1	1	.	1	Ap	N	1
<i>Mahonia aquifolium</i> (Pursh) Nutt.	1 cul	1 cul	1 cul	1 cul	Ken	N	19
<i>Philadelphus xlemoinei</i> Lemoine	.	0 cul	.	.	D	N	19
<i>Philadelphus coronarius</i> L.	1 cul	.	.	1 cul	D	N	19
<i>Picea abies</i> (L.) H. Karst.	.	1	.	.	Sp	M	2
<i>Populus alba</i> L.	.	.	1	.	Ap	M	7
<i>Quercus robur</i> L.	1	.	.	.	Sp	M	1
<i>Ribes alpinum</i> L.	1	.	.	.	Sp	N	16
<i>Robinia pseudoacacia</i> L.	.	1	.	.	Ken	N	14
<i>Rosa blanda</i> Aiton	.	.	0 cul	.	Ken	N	19

Species	Cover-abundance class				Species characteristics		
	CC**	J	G	V	GHs	LF	SEg
<i>Rosa canina</i> L.	1	1	1	1	Ap	N	4
<i>Rosa gallica</i> L.	0 cul	0 cul	.	0 cul	Sp	N	16
<i>Rosa gallica</i> L. ×?	.	0 cul	.	.	D	N	19
<i>Rosa gorenkensis</i> Besser	.	.	0 cul	.	Ken	N	19
<i>Rosa multiflora</i> Thunb.	.	.	0 cul	0 cul	D	N	19
<i>Rosa rubiginosa</i> L.	1	.	.	.	Ap	N	4
<i>Rosa</i> sp.	0 cul	0 cul	.	.	D	N	19
<i>Rubus caesius</i> L.	1	1	.	.	Ap	Ch	13
<i>Salix caprea</i> L.	0 cul	.	.	0 cul	Ap	N	3
<i>Salix integra</i> Thunb. „ <i>Hakuro Nishiki</i> ’	0 cul	.	0 cul	0 cul	D	N	19
<i>Sambucus nigra</i> L.	1	.	.	.	Ap	N	3
<i>Spiraea japonica</i> L.	.	0 cul	.	0 cul	D	N	19
<i>Symphoricarpos albus</i> (L.) S. F. Blake	1	.	1	1	Ken	N	19
<i>Syringa vulgaris</i> L.	1	1	1	1	Ken	N	19
<i>Taxus baccata</i> L.	2 cul	1 cul	.	1 cul	Sp	N	1
<i>Thuja occidentalis</i> L.	3 cul	1 cul	.	2 cul	D	M	19
<i>Thuja orientalis</i> L.	1 cul	1 cul	0 cul	1 cul	D	M	19
<i>Thuja plicata</i> Donn ex D. Don	.	0 cul	.	.	D	M	19
Herbaceous layer							
<i>Acer campestre</i> L.	.	.	.	0	Ap	M	1
<i>Acer platanoides</i> L.	0	1	.	0	Ap	M	1
<i>Achillea millefolium</i> L. s. str.	1	1	1	1	Ap	G	9
<i>Aegopodium podagraria</i> L.	3	2	.	1	Sp	H	1
<i>Aegopodium podagraria</i> L. ‚Variegatum’	0 cul	0 cul	0 cul	0 cul	Sp	H	1
<i>Aethusa cynapium</i> L.	.	.	1	.	Arch	T	16
<i>Ageratum houstonianum</i> Mill.	0 cul	.	.	0 cul	cul	H	19
<i>Agrostis capillaris</i> L.	.	1	.	.	Ap	H	5
<i>Agrostis gigantea</i> Roth	1	1	0	1	Ap	G	8
<i>Agrostis stolonifera</i> L.	.	1	.	.	Ap	H	11
<i>Ajuga reptans</i> L.	.	.	0 cul	0 cul	Sp	H	1
<i>Alliaria petiolata</i> (M. Bieb.) Cavara & Grande	0	0	0	0	Ap	T	3
<i>Allium scorodoprasum</i> L.	1	1	.	0	Ken	G	3
<i>Allium vineale</i> L.	1	1	0	0	Ap	G	4
<i>Anagallis arvensis</i> L.	0	.	.	.	Arch	T	16
<i>Anchusa officinalis</i> L.	0	.	.	.	Ap	H	14
<i>Anemone ranunculoides</i> L.	1	.	.	.	Sp	G	1
<i>Anemone sylvestris</i> L.	0 cul	.	.	0	Sp	H	4
<i>Anthriscus sylvestris</i> (L.) Hoffm.	.	1	.	.	Ap	H	3
<i>Apera spica-venti</i> (L.) P. Beauv.	.	.	0	.	Arch	T	17
<i>Aquilegia vulgaris</i> L.	0 cul	0 cul	.	0 cul	Sp	H	19
<i>Arabidopsis thaliana</i> (L.) Heynh.	.	1	1	1	Ap	T	17
<i>Arabis alpina</i> L.	.	0 cul	0 cul	.	D	H	19
<i>Arctium minus</i> (Hill) Bernh.	.	.	1	.	Ap	T	14
<i>Arctium tomentosum</i> Mill.	.	.	1	.	Ap	T	13
<i>Arenaria serpyllifolia</i> L.	.	.	.	1	Ap	T	5
<i>Argyranthemum frutescens</i> Sch. Bip.	0 cul	0 cul	.	0 cul	cul	H	19
<i>Armeria maritima</i> (Mill.) Willd. <i>subsp. elongata</i> (Hoffm.) Bonnier	.	.	0 cul	0 cul	Ap	H	5
<i>Arrhenatherum elatius</i> (L.) P. Beauv. ex J. Presl & C. Presl	1	1	.	.	Ap	H	9
<i>Artemisia campestris</i> L.	.	.	.	1	Ap	H	5

Species	Cover-abundance class				Species characteristics		
	CC**	J	G	V	GHs	LF	SEg
<i>Artemisia vulgaris</i> L.	.	1	.	0	Ap	H	13
<i>Asparagus officinalis</i> L.	0	0 cul	.	0	Ken	G	14
<i>Asperugo procumbens</i> L.	1	.	.	1	Arch	T	14
<i>Astragalus glycyphyllos</i> L.	.	0	.	.	Ap	H	2
<i>Atriplex patula</i> L.	.	0	0	0	Ap	T	16
<i>Avena fatua</i> L.	.	.	1	.	Arch	T	17
<i>Ballota nigra</i> L.	0	0	0	0	Arch	H	14
<i>Bergenia cordifolia</i> (Haw.) Sternb.	0	0 cul	0 cul	0 cul	D	H	19
<i>Begonia x tuberhybrida</i> Voss	0 cul	.	.	0 cul	cul	H	19
<i>Begonia semperflorens</i> Link & Otto	1 cul	1 cul	1 cul	1 cul	cul	T	19
<i>Bellis perennis</i> L.	1 cul, 1	1 cul, 1	.	.	Sp	H	9
<i>Berteroa incana</i> (L.) DC.	.	1	1	1	Ap	T	14
<i>Betula pubescens</i> Ehrh.	.	.	.	0	Sp	M	6
<i>Bidens ferulifolius</i> (Jacq.) DC.	.	.	1	.	D	T	19
<i>Bidens frondosa</i> L.	0	.	.	.	Ken	T	12
<i>Bromus hordeaceus</i> L.	1	.	.	1	Ap	T	14
<i>Bromus inermis</i> Leyss.	1	.	.	.	Ap	G	14
<i>Bromus sterilis</i> L.	1	.	1	1	Arch	T	3
<i>Bromus tectorum</i> L.	.	.	.	1	Arch	T	15
<i>Calamagrostis epigejos</i> (L.) Roth	1	1	1	1	Ap	G	2
<i>Calystegia sepium</i> (L.) R. Br.	.	1	.	.	Sp	G	7
<i>Campanula persicifolia</i> L.	.	1 cul	.	1	Sp	H	2
<i>Campanula poscharskyana</i> Degen	.	.	.	0 cul	cul	H	19
<i>Campanula rapunculoides</i> L.	2	1	1	1	Ap	H	16
<i>Capsella bursa-pastoris</i> (L.) Medik.	1	.	1	1	Arch	T	16
<i>Cardamine hirsuta</i> L.	.	.	.	1	Sp	T	8
<i>Carex hirta</i> L.	1	.	.	.	Ap	G	10
<i>Carex praecox</i> Schreb.	.	.	.	1	Ap	G	9
<i>Carex spicata</i> Huds.	1	1	.	1	Ap	H	2
<i>Carum carvi</i> L.	1	.	.	.	Ap	T	9
<i>Centaurea cyanus</i> L.	.	.	.	1	Arch	T	17
<i>Cerastium arvense</i> L. s. str.	1	.	.	.	Ap	H	9
<i>Cerastium biebersteinii</i> DC.	1 cul	1 cul	1 cul	.	D	H	19
<i>Cerastium glomeratum</i> Thuill.	1	.	.	1	Sp	H	19
<i>Cerastium holosteoides</i> Fr. emend. Hyl.	.	1	.	1	Ap	H	9
<i>Chaerophyllum temulum</i> L.	1	.	1	.	Ap	T	3
<i>Chamaenerion angustifolium</i> (L.) Scop.	.	0	.	.	Ap	H	2
<i>Chamomilla suaveolens</i> (Pursh) Rydb.	.	.	1	1	Ken	T	10
<i>Chelidonium majus</i> L.	1	1	1	1	Ap	H	3
<i>Chenopodium album</i> L.	1	.	1	1	Ap	T	16
<i>Chenopodium strictum</i> Roth	.	.	.	1	Ken	T	15
<i>Chionodoxa forbesii</i> Baker	0	.	.	.	D	G	19
<i>Chionodoxa luciliae</i> Boiss.	.	0	.	.	D	G	19
<i>Chlorophytum comosum</i> (Thunb.) Jacq.	0 cul	.	.	.	cul	H	19
<i>Chrysanthemum x grandiflorum</i> (Ramat.) Kitam.	.	0 cul	.	1 cul	cul	H	19
<i>Chrysanthemum indicum</i> L.	.	.	0 cul	.	cul	H	19
<i>Cichorium intybus</i> L.	1	1	1	1	Arch	H	14
<i>Cirsium arvense</i> (L.) Scop.	1	1	1	.	Ap	G	13
<i>Clematis vitalba</i> L.	.	1	.	.	Ken	N	16
<i>Colchicum autumnale</i> L.	.	.	.	0 cul	Sp	G	8
<i>Coleus blumei</i> Benth.	0 cul	0 cul	.	.	cul	T	19
<i>Convallaria majalis</i> L.	1 cul	1	1	1 cul, 1	Sp	G	2
<i>Convolvulus arvensis</i> L.	1	1	.	1	Ap	G	14

Species	Cover-abundance class				Species characteristics		
	CC**	J	G	V	GHs	LF	SEg
<i>Conyza canadensis</i> (L.) Cronquist	1	1	1	1	Ken	T	15
<i>Coronilla varia</i> L.	1	1	.	1	Ap	H	4
<i>Crepis capillaris</i> (L.) Wallr.	.	1	.	.	Sp	T	9
<i>Dactylis glomerata</i> L.	1	2	.	.	Ap	H	9
<i>Dahlia pinnata</i> Cav.	0 cul	.	.	.	cul	H	19
<i>Daucus carota</i> L.	1	1	.	1	Ap	T	9
<i>Deschampsia caespitosa</i> (L.) P. Beauv.	.	1	.	.	Sp	H	8
<i>Dianthus barbatus</i> L. s. str.	1	1	.	.	Ken	Ch	9
<i>Dianthus chinensis</i> L.	1 cul	.	.	.	D	H	19
<i>Digitalis purpurea</i> L.	.	1	.	.	Ken	H	16
<i>Digitaria sanguinalis</i> (L.) Scop.	1	.	1	1	Arch	T	15
<i>Dimorphotheca sinuata</i> DC.	.	.	0 cul	.	cul	T	19
<i>Diplotaxis muralis</i> (L.) DC.	1	.	.	1	Ken	T	15
<i>Dipsacus sylvestris</i> Huds.	1	1	.	.	Ken	T	19
<i>Doronicum pardalianches</i> L.	.	1 cul	.	.	D	G	19
<i>Dorotheanthus bellidiformis</i> (Burm.f.) N.E.Br.	.	.	0 cul	.	cul	T	19
<i>Draba sibirica</i> (Pall.) Thell	.	.	.	1 cul	cul	H	19
<i>Dryopteris filix-mas</i> (L.) Schott	1 cul	1	.	.	Sp	H	2
<i>Echinochloa crus-galli</i> (L.) P. Beauv.	1	.	1	.	Arch	T	16
<i>Echium vulgare</i> L.	1	.	.	.	Ap	T	14
<i>Elymus repens</i> (L.) Gould	1	1	1	1	Ap	G	10
<i>Epilobium adnatum</i> Griseb.	1	.	.	.	Ap	H	12
<i>Epilobium ciliatum</i> Raf.	1	1	.	1	Ken	H	12
<i>Equisetum arvense</i> L.	1	1	1	1	Ap	G	6
<i>Eragrostis minor</i> Host	.	.	.	1	Ken	T	19
<i>Erica tetralix</i> L.	.	0 cul	.	.	Sp	Ch	5
<i>Erigeron annuus</i> (L.) Pers.	1	1	1	.	Ken	T	13
<i>Erigeron ramosus</i> (Walters) Britton, Sterns & Poggenb.	1	.	1	1	Ken	T	13
<i>Erodium cicutarium</i> (L.) L'Hér.	.	.	.	1	Ap	T	16
<i>Erophila verna</i> (L.) Chevall.	1	.	1	1	Ap	T	5
<i>Erysimum cheiranthoides</i> L.	.	.	1	.	Ap	T	16
<i>Euonymus europaea</i> L.	1	.	.	.	Ap	N	1
<i>Euphorbia cyparissias</i> L.	.	.	.	1	Ap	H	4
<i>Euphorbia esula</i> L.	1	.	.	.	Ap	H	14
<i>Euphorbia marginata</i> Pursh	1 cul	.	.	1	Ken	T	16
<i>Euphorbia peplus</i> L.	1	1	.	1	Arch	T	16
<i>Exacum affine</i> Balf.f. ex Regel	.	.	0 cul	.	cul	T	19
<i>Falcaria vulgaris</i> Bernh.	1	1 cul	.	.	Ap	H	4
<i>Fallopia convolvulus</i> (L.) Á. Löve	1	.	1	1	Arch	T	16
<i>Festuca gigantea</i> (L.) Vill.	1	1	.	.	Sp	H	1
<i>Festuca trachyphylla</i> (Hack.) Krajina	1	.	.	.	Ap	H	5
<i>Ficaria verna</i> Huds.	3	3	1	1	Sp	G	1
<i>Filipendula vulgaris</i> Moench	.	.	1	.	Ap	H	4
<i>Fraxinus excelsior</i> L.	1	1	1	.	Ap	M	1
<i>Fumaria schleicheri</i> Soy.-Will.	.	1	.	.	Arch	T	16
<i>Gagea arvensis</i> (Pers.) Dumort.	.	1	.	1	Arch	G	3
<i>Gagea lutea</i> (L.) Ker Gawl.	.	1	.	.	Sp	G	1
<i>Gagea pratensis</i> (Pers.) Dumort.	2	2	1	1	Ap	G	3
<i>Galanthus nivalis</i> L.	1	1	1	.	Sp	G	1
<i>Galinsoga ciliata</i> (Raf.) S. F. Blade	.	.	1	.	Ken	T	16
<i>Galinsoga parviflora</i> Cav.	.	.	1	1	Ken	T	16
<i>Galium aparine</i> L.	.	.	.	1	Ap	T	3

Species	Cover-abundance class				Species characteristics		
	CC**	J	G	V	GHs	LF	SEg
<i>Galium mollugo</i> L. s. str.	1	.	.	1	Ap	H	9
<i>Gazania rigens</i> (L.) Gaertn.	.	0 cul	.	.	cul	T	19
<i>Geranium macrorrhizum</i> L.	.	0 cul	.	.	D	H	19
<i>Geranium pusillum</i> Burm. f. ex L.	1	.	1	.	Arch	T	16
<i>Geranium robertianum</i> L.	1	.	.	.	Sp	T	3
<i>Geranium sanguineum</i> L.	.	0 cul	.	.	Sp	H	4
<i>Geum urbanum</i> L.	1	1	1	1	Ap	H	3
<i>Glechoma hederacea</i> L.	.	1	.	.	Ap	H	3
<i>Gypsophila paniculata</i> L.	.	.	.	0 cul	Sp	H	16
<i>Hedera helix</i> L.	1	1	1 cul	0 cul	Ap	Ch	1
<i>Heliopsis helianthoides</i> (L.) Sweet	.	.	.	0 cul	cul	T	19
<i>Hemerocallis fulva</i> L.	1 cul	1 cul	1 cul	.	D	H	19
<i>Hieracium aurantiacum</i> L.	.	.	.	0 cul	Sp	H	19
<i>Hieracium pilosella</i> L.	.	1	.	.	Ap	H	5
<i>Hieracium sabaudum</i> L.	.	.	.	0	Sp	H	2
<i>Holcus lanatus</i> L.	.	.	1	.	Ap	H	8
<i>Holosteum umbellatum</i> L.	.	.	.	1	Ap	T	9
<i>Hordeum murinum</i> L.	1	.	1	.	Arch	T	15
<i>Hosta fortunei</i> (Baker) L. H. Bailey	0 cul	0 cul	0 cul	.	D	H	19
<i>Humulus lupulus</i> L.	0	.	.	0	Sp	H	7
<i>Hyacinthoides hispanica</i> (Mill.) Rothm.	.	1	.	.	D	G	19
<i>Hyacinthus orientalis</i> L.	0 cul	.	.	.	D	G	19
<i>Hypericum perforatum</i> L.	.	1	.	.	Ap	H	2
<i>Hypochoeris radicata</i> L.	.	1	.	.	Ap	H	5
<i>Iberis sempervirens</i> L.	.	.	.	0 cul	D	H	19
<i>Impatiens parviflora</i> DC.	1	1	1	1	Ken	T	3
<i>Impatiens walleriana</i> Hook.f.	0 cul	.	.	.	cul	T	19
<i>Iris germanica</i> L.	0 cul	0	0 cul	.	Ken	H	19
<i>Iris sibirica</i> L.	0 cul	0 cul	.	0 cul	Sp	H	8
<i>Jovibarba sobolifera</i> (Sims) Opiz	.	0 cul	0 cul	.	Sp	H	5
<i>Juglans regia</i> L.	.	0	.	.	D	M	19
<i>Juncus compressus</i> Jacq.	.	.	.	0	Ap	H	10
<i>Lactuca serriola</i> L.	1	.	1	1	Arch	T	15
<i>Lamium album</i> L.	1	1	1	.	Arch	H	3
<i>Lamium amplexicaule</i> L.	1	.	.	.	Arch	T	16
<i>Lamium argentatum</i> (Smejkal) Henrer ex G. H. Loos	1 cul	.	1 cul	.	D	H	19
<i>Lamium purpureum</i> L.	1	.	.	1	Arch	T	16
<i>Lapsana communis</i> L. s. str.	1	1	.	1	Ap	T	3
<i>Lathyrus pratensis</i> L.	.	1	.	.	Ap	H	9
<i>Lavandula angustifolia</i> Mill.	0 cul	.	.	0 cul	D	H	19
<i>Leontodon autumnalis</i> L.	1	.	.	.	Ap	H	10
<i>Lepidium virginicum</i> L.	.	.	.	0	Ken	T	9
<i>Leucanthemum vulgare</i> Lam. s. str.	1	1	.	1	Ap	H	9
<i>Leucoium vernum</i> L.	.	.	0 cul	.	Sp	G	1
<i>Ligustrum vulgare</i> L.	1 cul	.	.	.	Ken	N	19
<i>Lilium bulbiferum</i> L.	.	0	.	.	Sp	G	1
<i>Lobelia erinus</i> L.	1 cul	1 cul	.	.	cul	T	19
<i>Lobularia maritima</i> (L.) Desv.	.	1 cul	.	.	D	T	19
<i>Lolium perenne</i> L.	1	1	.	1	Ap	H	10
<i>Lupinus polyphyllus</i> Lindl.	.	.	0	1	Ken	H	19
<i>Luzula campestris</i> (L.) DC.	1	.	.	.	Sp	H	2
<i>Lychnis coronaria</i> Desr. in Lam.	.	0 cul	1 cul	1 cul	D	H	19
<i>Lysimachia nummularia</i> L.	.	1 cul	1 cul	1 cul	Sp	H	1
<i>Matricaria maritima</i> subsp. <i>inodora</i> (L.) Dostál	1	.	.	.	Arch	T	16
<i>Matteucia struthiopteris</i> (L.) Tod.	1 cul	1 cul	0 cul	1 cul	Sp	H	1

Species	Cover-abundance class				Species characteristics		
	CC**	J	G	V	GHs	LF	SEg
<i>Medicago lupulina</i> L.	1	1	1	1	Ap	H	9
<i>Melandrium album</i> (Mill.) Garcke	.	1	.	1	Ap	H	14
<i>Melilotus officinalis</i> (L.) Pall.	.	.	1	.	Ap	T	15
<i>Mesembryanthemum criniflorum</i> Apricot Tutu	.	.	0 cul	.	cul	T	19
<i>Moehringia trinervia</i> (L.) Clairv.	.	1	.	.	Sp	H	2
<i>Muscari botryoides</i> (L.) Mill.	1 cul	1 cul	1 cul	1 cul	D	G	19
<i>Mycelis muralis</i> (L.) Dumort.	.	1	.	.	Sp	H	1
<i>Myosotis arvensis</i> (L.) Hill	.	1	1	.	Arch	T	17
<i>Myosotis stricta</i> Link ex Roem. & Schult.	.	.	.	1	Ap	T	17
<i>Myosotis sylvatica</i> Ehrh. ex Hoffm.	1	1	.	1	Sp	T	1
<i>Narcissus poëticus</i> L.	1 cul	1 cul	.	.	D	G	19
<i>Ornithogalum umbellatum</i> L.	1	1 cul	1	1	Ap	G	3
<i>Oxalis coroniculata</i> L.	.	1	.	.	Ken	H	16
<i>Oxalis dillenii</i> Jacq.	.	.	1	1	Ken	T	16
<i>Oxalis fontana</i> Bunge	1	1	1	1	Ken	T	16
<i>Pachysandra terminalis</i> Siebold & Zucc.	0 cul	.	.	0 cul	D	Ch	19
<i>Paeonia lactiflora</i> Pall.	0 cul	.	0 cul	0 cul	D	Ch	19
<i>Papaver argemone</i> L.	.	.	1	.	Arch	T	17
<i>Papaver dubium</i> L.	1	.	1	1	Arch	T	17
<i>Papaver orientale</i> L.	0 cul	.	.	.	D	H	19
<i>Papaver rhoeas</i> L.	1	.	.	0	Arch	T	17
<i>Papaver somniferum</i> L.	.	.	0	.	D	T	16
<i>Parthenocissus quinquefolia</i> (L.) Planch. in A. & C. DC.	.	.	1 cul	.	D	N	19
<i>Parthenocissus tricuspidata</i> (Siebold & Zucc.) Planch. in A. & C. DC.	.	.	0 cul	.	D	N	19
<i>Pastinaca sativa</i> L. s. str.	.	1	.	.	Ap	H	9
<i>Pelargonium zonale</i> (L.) L'Her	1 cul	1 cul	.	.	cul	T	19
<i>Petunia xatkinsiana</i> D. Don	1 cul	.	.	1 cul	D	T	19
<i>Phalaris arundinacea</i> L. var. <i>picta</i> L.	.	.	.	1 cul	Ap	H	7
<i>Phlox paniculata</i> L.	.	.	.	1 cul	D	H	19
<i>Phlox subulata</i> L.	1 cul	.	1 cul	.	D	H	19
<i>Picris hieracioides</i> L.	0	0	1	0	Ap	H	14
<i>Pimpinella nigra</i> Mill.	.	0	.	.	Ap	H	9
<i>Pimpinella saxifraga</i> L.	.	.	.	0	Ap	H	9
<i>Plantago lanceolata</i> L.	1	1	.	.	Ap	H	10
<i>Plantago major</i> L. s. str.	1	1	.	1	Ap	H	10
<i>Plectranthus forsteri</i> Benth.	.	.	.	0 cul	cul	T	19
<i>Poa annua</i> L.	1	1	1	.	Ap	T	10
<i>Poa compressa</i> L.	.	1	1	1	Ap	H	14
<i>Poa nemoralis</i> L.	1	3	.	2	Sp	H	2
<i>Poa pratensis</i> L. s. str.	1	1	1	1	Ap	H	9
<i>Poa subcaerulea</i> Sm.	.	.	.	1	Ap	H	9
<i>Polygonatum multiflorum</i> (L.) All.	.	1 cul	.	1 cul	Sp	G	1
<i>Polygonum aviculare</i> L.	1	1	1	1	Ap	T	10
<i>Polygonum persicaria</i> L.	.	.	.	1	Ap	T	16
<i>Portulaca oleracea</i> L.	.	.	.	1	Ken	T	16
<i>Potentilla argentea</i> L. s. str.	.	0	.	1	Ap	H	14
<i>Potentilla reptans</i> L.	1	.	1	.	Ap	H	10
<i>Primula elatior</i> (L.) Hill	.	.	0 cul	.	Sp	H	1
<i>Primula veris</i> L.	1	.	.	0 cul, 0	Sp	H	2
<i>Primula vulgaris</i> Huds.	.	.	1 cul	.	D	H	19
<i>Pulsatilla vulgaris</i> Mill.	.	.	.	0 cul	Sp	H	5
<i>Puschkinia scilloides</i> Adams	.	0	.	.	D	G	19
<i>Quercus robur</i> L.	.	1	.	.	Sp	M	1
<i>Ranunculus acris</i> L. s. str.	1	1	.	.	Ap	H	9

Species	Cover-abundance class				Species characteristics		
	CC**	J	G	V	GHs	LF	SEg
<i>Ranunculus bulbosus</i> L.	1	.	.	.	Ap	H	4
<i>Ranunculus repens</i> L.	1	1	.	.	Ap	H	10
<i>Reynoutria japonica</i> Houtt.	.	.	1	.	Ken	G	19
<i>Rorippa palustris</i> (L.) Besser	.	.	1	.	Ap	T	12
<i>Rudbeckia hirta</i> L.	.	.	0	.	D	H	19
<i>Rumex acetosella</i> L.	.	1	.	1	Ap	G	5
<i>Rumex crispus</i> L.	1	1	1	1	Ap	H	10
<i>Rumex obtusifolius</i> L.	0	0	.	.	Ap	H	13
<i>Rumex thyrsiflorus</i> Fingerh.	1	1	.	1	Ap	H	14
<i>Sagina procumbens</i> L.	1	.	.	1	Ap	H	12
<i>Salvia splendens</i> Sello	1 cul	.	.	.	cul	T	19
<i>Sambucus nigra</i> L.	1	.	.	.	Ap	N	3
<i>Saponaria officinalis</i> L.	1 cul	1	1	1	Arch	H	14
<i>Saxifraga xarensis</i> Engl.	.	.	.	1 cul	D	H	19
<i>Scilla sibirica</i> Haw.	1	3	1	1	Ken	G	16
<i>Sedum album</i> L.	.	.	.	1 cul	Ken	H	14
<i>Sedum reflexum</i> L.	1 cul	1 cul	1 cul	1 cul	Sp	H	5
<i>Sedum sexangulare</i> L.	1	.	.	.	Sp	H	5
<i>Sedum spectabile</i> Boreau	1 cul	1 cul	1 cul	1 cul	D	H	19
<i>Sedum spurium</i> M. Bieb.	1 cul	1 cul	1 cul	1 cul	Ken	H	14
<i>Sempervivum tectorum</i> L.	1 cul	.	1 cul	1 cul	D	H	19
<i>Senecio cineraria</i> DC.	0 cul	1 cul	1 cul	0 cul	cul	T	19
<i>Senecio jacobaea</i> L.	0	1	.	.	Ap	H	4
<i>Senecio vulgaris</i> L.	1	1	1	1	Arch	T	16
<i>Sesleria uliginosa</i> Opiz	.	.	0 cul	.	Sp	H	4
<i>Setaria pumila</i> (Poir.) Roem. & Schult.	.	.	.	1	Arch	T	16
<i>Setaria viridis</i> (L.) P. Beauv.	1	.	1	1	Arch	T	16
<i>Silene vulgaris</i> (Moench) Garcke	1	1	.	.	Ap	H	14
<i>Solidago canadensis</i> L.	1	1	1	1	Ken	G	13
<i>Sonchus arvensis</i> L.	.	.	1	.	Ap	H	16
<i>Sonchus asper</i> (L.) Hill	0	.	.	.	Arch	T	16
<i>Sonchus oleraceus</i> L.	1	1	.	1	Arch	T	16
<i>Spergula arvensis</i> L.	.	.	.	1	Arch	T	16
<i>Spergularia rubra</i> (L.) J. Presl & C. Presl	.	.	.	1	Ap	T	5
<i>Stachys byzantina</i> K. Koch	0 cul	1 cul	1 cul	0 cul	D	H	19
<i>Stellaria graminea</i> L.	.	1	.	.	Ap	H	2
<i>Stellaria media</i> (L.) Vill.	1	1	1	1	Ap	T	16
<i>Stellaria pallida</i> (Dumort.) Piré	1	.	.	1	Ap	T	14
<i>Symphoricarpos albus</i> (L.) S. F. Blake	1	1	.	.	Ken	N	19
<i>Symphytum officinale</i> L.	0 cul	0 cul	0	.	Sp	H	7
<i>Tagetes patula</i> L.	.	1 cul	.	1 cul	cul	T	19
<i>Tanacetum parthenium</i> (L.) Sch. Bip.	.	1	1	1	Ken	H	19
<i>Tanacetum vulgare</i> L.	0	0	1	1	Ap	H	13
<i>Torilis japonica</i> (Houtt.) DC.	1	1	.	.	Ap	T	3
<i>Tragopogon dubius</i> Scop.	.	.	.	0	Ap	T	14
<i>Tragopogon pratensis</i> L. s. str.	1	.	1	.	Ap	T	9
<i>Trifolium arvense</i> L.	.	.	.	1	Ap	T	5
<i>Trifolium campestre</i> Schreb.	.	1	.	.	Ap	T	9
<i>Trifolium pratense</i> L.	1	0	1	.	Ap	H	9
<i>Trifolium repens</i> L.	1	1	.	1	Ap	H	10
<i>Tulipa gesnerana</i> L.	0	0	0	0 cul	D	G	19
<i>Urtica dioica</i> L.	1	1	1	1	Ap	H	3
<i>Verbena xhybrida</i> Voss	1 cul	.	.	.	cul	T	19
<i>Veronica arvensis</i> L.	1	.	1	1	Ap	T	17
<i>Veronica chamaedrys</i> L. s.str.	1	1	.	.	Ap	H	9

Species	Cover-abundance class				Species characteristics		
	CC**	J	G	V	GHs	LF	SEg
<i>Veronica hederifolia</i> L. s. str.	1	.	.	.	Ken	T	17
<i>Veronica polita</i> Fr.	1	.	.	.	Arch	T	16
<i>Veronica sublobata</i> M. A. Fisch.	1	1	1	1	Ap	T	3
<i>Veronica triphyllos</i> L.	.	.	.	1	Arch	T	17
<i>Vicia cracca</i> L.	1	1	1	.	Ap	G	8
<i>Vicia hirsuta</i> (L.) Gray	.	1	.	1	Arch	T	17
<i>Vicia sepium</i> L.	.	1	.	.	Sp	G	1
<i>Vinca minor</i> L.	.	1 cul	1 cul	1 cul	Sp	Ch	1
<i>Viola xwittrockiana</i> Hort.	1 cul	1	1	.	D	T	19
<i>Viola arvensis</i> Murray	.	.	1	.	Arch	T	17
<i>Viola canina</i> L. s. str.	.	1	.	.	Ap	H	2
<i>Viola cyanea</i> Čelak.	1	1	1	.	Ken	H	3
<i>Viola odorata</i> L.	1	1	1	.	Ken	H	3
<i>Yucca filamentosa</i> L.	0 cul	0 cul	0 cul	.	D	H	19

* – the abbreviation ‘cul’ signifies a cultivated variety

** – CC – Parochial Cemetery of Corpus Christi; J – Jeżyce Cemetery; G – Górczyn Cemetery; V – St Jan Vianney Parochial Cemetery

Cover-abundance classes: 0 (1-5 individuals; < 5% cover of the cemetery area), – 1 (> 5 individuals; < 5%), – 2 (5-25%), – 3 (> 25-50%), – 4 (> 50-75%), – 5 (> 75-100%).

LF (Life forms): M – megaphanerophytes; N – nanophanerophytes; C – non-woody chamaephytes; Ch – woody chamaephytes; G – geophytes; H – hemicryptophytes; T – therophytes;

GHs (Geographic-historical status): Ap – apophytes; Sp – spontaneophytes; Arch – archacophytes; Ken – kenophytes; Dia – diaphytes; Cul – cultivated;

SEg (Socio-ecological groups): 1 – fertile broad-leaved forests and shrub communities (*Fagetalia*, *Prunetalia*); 2 – acidophilous or xerothermic oak forests, mixed coniferous forests and their substitute shrub, herb or grassland communities (*Quercion robori-petraeae*, *Quercion petraeae*, *Epilobion*, *Nardetalia*); 3 – nitrophilous shrub or herb communities (*Sambuco-Salicion*, *Alliarion*); 4 – xerothermic herb or grassland communities (*Trifolio-Geranietae*, *Festuco-Brometea*); 5 – pine forests or sandy grassland (*Dicrano-Pinion*, *Sedo-Scleranthetea*, *Corynephoretea*); 6 – swamp alder forests, woodless fens, bogs and intermediate mires (*Alnion*, *Magnocaricion*, *Caricetalia fuscae*, *Sphagnion fusci*); 7 – riparian forests and thickets, reeds and aquatic vegetation (*Salicion*, *Phragmition*, *Glycerio-Sparganion*, *Potamogetonetea*, *Lemnetea*, *Utricularietea*); 8 – humid meadows and tall herb communities (*Molinietalia*); 9 – fresh and moderately humid meadows (*Arrhenatheretalia*); 10 – nitrophilous floodplains and treaded communities (*Plantaginetea*); 11 – salt marshes and halophilous grasslands (*Thero-Salicornietea*, *Asteretea trifolium*); 12 – therophyte communities on wet and humid sites (*Bidentetea*, *Nanocyperion*); 13 – mesophilous communities of tall perennials (*Arction*); 14 – xerothermic, perennial ruderal communities (*Onopordon*); 15 – short-term, pioneer ruderal communities (*Sisymbriion*, *Eragrostion*); 16 – weed communities of gardens and root crop fields (*Polygono-Chenopodietalia*); 17 – weed communities of cereal fields (*Aperetalia*); 18 – epilithic communities (*Asplenietae*); 19 – species of unknown phytosociological affiliation.

Analysing the cover-abundance of species occurrence at all of the examined cemeteries, it was found out that species from the 1st cover-abundance class comprise the most numerous group (Table 2). Species from the 0 cover-abundance class made up about 30% of the total number of vascular plants recorded at the cemeteries in question. Species from the 2nd class were present at three of the examined cemeteries. At the Parochial Cemetery of Corpus Christi, these were: *Betula pendula*, *Campanula rapunculoides*, *Gagea pratensis*, *Picea abies*, *Platanus xhispanica*, *Taxus baccata*, at the Jeżyce Cemetery: *Aegopodium podagraria*, *Dactylis glomerata*, *Gagea pratensis* and at the St. Jan Vianney Parochial Cemetery: *Poa nemoralis*, *Thuja occidentalis*. Taxa included in the 3rd cover-abundance class were present at the Parochial Cemetery of Corpus Christi: *Aegopodium*

podagraria, *Ficaria verna*, *Thuja occidentalis* and at the Jeżyce Cemetery: *Ficaria verna*, *Poa nemoralis*, *Scilla sibirica*. No species were recorded in the 4th and 5th cover-abundance class. The abundant presence of the species from the 1st cover-abundance class is due to repeated raking around the graves. At other cemeteries of Poznań, located in the Świerczewo district (Czarna, 2005) as well as at the cemetery in Wschowa (Czarna and Antkowiak, 2008), both of which are not open for burials, the richness of their vascular flora was much higher. Species from the 5th and 4th cover-abundance class were recorded there. A similar situation have been noted at a few other cemeteries located in southern Poland (Czarna and Piskorz, 2005; Czarna et al. 2006; 2007). Most probably it results from rare or sporadic raking done around the graves.

Table 2
Number of species and the proportions of cover-abundance classes
in the flora of the examined cemeteries in Poznań, Poland

Cover-abundance class	Number and % of species							
	CC*	%	J	%	G	%	V	%
0	50	22.9	45	22.6	51	29.8	58	27.7
1	159	72.9	148	74.4	120	70.2	151	72.3
2	6	2.8	3	1.5	0	0	2	0
3	3	1.4	3	1.5	0	0	0	0
4	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0
Total	218	100	199	100	171	100	209	100

* – CC – Parochial Cemetery of Corpus Christi; J – Jeżyce Cemetery; G – Górczyn Cemetery; V – St Jan Vianney Parochial Cemetery

The species recorded at the four examined Poznań cemeteries constitute the full spectrum of Raunkiaer's life forms. The most numerous group, at three of the four examined cemeteries, comprises hemicryptophytes. At the fourth examined cemetery, Górczyn Cemetery, terophytes are the most numerous group. However, at the St Jan Vianney Parochial Cemetery and the Parochial Cemetery of Corpus Christi, the highest number of terophytes has been noticed. This may result from the presence of old parts at these cemeteries, which are almost without anthropogenic influence. A significant participation of geophytes was also noted – most of them were present at the Jeżyce Cemetery (32 species) and at the Parochial Cemetery of Corpus Christi (26 species). Some interesting species among the geophytes spreading between the graves should be

mentioned: *Anemone ranunculoides*, *Chionodoxa forbesii*, *Ch. luciliae*, *Convallaria majalis*, *Ficaria verna*, *Gagea arvensis*, *G. pratensis*, *Galanthus nivalis*, *Hyanthoides hispanica*, *Lilium bulbiferum*, *Ornithogalum umbellatum*, *Puschkinia scilloides*, *Scilla sibirica*, and *Tulipa gesnerana*. At the respective cemeteries, a similar number of species belonged to the groups of mega- and nanophanerophytes. The greatest number of megaphanerophytes was noted at the Górczyn Cemetery (24 species), and the lowest number was recorded at the Jeżyce Cemetery (19 species). Nanophanerophytes appeared in the greatest number at the St. Jan Vianney Parochial Cemetery and Corpus Christi Cemetery – 25 species in each of them. The smallest number of species was recorded in the group of non-woody chamaephytes at all of the examined cemeteries (Table 3).

Table 3
Number of species and the proportions of different life forms in the flora of the examined cemeteries in Poznań, Poland

Life forms	Number and % of species							
	CC*	%	J	%	G	%	V	%
Megaphanerophytes	20	9.2	19	9.5	24	14.0	23	11.0
Nanophanerophytes	25	11.5	21	10.6	22	12.9	25	12.0
Non-woody chamaephytes	6	2.7	5	2.5	3	1.8	5	2.4
Geophytes	26	11.9	32	16.1	19	11.1	22	10.5
Hemicryptophytes	81	37.2	88	44.2	50	29.2	71	34.0
Terophytes	60	27.5	34	17.1	53	31.0	63	30.1
Total	218	100	199	100	171	100	209	100

* – for explanations see Table 2

Analysing the proportions of the recorded vascular plant species at the investigated cemeteries according to their geographic-historical status (GHs), it was found out that the most numerous group comprises native species – apophytes and spontaneophytes. They accounted for over 50% of the whole flora at three of the four examined cemeteries (Table 4). At the Górczyn Cemetery, native species comprise

43% of the total number of recorded vascular plants, which might be the result of the absence of a very old, unused, arboreous part at this cemetery. The greatest number of alien species is represented by diaphytes. They are most numerous at the Górczyn Cemetery (43 species) and the Parochial Cemetery of Corpus Christi (39 species), while at each of the two remaining cemeteries there are about 34 species of them.

Archeophytes are the most numerous group at the Corpus Christi Cemetery (25 species), while at the St Jan Vianney Parochial Cemetery such a group consists of kenophytes. Additionally, a group of species exclusi-

vely cultivated and not running wild was distinguished at two of the examined cemeteries. Such group was present at the Cemetery of Corpus Christi with 13 species, and at the Cemetery of St Jan Vianney with 11 species.

Table 4
Number of species and the proportions of geographic-historical status groups in the flora of the examined cemeteries in Poznań, Poland

Geographic-historical groups	Number and % of species							
	CC*	%	J	%	G	%	V	%
Spontancophytes	32	14.7	35	17.6	18	10.5	33	15.8
Apophytes	82	37.6	83	41.7	55	32.2	77	36.8
Archaeophytes	25	11.4	11	5.5	21	12.3	23	11.0
Kenophytes	27	12.4	26	13.1	27	15.8	31	14.8
Diaphytes	39	17.9	35	17.6	43	25.1	34	16.3
Cultivated	13	6.0	9	4.5	7	4.1	11	5.3
Total	218	100	199	100	171	100	209	100

* – for explanations see Table 2

Table 5
Number of species and the proportions of socio-ecological groups in the flora of the examined cemeteries in Poznań, Poland

No.	Socio-ecological groups (SEg)	Number and % of species							
		CC*	%	J	%	G	%	V	%
1	<i>Fagetalia, Prunetalia</i>	21	9.6	26	13.1	16	0.6	21	10.0
2	<i>Quercion robori-peraeae, Quercion petraeae, Epilobion, Nardetalia</i>	9	4.1	16	8.0	5	2.9	11	5.3
3	<i>Sambuco-Salicion, Alliarion</i>	20	9.2	18	9.0	14	8.2	15	7.2
4	<i>Trifolio-Geranietea, Festuco-Brometea</i>	8	3.7	7	3.5	5	2.9	5	2.4
5	<i>Dicrano-Pinion, Sedo-Scleranthetea, Corynepherea</i>	6	2.7	8	4.0	6	3.5	13	6.2
6	<i>Alnion, Magnocaricion, Caricetalia fuscae, Sphagnion fusci</i>	1	0.4	1	0.5	1	0.6	2	1.0
7	<i>Salicion, Phragmition, Glycerio-Sparganion, Potamogetonetea, Lemnetae, Utricularietea</i>	2	0.9	2	1.0	3	1.7	2	1.0
8	<i>Molinietalia</i>	3	1.4	4	2.0	3	1.7	4	1.9
9	<i>Arrenatheretalia</i>	16	7.3	18	9.0	5	2.9	12	5.7
10	<i>Plantaginetea</i>	12	5.5	9	4.5	6	3.5	8	3.8
11	<i>Thero-Salicornietea, Asteretea tripolium</i>	0	0	1	0.5	0	0	0	0
12	<i>Bidentetea, Nanocyperion</i>	4	1.8	1	0.5	1	0.6	2	1.0
13	<i>Arction</i>	7	3.2	7	3.5	6	3.5	4	1.9
14	<i>Onopordion</i>	16	7.3	14	7.0	9	5.3	18	8.6
15	<i>Sisymbriion, Eragrostion</i>	5	2.3	1	0.5	5	2.9	6	2.9
16	<i>Polygono-Chenopodietalia</i>	22	10.1	13	6.5	19	11.1	23	11.0
17	<i>Aperetalia</i>	4	1.8	3	1.5	8	4.7	8	3.8
18	<i>Asplenetia</i>	0	0	0	0	0	0	0	0
19	Native species or naturalized antropophytes of undetermined phytosociological status and ephemerophytes	62	28.4	50	25.1	59	34.5	55	26.3
	Total	218	100	199	100	171	100	209	100

* – for explanations see Table 2

The species recorded at the examined cemeteries belong to 18 phytosociological units (Table 5). Species preferring fertile deciduous forest and shrub communities form the majority. A relatively numerous group is also constituted by species from nitrophilous shrub or herb communities, which was particularly apparent at the Parochial Cemetery of Corpus Christi (20 species). Species of semi-natural and anthropogenic meadow and pasture communities, especially representing the order *Arrhenatheretalia*, also show a significant number. Species with no specifically defined phytosociological affiliation (group 19) are most numerous represented at all of the examined cemeteries (over 50 species). That is the result of taking into consideration all the plants planted on the graves.

Among the naturally occurring species growing at each of the examined cemeteries, two species were recorded in the shrub layer: *Rosa canina* and *Syringa vulgaris*, while in the herbaceous layer these were: *Achillea millefolium*, *Agrostis gigantea*, *Alliaria petiolata*, *Allium vineale*, *Ballota nigra*, *Calamagrostis epigejos*, *Campanula rapunculoides*, *Chelidonium majus*, *Cichorium inthybus*, *Conyza canadensis*, *Elymus repens*, *Equisetum arvense*, *Ficaria verna*, *Gagea pratensis*, *Impatiens parviflora*, *Medicago lupulina*, *Oxalis fontana*, *Rumex crispus*, *Scilla sibirica*, *Senecio vulgaris*, *Solidago canadensis*, *Stellaria media*, *Tanacetum vulgare*, *Urtica dioica* and *Veronica sublobata*.

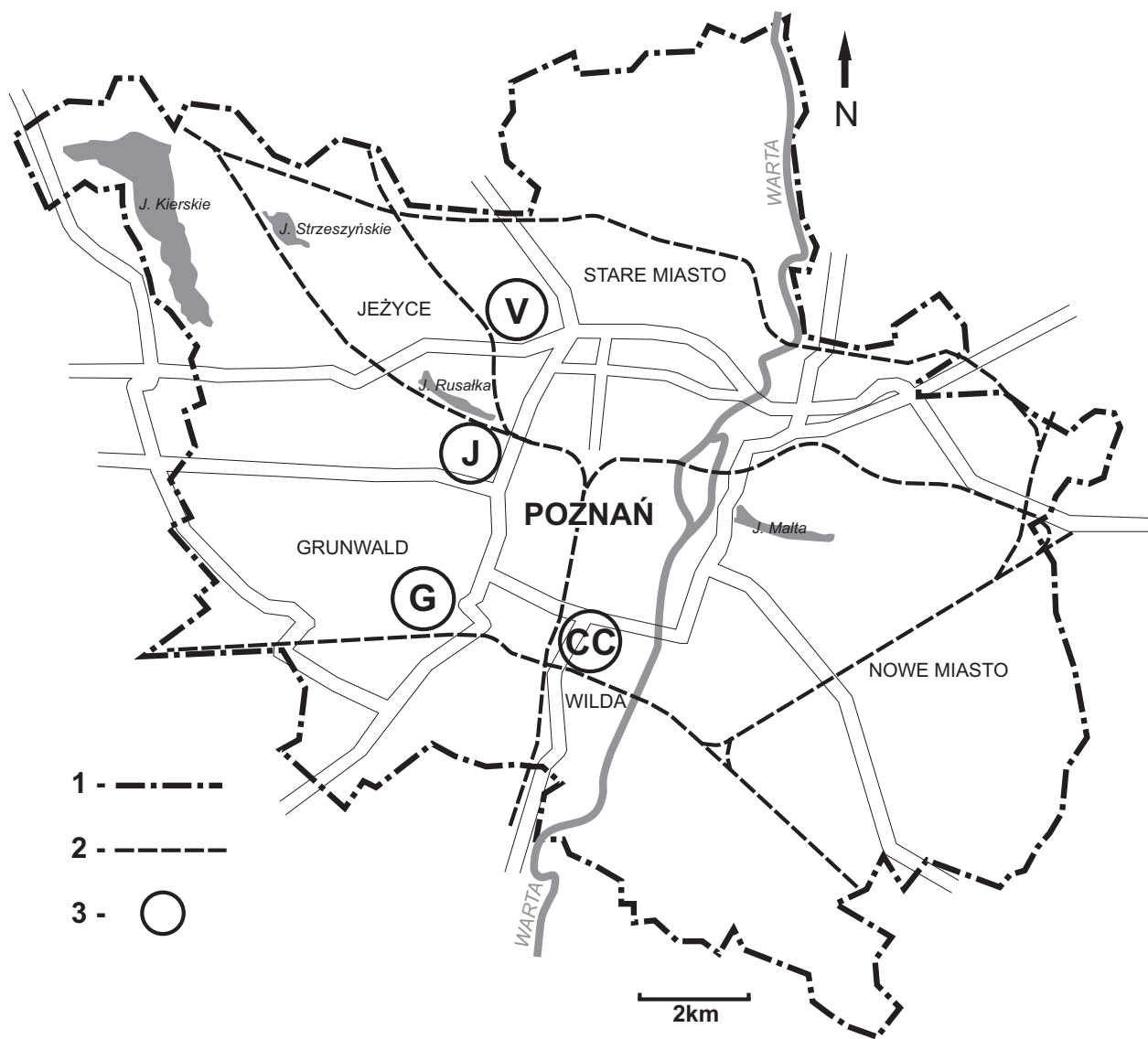


Fig. 1. Location of the four examined Poznań cemeteries: CC – Parochial Cemetery of Corpus Christi, J – Jeżyce Cemetery, G – Górczyn Cemetery, V – St Jan Vianney Parochial Cemetery.

1 – boundaries of the Poznań city, 2 – railway lines, 3 – examined cemeteries

In the herbaceous layer of the examined cemeteries an abundance of cultivated native plant species was confirmed. These are: *Aegopodium podagraria*, *A. podagraria* 'Variegatum', *Anemone ranunculoides*, *A. sylvestris*, *Aquilegia vulgaris*, *Ajuga reptans*, *Armeria maritima* subsp. *elongata*, *Colchicum autumnale*, *Convallaria majalis*, *Dryopteris filix-mas*, *Erica tetralix*, *Ficaria verna*, *Gagea lutea*, *G. pratensis*, *Galanthus nivalis*, *Gypsophila paniculata*, *Geranium sanguineum*, *Hedera helix*, *Hieracium aurantiacum*, *Iris sibirica*, *Jovibarba sobolifera*, *Leucoium vernum*, *Lysimachia nummularia*, *Matteucia struthiopteris*, *Ornithogalum umbellatum*, *Phalaris arundinacea* var. *picta*, *Polygonatum multiflorum*, *Primula elatior*, *P. veris*, *Pulsatilla vulgaris*, *Sesleria uliginosa*, *Symphytum officinale* and *Vinca minor*.

Among the cultivated species in the tree layer, the following species were present at each of the examined cemeteries: *Acer platanoides*, *Betula pendula*, *Picea abies*, *Quercus robur*, in the shrub layer these were: *Euonymus fortunei*, *Mahonia aquifolium*, *Thuja orientalis*, while in the herbaceous layer these were: *Aegopodium podagraria* 'Variegatum', *Begonia semperflorens*, *Matteucia struthiopteris*, *Muscari botryoides*, *Sedum reflexum*, *S. spectabile*, *S. spurium*, *Senecio cineraria* and *Stachys byzantina*.

Among the so-called 'old' vascular plants, cultivated already for many years in the past and regarded as 'permanent cemetery species' (Czarna, 2001), the following species present in the shrub layer at the investigated cemeteries should be named: *Buxus sempervirens*, *Caragana arborescens*, *Cerasus mahaleb*, *Ligustrum vulgare*, *Lonicera tatarica*, *Mahonia aquifolium*, *Philadelphus coronarius*, *Ribes alpinum*, *Rosa blanda*, *R. gallica*, *R. gorenkensis*, *R. multiflora*, *Symphoricarpos albus*, *Syringa vulgaris*, *Taxus baccata*, *Thuja occidentalis*, *T. orientalis*, *T. plicata*. In the herbaceous layer these were: *Aegopodium podagraria*, *A. podagraria* 'Variegatum', *Aquilegia vulgaris*, *Asparagus officinalis*, *Ballota nigra*, *Bergenia cordifolia*, *Campanula rapunculoides*, *Clematis vitalba*, *Convallaria majalis*, *Dianthus barbatus*, *Digitalis purpurea*, *Gagea arvensis*, *Galanthus nivalis*, *Hedera helix*, *Hemerocallis fulva*, *Iris germanica*, *Jovibarba sobolifera*, *Lamium album*, *Lilium bulbiferum*, *Muscari botryoides*, *Myosotis sylvatica*, *Narcissus poeticus*, *Ornithogalum umbellatum*, *Parthenocissus quinquefolia*, *Polygonatum multiflorum*, *Saponaria officinalis*, *Scilla sibirica*, *Sedum spurium*, *Solidago canadensis*, *Vinca minor*, *Viola cyanea* and *V. odorata*. All species mentioned above are very good phytoindicators of old former cemetery sites all over Wielkopolska.

However, in the currently open cemeteries examined in our work, the following species should be also regarded as 'permanent cemetery species': *Bidens*

ferulaefolius, *Campanula rapunculoides*, *Dipsacus sylvestris*, *Erigeron annuus*, *E. ramosus*, *Euphorbia marginata*, *Leucanthemum vulgare*, *Papaver somniferum*, *Petunia ×atkinsiana*, *Solidago canadensis* and *Tanacetum parthenium*.

The most frequently cultivated modern annual species at the studied sites include the following: *Ageratum houstonianum*, *Begonia semperflorens*, *Impatiens waleriana*, *Lobelia erinus*, *Pelargonium zonale*, *Salvia splendens*, *Senecio cineraria*, *Tagetes patula*, whereas the modern, but rarely cultivated, vascular plants that were recorded only at one of the examined cemeteries are represented by: *Campanula poscharskyana*, *Chlorophytum comosum*, *Chrysanthemum indicum*, *Dimorphotheca sinuata*, *Dorotheanthus bellidiformis*, *Exacum affine*, *Heliopsis helianthoides*, *Mesembryanthemum criniflorum*, *Plectranthus forsteri* and *Verbena ×hybrida*. The plants mentioned above do not winter in Polish climate.

The group of the most modern, wintering perennial vascular plants belonging to the shrub layer and cultivated in the examined cemeteries includes: *Berberis verruculosa*, *Cotoneaster hjelmqvistii*, *Lonicera pileata*, *Philadelphus ×lemoinei* and *Salix integra* 'Hakuro Nishiki', whereas those belonging to the herbaceous layer are as follows: *Cerastium biebersteinii*, *Dianthus chinensis*, *Geranium macrorrhizum*, *Heliopsis helianthoides*, *Hosta fortunei*, *Iberis sempervirens*, *Lavandula angustifolia*, *Papaver orientale*, *Saxifraga ×arendsii*, *Stachys byzantina*, and *Yucca filamentosa*.

CONCLUSIONS

1. At the four examined Poznań cemeteries: Jeżyce Cemetery, Górczyn Cemetery, Parochial Cemetery of Corpus Christi, and St Jan Vianney Parochial Cemetery, a total of 395 vascular plant species were recorded. Among species occurring spontaneously, some are new for the flora of Poland: *Chionodoxa forbesii*, *Ch. luciliae*, *Puschkinia scilloides*, new for the flora of Wielkopolska: *Bidens ferulifolius*, *Hyacinthoides hispanica* and new for the flora of Poznań: *Erigeron ramosus*, *Lilium bulbiferum*, *Pimpinella nigra*, *Poa subcaerulea*, *Veronica herderifolia* s.s.
2. Spreading species, seeds of which were brought into the cemeteries with clumps of soil of ornamental plant seedlings, include: *Cardamine hirsuta*, *Cerastium glomeratum*, *Oxalis corniculata*, *O. dilenii*, and *Sagina procumbens*.
3. Roses, because of their decorative character, were formerly frequently used to decorate single graves or whole cemeteries. At the examined cemeteries, the following *Rosa* species, which were cultivated already in the past, were recorded: *Rosa blanda*

(at one cemetery), *R. gallica* (at three cemeteries), *R. gorenkensis* (at one cemetery), *R. multiflora* (at two cemeteries). *Rosa gallica* appeared only in the full flower form at three cemeteries. Spontaneously growing *Rosa canina* was present at all of the examined cemeteries, while *Rosa rubiginosa* was present only at one of them.

4. *Hedera helix* was recorded both in the blooming form and as ground cover at all of the examined cemeteries. At two of them, *Hedera helix* was found on the graves, while at two other cemeteries it was growing away from the graves.

Acknowledgements

We would like to express our gratitude to Prof. Jerzy Zieliński (Institute of Dendrology, Polish Academy of Sciences) for taxonomic verification of some questionable species, with the genus *Rosa* among them.

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Flora roślin naczyniowych wybranych cmentarzy Poznania

Streszczenie:

W niniejszej pracy po raz pierwszy opisano i zanalizowano pod kątem przynależności do grup geograficzno-historycznych, socjologiczno-ekologicznych oraz form życiowych florę naczyniową czterech cmentarzy zlokalizowanych na terenie Poznania. Badaniami objęto cmentarz Jeżycki, Górczyński, parafii p. w. Bożego Ciała oraz p.w. Św. Jana Vianneya. Na ich obszarze stwierdzono występowanie 395 gatunków roślin naczyniowych. Występowanie największej liczby gatunków stwierdzono na cmentarzu parafii p. w. Bożego Ciała (218 gatunków), a w drugiej kolejności na cmentarzu parafii p.w. Św. Jana Vianneya (210 gatunków).

Gatunki roślin naczyniowych stwierdzone na czterech badanych cmentarzach reprezentowały pełne spektrum form życiowych Raunkiaera, przy czym najbardziej liczną grupę stanowiły hemikryptofity. W odniesieniu do klasyfikacji określającej stopień pokrycia roślin naczyniowych występujących na badanych cmentarzach, grupa gatunków o niewielkim, nie przekraczającym 5% stopniu pokrycia była najliczniejsza, a w odniesieniu do przynależności do grup

geograficzno-historycznych najliczniejszą grupę stanowiły gatunki rodzime – apofity i spontaneofity.

Wśród gatunków występujących spontanicznie poza grobami są gatunki nowe dla flory Polski: *Chionodoxa forbesii*, *Ch. luciliae*, *Puschkinia scilloides* oraz dla flory Wielkopolski: *Bidens ferulaefolius*, *Hyacinthoides hispanica* i dla flory Poznania: *Erigeron ramosus*, *Lilium bulbiferum*, *Pimpinella nigra*, *Poa subcaerulea*, *Veronica hederifolia* s.s.

Wśród starych, uprawianych od lat roślin naczyniowych zaliczonych do „trwałych gatunków cmentarnych” czyli takich, które po posadzeniu na cmentarzu pozostają w dobrej formie, rosną, a nawet rozprzestrzeniają się pomimo braku pielęgnacji (Czarna, 2001), wymienić należy w warstwie zielnej: *Aegopodium podagraria*, *A. podagraria* ‘*Variegatum*’, *Aquilegia vulgaris*, *Asparagus officinalis*, *Ballota nigra*, *Bergenia cordifolia*, *Campanula rapunculoides*, *Clematis vitalba*, *Convallaria majalis*, *Dianthus barbatus*, *Digitalis purpurea*, *Gagea arvensis*, *G. pratensis*, *Galanthus nivalis*, *Hedera helix*, *Hemerocallis fulva*, *Iris germanica*, *Jovibarba sobolifera*, *Lamium album*, *Lilium bulbiferum*, *Muscari botryoides*, *Myosotis sylvatica*, *Narcissus poeticus*, *Ornithogalum umbellatum*, *Parthenocissus quinquefolia*, *Polygonatum multiflorum*, *Saponaria officinalis*, *Scilla sibirica*, *Sedum spurium*, *Solidago canadensis*, *Vinca minor*, *Viola cyanea* i *V. odorata*. Wymienione gatunki są bardzo dobrymi fitoindykatorami starych miejsc pocmentarnych na terenie całej Wielkopolski. Do „trwałych gatunków” wprowadzanych na cmentarze w ostatnich latach zaliczyć należy na czterech zbadanych cmentarzach: *Bidens ferulaefolius*, *Campanula rapunculoides*, *Dipsacus sylvestris*, *Erigeron annuus*, *E. ramosus*, *Euphorbia marginata*, *Leucanthemum vulgare*, *Papaver somniferum*, *Petunia xatkinsiana*, *Solidago canadensis* i *Tanacetum parthenium*.

We florze badanych cmentarzy stwierdzono także obecność kilku gatunków, które należą do obecnie najczęściej uprawianych i popularnych roślin rocznych. Należą do nich: *Ageratum houstonianum*, *Begonia semperflorens*, *Impatiens waleriana*, *Lobelia erinus*, *Pelargonium zonale*, *Salvia splendens*, *Senecio cineraria*, *Tagetes patula*. W odniesieniu do roślin naczyniowych również współcześnie popularnych, ale rzadko uprawianych na cmentarzach, zanotowano występowanie następujących gatunków roślin: *Campanula poscharskyana*, *Chlorophytum comosum*, *Chrysanthemum indicum*, *Dimorphotheca sinuata*, *Dorotheanthus bellidiformis*, *Exacum affine*, *Heliopsis helianthoides*, *Mesembryanthemum criniflorum*, *Plectranthus forsteri* i *Verbena xhybrida*. Wymienione wyżej gatunki należą do roślin nie zimujących w naszym klimacie.

