



VASCULAR FLORA IN THE PARK AT JEZIORY IN THE NATIONAL PARK OF WIELKOPOLSKA

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ABSTRACT. The paper contains a list of vascular plant species recorded in the park at the former estate of a Nazi Gauleiter (governor) Arthur Greiser. A total of 212 vascular plant species were identified, among which 23 were new species for the flora of the National Park of Wielkopolska. These include *Aesculus pavia*, *Chaenomeles japonica*, *Chionodoxa forbesii*, *Ch. luciliae*, *Ch. sardensis*, *Cornus mas*, *Corydalis solida*, *Eranthis hyemalis*, *Euonymus alata*, *Fallopia aubertii*, *Forsythia xintermedia*, *Galanthus nivalis*, *Kerria japonica*, *Narcissus poëticus*, *Ornithogalum nutans*, *Poa subcaerulea*, *Pyracantha coccinea*, *Rumex thyrsiflorus*, *Scilla sibirica*, *Veronica hederifolia* s.s., *Viburnum lantana*, *Viola cyanea* and *Waldsteinia geoides*.

KEY WORDS: Wielkopolska, the National Park of Wielkopolska, park, vascular flora

INTRODUCTION

In the period of the German occupation during WW II a residence was built at the shore of the Góreckie Lake for Gauleiter Arthur Greiser, which comprised a complex of dwelling houses, recreation facilities and a concrete access road. For this purpose some of the old timber forest and lakeshore brushwood were removed, while thousands of ornamental plants were planted in the adjacent park, being a transformed forested area. The building of Greiser's residence after WW II was taken over by the Society of the Friends of Children, which donated it to children, mainly orphans – victims of the war. In later years the State Tuberculosis Preventive Sanatorium for Children in Jeziory was established in that complex. In 1993 on the power of the Poznań provincial governor the residence in Jeziory was allocated for the Directorate of the National Park of Wielkopolska. In the following year the seat of the Directorate was transferred there (ANDERS et AL. 1999).

The 150 years of geobotanical studies conducted in the National Park of Wielkopolska were summarised in a monograph by ŻUKOWSKI et AL. (1995). However, to date the park in Jeziory was not the object of floristic studies.

MATERIALS AND METHODS

Field investigations were conducted in 1999 and in 2005 (in the spring and summer) throughout the entire area of the park within limits marked by a 2-m high wall.

In order to determine the frequency of species a 5-point scale was applied, where: 1 – very rare species

(covering < 5% park area), 2 – rare species (5-25%), 3 – relatively frequent species (25-50%), 4 – frequent species (50-75%), 5 – common species (75-100%). Geographic-historical status and socio-ecological groups are presented according to CHMIEL (1993), with slight modifications, while life forms according to Raunkiaer following ZARZYCKI et AL. (2002).

Nomenclature of species was adopted after MIREK et AL. (2002). Recorded trees and shrubs were identified by a specialist, Prof. dr hab. Jerzy Zieliński from the PAS Institute in Kórnik, to whom I would like to express my deepest gratitude.

RESULTS

A total of 212 species of vascular plants were recorded in the park in Jeziory located in the National Park of Wielkopolska (Table 1).

Very rare species predominate in the frequency spectrum in terms of their numbers. They are represented by 178 species, i.e. 85.87% total flora. The proportion of rare species is also rather high (23, which accounts for 10.85% total number of species). In turn, frequent and very frequent species are represented in the smallest numbers, being jointly represented by seven species: *Convallaria majalis*, *Geranium robertianum*, *Impatiens parviflora*, *Poa nemoralis*, *Quercus petraea*, *Rubus sebergensis* and *Veronica sublobata* (Table 2).

Analysis of the proportions of individual vascular plant species in the investigated object in terms of their geographic-historical status (GGH) showed that the most numerous group comprised native species – apophytes, represented by 91 species, which accounts

TABLE 1. Vascular plants in the Jeziory Park located in the National Park of Wielkopolska

Taxon	Frequency class	GGH	GFŻ	GSE
Tree layer				
<i>Acer campestre</i> L.	1	Ap	M	1
<i>Acer platanoides</i> L.	2	Ap	M	1
<i>Aesculus hippocastanum</i> L.	1	Ken	M	19
<i>Aesculus pavia</i> L.	1	Dia	M	19
<i>Betula pendula</i> Roth	1	Ap	M	2
<i>Carpinus betulus</i> L.	1	Sp	M	1
<i>Fagus sylvatica</i> L.	1	Sp	M	1
<i>Fraxinus excelsior</i> L.	1	Ap	M	1
<i>Picea abies</i> (L.) H. Karst.	1	Ken	M	2
<i>Pinus nigra</i> J.F. Arnold	1	Dia	M	5
<i>Pinus sylvestris</i> L.	2	Ap	M	5
<i>Prunus cerasifera</i> Ehrh.	1	Ken	M	19
<i>Quercus petraea</i> (Matt.) Liebl.	4	Sp	M	2
<i>Quercus robur</i> L.	1	Sp	M	1
<i>Robinia pseudoacacia</i> L.	2	Ken	M	14
<i>Tilia cordata</i> Mill.	1	Ap	M	1
<i>Tilia platyphyllos</i> Scop.	1	Ap	M	1
<i>Ulmus gabra</i> Huds.	1	Ap	M	1
<i>Ulmus laevis</i> Pall.	1	Ap	M	1
Shrubby layer				
<i>Acer campestre</i> L.	2	Ap	M	1
<i>Acer platanoides</i> L.	2	Ap	M	1
<i>Acer pseudoplatanus</i> L.	1	Ap	M	1
<i>Amelanchier spicata</i> (Lam.) K. Koch	1	Ken	N	2
<i>Carpinus betulus</i> L.	1	Sp	M	1
<i>Cerasus avium</i> (L.) Moench	1	Ken	M	19
<i>Chaenomeles japonica</i> (Thunb.) Lindl. ex Spach	1	Dia	N	19
<i>Cornus mas</i> L.	1	Dia	N	19
<i>Cornus sanguinea</i> L.	1	Sp	N	1
<i>Corylus avellana</i> L.	1	Sp	N	1
<i>Crataegus monogyna</i> Jacq.	1	Ap	M	1
<i>Crataegus pedicellata</i> Sarg.	1	Dia	N	19
<i>Euonymus alata</i> (Thunb.) Siebold	1	Dia	N	19
<i>Euonymus europaea</i> L.	1	Ap	N	1
<i>Fagus sylvatica</i> L.	1	Sp	M	1
<i>Fallopia aubertii</i> (L. Henry) Holub	1	Dia	N	19
<i>Forsythia ×intermedia</i> Zabel	1	Dia	N	19
<i>Frangula alnus</i> Mill.	1	Sp	N	6
<i>Fraxinus excelsior</i> L.	1	Ap	M	1
<i>Humulus lupulus</i> L.	1	Sp	H	7
<i>Juniperus communis</i> L.	1	Sp	N	5
<i>Kerria japonica</i> (L.) DC.	1	Dia	N	19
<i>Ligustrum vulgare</i> L.	1	Dia	N	19
<i>Lonicera xylosteum</i> L.	2	Ap	N	1
<i>Padus avium</i> Mill.	1	Sp	M	1
<i>Parthenocissus quinquefolia</i> (L.) Planch. in A. & C. DC.	1	Ken	N	19
<i>Populus alba</i> L.	1	Ap	M	7
<i>Prunus cerasifera</i> Ehrh.	1	Ken	M	19
<i>Prunus spinosa</i> L.	1	Ap	N	4
<i>Pyracantha coccinea</i> M. Roem.	1	Dia	N	19
<i>Pyrus pyrastrer</i> (L.) Burgsd.	1	Ap	M	1
<i>Quercus petraea</i> (Matt.) Liebl.	1	Sp	M	2
<i>Rhamnus cathartica</i> L.	1	Sp	N	1
<i>Ribes spicatum</i> E. Robson	1	Sp	N	1
<i>Ribes uva-crispa</i> L.	1	Ken	N	2
<i>Robinia pseudoacacia</i> L.	1	Ken	M	14
<i>Rosa canina</i> L.	1	Ap	N	4
<i>Rubus idaeus</i> L.	1	Sp	N	2
<i>Rubus seebergensis</i> Pfuhl ex Sprib.	3	Sp	N	1
<i>Sambucus nigra</i> L.	1	Ap	N	3
<i>Sorbaria sorbifolia</i> (L.) A. Braun	1	Ken	N	16
<i>Spiraea ×vanhouttei</i> (Briot) Zabel	1	Dia	N	19
<i>Syringa vulgaris</i> L.	1	Ken	N	19
<i>Taxus baccata</i> L.	1	Dia	N	1
<i>Tilia cordata</i> Mill.	2	Ap	M	1
<i>Ulmus minor</i> Mill. Emend. Richens	1	Ap	M	1
<i>Viburnum lantana</i> L.	1	Dia	N	19
<i>Viscum laxum</i> Boiss.	1	Sp	Ch	5
Herb layer				
<i>Acer platanoides</i> L. juv.	2	Ap	M	1

TABLE 1 – cont.

1	2	3	4	5					
<i>Achillea millefolium</i> L. s.s.	1	Ap	G	9	<i>Convallaria majalis</i> L.	3	Sp	G	2
<i>Adoxa moschatellina</i> L.	2	Sp	G	1	<i>Convolvulus arvensis</i> L.	1	Ap	G	14
<i>Aegopodium podagraria</i> L.	1	Sp	H	1	<i>Conyza canadensis</i> (L.) Conquist	2	Ken	T	15
<i>Ajuga reptans</i> L.	1	Sp	H	1	<i>Coronilla varia</i> L.	1	Ap	H	4
<i>Alliaria petiolata</i> (M. Bieb.) Cavara & Grande	2	Ap	T	3	<i>Corydalis intermedia</i> (L.) Mérat	1	Sp	G	1
<i>Allium scorodoprasum</i> L.	1	Ken	G	3	<i>Corydalis solida</i> (L.) Clairv.	1	Sp	G	1
<i>Allium vineale</i> L.	1	Ap	G	4	<i>Dactylis glomerata</i> L.	1	Ap	H	9
<i>Anemone neomorosa</i> L.	2	Sp	G	1	<i>Dactylis polygama</i> Horv.	1	Sp	H	1
<i>Anemone ranunculoides</i> L.	1	Sp	G	1	<i>Dryopteris cathusiana</i> (Vill.) H.P. Fuchs	1	Sp	H	2
<i>Anthericum ramosum</i> L.	1	Sp	H	2	<i>Dryopteris filix-mas</i> (L.) Schott	2	Sp	H	2
<i>Anthoxanthum odoratum</i> L. s.s.	1	Ap	H	2	<i>Elymus caninus</i> (L.) L.	1	Sp	G	1
<i>Arabidopsis thaliana</i> (L.) Heynh.	1	Ap	T	17	<i>Eranthis hyemalis</i> (L.)	1	Dia	G	19
<i>Arabis glabra</i> (L.) Bernh.	1	Ap	T	4	<i>Erophila verna</i> (L.) Cheall.	1	Ap	T	5
<i>Arctium tomentosum</i> Mill.	1	Ap	T	13	<i>Euphorbia cyparissias</i> L.	1	Ap	H	4
<i>Arenaria serpyllifolia</i> L.	1	Ap	T	5	<i>Fagus sylvatica</i> L. juv.	1	Sp	M	1
<i>Arrhenatherum elatius</i> (L.) P. Beauv. ex J. Presl & C. Presl	1	Ap	H	9	<i>Fallopia convolvulus</i> (L.) Á. Löve	1	Arch	T	16
<i>Artemisia campestris</i> L.	1	Ap	H	5	<i>Festuca gigantea</i> (L.) Vill.	1	Sp	H	1
<i>Astragalus glycyphyllos</i> L.	1	Ap	H	2	<i>Festuca rubra</i> L. s.s.	1	Ap	H	9
<i>Atriplex patula</i> L.	1	Ap	T	16	<i>Festuca trachyphylla</i> (Hack.) Krajina	1	Ap	H	5
<i>Ballota nigra</i> L.	1	Arch	H	14	<i>Ficaria verna</i> Huds.	1	Sp	G	1
<i>Bromus benekenii</i> (Lange) Trimen	2	Sp	H	2	<i>Fragaria vesca</i> L.	1	Sp	H	2
<i>Bromus hordeaceus</i> L.	1	Ap	T	14	<i>Gagea arvensis</i> (Pers.) Dumort.	1	Arch	G	1
<i>Bromus sterilis</i> L.	1	Arch	T	3	<i>Gagea lutea</i> (L.) Ker Gawl.	1	Sp	G	1
<i>Campanula rapunculoides</i> L.	1	Ap	H	1	<i>Gagea pratensis</i> (Pers.) Dumort.	1	Ap	G	3
<i>Capsella bursa-pastoris</i> (L.) Medik.	1	Arch	T	16	<i>Galanthus nivalis</i> L.	1	Dia	G	1
<i>Carex digitata</i> L.	1	Sp	H	2	<i>Galeobdolon luteum</i> Huds.	1	Sp	H	1
<i>Carex ericetorum</i> Pollich	1	Ap	H	2	<i>Galeopsis tetrahit</i> L.	1	Ap	T	2
<i>Carex hirta</i> L.	1	Ap	G	10	<i>Galium aparine</i> L.	2	Ap	T	3
<i>Carex spicata</i> Huds.	1	Ap	H	2	<i>Galium odoratum</i> (L.) Scop.	1	Sp	H	1
<i>Cerastium holosteoides</i> Fr. emend. Hyl.	1	Ap	H	9	<i>Geranium molle</i> L.	1	Ken	T	14
<i>Cerastium semidecandrum</i> L.	1	Ap	T	5	<i>Geranium pusillum</i> Burm. F. ex L.	1	Arch	T	16
<i>Chaerophyllum temulum</i> L.	2	Ap	T	3	<i>Geranium robertianum</i> L.	3	Sp	T	3
<i>Cheidonium majus</i> L.	1	Ap	H	3	<i>Geum urbanum</i> L.	1	Ap	H	3
<i>Chionodoxa forbesii</i> Baker in J. Linn.	1	Dia	G	19	<i>Glechoma hederacea</i> L.	1	Ap	H	3
<i>Chionodoxa luciliae</i> Boiss.	1	Dia	G	19	<i>Hedera helix</i> L.	1	Ap	Ch	1
<i>Chionodoxa sardensis</i> Whittall ex Barr & Sugden	2	Dia	G	19	<i>Helichrysum arenarium</i> (L.) Moench	1	Ap	H	5

TABLE 1 – cont.

1	2	3	4	5					
<i>Heracleum sibiricum</i> L.	1	Ap	H	9	<i>Polygonatum odoratum</i> (Mill.) Druce	1	Sp	G	2
<i>Hieracium murorum</i> L.	1	Sp	H	2	<i>Potentilla arenaria</i> Borkh.	1	Ap	H	5
<i>Hieracium pilosella</i> L.	1	Ap	H	5	<i>Potentilla argentea</i> L. s.s.	1	Ap	H	14
<i>Holcus lanatus</i> L.	1	Ap	H	8	<i>Primula veris</i> L.	1	Sp	H	2
<i>Holcus mollis</i> L.	1	Ap	G	5	<i>Pteridium aquilinum</i> (L.) Kuhn	1	Sp	G	2
<i>Hypochoeris radicata</i> L.	1	Ap	H	5	<i>Ranunculus auricomus</i> L. s.l.	1	Sp	H	1
<i>Impatiens parviflora</i> DC.	3	Ken	T	3	<i>Rumex acetosa</i> L.	1	Ap	H	9
<i>Lactuca serriola</i> L.	1	Arch	T	15	<i>Rumex acetosella</i> L.	2	Ap	G	5
<i>Lamium purpureum</i> L.	1	Arch	T	16	<i>Rumex obtusifolius</i> L.	1	Ap	H	13
<i>Lapsana communis</i> L. s.s.	2	Ap	T	3	<i>Rumex thyrsiflorus</i> Fingerh.	1	Ap	H	14
<i>Lathyrus pratensis</i> (L.) Bernh.	1	Sp	G	2	<i>Sanicula europaea</i> L.	1	Sp	H	1
<i>Lathyrus vernus</i> (L.) Bernh.	1	Sp	G	1	<i>Scilla sibirica</i> Haw.	2	Dia	G	19
<i>Lilium martagon</i> L.	1	Sp	G	1	<i>Scrophularia nodosa</i> L.	1	Sp	H	1
<i>Maianthemum bifolium</i> (L.) F.W. Schmidt	1	Sp	G	2	<i>Sedum maximum</i> (L.) Hoffm.	1	Sp	G	2
<i>Medicago lupulina</i> L.	1	Ap	H	9	<i>Sedum sexangulare</i> L.	2	Sp	H	5
<i>Melandrium album</i> (Mill.) Garcke	1	Ap	H	14	<i>Senecio jacobaea</i> L.	1	Ap	H	4
<i>Melica nutans</i> L.	1	Sp	H	2	<i>Silene conica</i> L.	1	Ken	T	5
<i>Melica uniflora</i> Retz.	2	Sp	H	1	<i>Silene nutans</i> L.	1	Sp	H	2
<i>Millium effusum</i> L.	2	Sp	H	1	<i>Solidago vigaurea</i> L. s.s.	1	Sp	H	2
<i>Moehringia trinervia</i> (L.) Clairv.	1	Sp	H	2	<i>Stachys sylvatica</i> L.	1	Sp	H	1
<i>Mycelis muralis</i> (L.) Dumort.	1	Sp	H	1	<i>Stellaria holostea</i> L.	2	Sp	H	1
<i>Myosotis arvensis</i> (L.) Hill	1	Arch	T	17	<i>Stellaria media</i> (L.) Vill.	1	Ap	T	16
<i>Myosotis stricta</i> Link ex Roem. & Hoffm.	1	Ap	T	17	<i>Stellaria pallida</i> (Dunort.) Piré	1	Ap	T	16
<i>Narcissus poëticus</i> L.	1	Dia	G	19	<i>Taraxacum officinale</i> Web.	1	Ap	H	9
<i>Oenothera biennis</i> L. s.s.	1	Ap	T	14	<i>Trifolium alpestre</i> L.	1	Ap	H	4
<i>Ornithogalum nutans</i> L.	1	Dia	G	19	<i>Trifolium arvense</i> L.	1	Ap	T	5
<i>Ornithogalum umbellatum</i> L.	1	Ken	G	3	<i>Trifolium dubium</i> Sibth.	1	Ap	T	9
<i>Oxalis fontana</i> Bunge	1	Ken	T	16	<i>Trifolium repens</i> L.	1	Ap	H	10
<i>Peucedanum oreoselinum</i> (L.) Moench	1	Sp	H	4	<i>Urtica dioica</i> L.	1	Ap	H	3
<i>Plantago lanceolata</i> L.	1	Ap	H	10	<i>Verbascum lychnitis</i> L.	1	Ap	T	5
<i>Plantago major</i> L. s.s.	1	Ap	H	10	<i>Veronica arvensis</i> L.	1	Ap	T	17
<i>Poa annua</i> L.	1	Ap	T	10	<i>Veronica chamaedrys</i> L. s.s.	2	Ap	H	9
<i>Poa nemoralis</i> L.	4	Sp	H	2	<i>Veronica hederifolia</i> L. s.s.	1	Arch	T	17
<i>Poa pratensis</i> L. s.s.	1	Ap	H	9	<i>Veronica officinalis</i> L.	1	Ap	H	2
<i>Poa subcaerulea</i> Sm.	1	Sp	H	9	<i>Veronica sublobata</i> M.A. Fisch.	3	Ap	T	3
<i>Poa trivialis</i> L.	1	Ap	H	12	<i>Veronica triphyllos</i> L.	1	Arch	T	17
<i>Polygonatum multiflorum</i> (L.) All.	1	Sp	G	1	<i>Vicia cassubica</i> L.	1	Sp	G	2
					<i>Vinca minor</i> L.	2	Dia	Ch	1
					<i>Viola arvensis</i> Murray	1	Arch	T	17

TABLE 1 – cont.

1	2	3	4	5
<i>Viola cyanea</i> Čelak.	1	Ken	H	3
<i>Viola odorata</i> L.	1	Ken	H	3
<i>Viola reichenbachiana</i> Jord. ex Moreau	1	Sp	H	1
<i>Viola rivinana</i> Rchb.	1	Sp	H	2
<i>Viscaria vulgaris</i> Röhl.	1	Ap	H	2
<i>Waldsteinia geoides</i> Willd.	1	Dia	H	19

Frequency classes: 1 – very rare (covering < 5% park area), 2 – rare (5-25%), 3 – moderately frequent (25-50%), 4 – frequent (50-75%), 5 – very frequent (75-100%);

GFŽ (life forms): C – non-woody chamaephytes, Ch – woody chamaephytes, G – geophytes, H – hemicryptophytes, Hel – helophytes, M – megaphanerophytes, N – nanophanerophytes, T – therophytes;

GGH (geographic-historical status): Ap – apophytes, Arch – archaeophytes, Dia – diaphytes, Ken – kenophytes, Sp – spontaneophytes;

GSE (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-Geranietea*, *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 – temporal, pioneer ruderal communities (*Sisymbion*, *Eragrostion*), 16 – weed communities of gardens and root crop fields (*Polygono-Chenopodietalia*), 17 – weed communities of cereal fields (*Aperetalia*), 18 – epilithic communities (*Asplenietea*), 19 – species of unknown phytosociological affiliation.

for 42.92%. Spontaneophytes were also numerous (70 species, i.e. 33.02%). In the park there were 27 species classified as kenophytes (12.74% total flora) and 11 species belonging to archeophytes (5.19%). A relatively high proportion was also found for alien species – diaphytes, with 13 species, i.e. 6.13% (Table 3).

Species recorded in the analysed area constitute an incomplete spectrum of Raunkiaer's life forms. The most numerous group comprised hemicryptophytes, with 77 species, accounting for 36.32% total flora. A considerable proportion of therophytes (39 species) and geophytes (36 species) was also recorded. A total of 27 and 30 species, respectively, were classified to mega- and nanophanerophytes (Table 4).

TABLE 2. Proportions of species in individual frequency classes recorded in the Jeziory Park located in the National Park of Wielkopolska

Frequency class	Number of species	%
Very rare	182	85.85
Rare	23	10.85
Moderately frequent	5	2.35
Frequent	2	0.95
Very frequent	0	0
Total	212	100

TABLE 3. Proportions of geographic-historical status groups in the Jeziory Park located in the National Park of Wielkopolska

(GGH) Geographic-historical status	Number of species	%
Apophytes	91	42.92
Spontaneophytes	70	33.02
Archaeophytes	11	5.19
Kenophytes	27	12.74
Diaphytes	13	6.13
Total	212	100

TABLE 4. Proportions of life forms in the Jeziory Park located in the National Park of Wielkopolska

(GFŽ) Life form	Number of species	%
Megaphanerophyt	27	12.74
Nanophanerophyt	30	14.15
Non-woody chamaephyt	0	0
Woody chamaephyt	3	1.41
Hemicryptophyt	77	36.32
Geophyt	36	16.98
Therophyte	39	18.40
Total	212	100

In the division into socio-ecological groups (GSE) an individual scale of tolerance and preferences towards site conditions was taken into consideration. These groups comprise species found under similar site conditions, determined by natural and anthropogenic factors. The socio-ecological structure is presented in Table 4. The biggest proportion among socio-ecological groups in the park was recorded for plants typical of

fertile broadleaved forests and shrub communities – 55 species, amounting to 25.95%. The 34 species of plants growing in acidophilous oak forest, thermophilic oak forests, mixed coniferous forests and substitute sites – clearing, meadow and turf communities, ranked second. Approximately 10 species each were recorded for nitrophilous shrub and herb ecotone forest edge communities (group 3), pine forests and sandy grassland (group 5), fresh and moderately humid meadows (group 9), weed communities of gardens and root crop fields (group 16) and species of unknown phytosociological affiliation (group 19) (Table 5).

TABLE 5. Proportions of socio-ecological groups in the Jezioro Park located in the National Park of Wielkopolska

(GSE) Socio-ecological group	Number of species	%
1	55	25.95
2	34	16.04
3	18	8.49
4	9	4.25
5	19	8.97
6	1	0.47
7	2	0.94
8	1	0.47
9	14	6.60
10	5	2.36
11	0	0
12	1	0.47
13	2	0.94
14	9	4.24
15	2	0.94
16	16	7.55
17	7	3.30
18	0	0
19	17	8.02
Total	212	100

Legend as in Table 1.

CONCLUSION

The paper presents the current composition of vascular flora observed in the park in Jezioro. A total of 212 vascular plant species were recorded, including 27 trees, 30 shrubs and 155 herbaceous plants.

The analysed park contributed to enrichment of flora in the National Park of Wielkopolska with the following tree species: *Aesculus pavia*, shrub species: *Chaenomeles japonica*, *Cornus mas*, *Euonymus alata*, *Fallopia aubertii*, *Forsythia xintermedia*, *Kerria japonica*, *Pyracantha*

coccinea, *Viburnum lantana* and herbaceous species: *Chionodoxa forbesii*, *Ch. luciliae*, *Ch. sardensis*, *Corydalis solida*, *Eranthis hyemalis*, *Galanthus nivalis*, *Narcissus poeticus*, *Ornithogalum nutans*, *Poa subcaerulea*, *Rumex thyrsiflorus*, *Scilla sibirica*, *Veronica hederifolia* s.s., *Viola cyanea* and *Waldsteinia geoides*. Thus the number of species recorded in the National Park of Wielkopolska changed from 1120 to 1143. Among the reported species there are three new for the synanthropic flora of Poland, i.e. *Chionodoxa forbesii*, *Ch. luciliae* and *Ch. sardensis*. These species propagate from seeds, which are spread by ants, as they are equipped with elaiosomes. These plants are found in the forest part of the park in the front of the palace.

The above mentioned new species for the National Park of Wielkopolska originate mostly from old plantings. Only the shrub layer could have been enriched at a later date, the same being also true for the *Eranthis hyemalis* and *Corydalis solida* clusters, which due to the small areas covered with these plants may have originated from later plantings.

Species recorded in the park include also other species coming from plantings and having already known stands in the National Park of Wielkopolska (ŻUKOWSKI et AL. 1995), such as *Aesculus hippocastanum*, *Allium scorodoprasum*, *Corydalis intermedia*, *Hedera helix*, *Ligustrum vulgare*, *Ornithogalum umbellatum*, *Parthenocissus quinquefolia*, *Polygonatum multiflorum*, *Prunus cerasifera*, *Sorbaria sorbifolia*, *Spiraea xvanhouttei*, *Taxus baccata*, *Vinca minor* and *Viola odorata*.

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