

**VALUES OF VASCULAR FLORA IN FORMER MANOR PARK
COMPLEX TYCHOWO–WYSZKOWO (CENTRAL POMERANIA)**

Zbigniew Sobisz¹, Mariola Truchan¹, Marcin Kubus², Krzysztof Strzałkowski³

¹ Department of Botany and Nature Protection, Institute of Biology
and Environmental Protection, Pomeranian University,
Arciszewskiego 22b, 76-200 Słupsk, Poland
e-mail: zbigniew.sobisz@apsl.edu.pl, mariola.truchan@apsl.edu.pl

² Department of Meteorology and Landscape Architecture,
West Pomeranian University of Technology in Szczecin,
ul. Papieża Pawła VI 3A, 71-459 Szczecin, Poland
e-mail: marcin.kubus@zut.edu.pl

³ Scientist Botanist Circle, Pomeranian University,
Arciszewskiego 22b, 76-200 Słupsk, Poland
e-mail: kstrzalkowski@vp.pl

Abstract

This paper presents results of research into vascular flora of former manor park complex in Tychowo–Wyszkowo situated in the Sławno Commune (mesoregion: Sławno Plain). 388 species represent vascular flora of Tychowo park, whereas there are 212 species in Wyszkowo that belong to 81 families. Ten species covered by legal protection were reported: *Colchicum autumnale*, *Epipactis helleborine*, *Galanthus nivalis*, *Leucojum vernum*, *Lilium martagon*, *Lonicera periclymenum*, *Ononis spinosa*, *Pinus mugo*, *Sorbus intermedia* and *Taxus baccata*. From the rare vascular plants in the scale of the Region of the analysed park there are: *Achillea ptarmica*, *Conium maculatum*, *Corydalis intermedia*, *Crepis paludosa*, *Dryopteris cristata*, *Echinops sphaerocephalus*, *Juncus tenuis*, *Lathraea squamaria*, *Ornithopus perpusillus* and *Rubus odoratus*.

Key words: excavation manor park, nature monument, Tychowo, Wyszkowo, Central Pomerania

INTRODUCTION

Following the post war inventory at Central Pomerania, there were 418 parks registered (Wendlandt et al. 1992). They were established in the vicinity of the manor houses belonging to affluent German families (Duncker 1857/1883, Sieber 1959).

Some of the park establishments at the territory of Sławno Commune were founded on a basis of the existing tree stands or forest enclaves in the middle of the fields.

The villages of Tychowo and Wyszkowo are situated in the southwestern part of the Słupsk Commune and the distance between them is 1.2 km. According to Kondracki (1994), these places belong to the Koszalin Seacoast macroregion and a mesoregion of the Sławieńska Plain. The hitherto information about the park in Tychowo was only of a fragmentary character and related to a concise description of dendroflora (Sienicka and Kownas 1965). The authors write about elms, ashes and maple trees. The valuable information about the herbaceous flora comes from the herbal collections from the 1920s preserved in Herbarium SLTC (Misiewicz 1977). The history of Tychowo, which is a very rare example of the state remaining in one family for 500 years, was described by Świetlicka and Wisławska (1998).

In 1973, following the initiative of the Ministry of Culture and Art and the Board of Museums and Protection of Monuments, a national action was initiated comprising a natural inventory of all parks, gardens and alleys independent of the status of their preservation. The inventory was executed in collaboration with the Ministry of Forest Administration and Timber Industry. Its basic aim was to specify which objects should be protected along with the establishment of a protective intervention. The park in Tychowo, by a decision of the Office for Documentation of Historical Monuments in Słupsk, was included only in the conservatory documentation (Szpilewski 1983, Wendlandt et al. 1992). However, in the case of the park in Wyszkowo, no entries have been made so far. Because of a precious mature forest, interesting components of the vascular herbaceous flora which are protected and rare, the authors of this study apply at the Provincial Office for Protection of Historical Monuments for historical protection of them.

The aim of the study was to establish a list to taxons of the vascular flora of the manor park complex Tychowo–Wyszkowo with recognition of their legal protection status, life forms of geographic and historical groups, range groups and social-ecological ones.

MATERIALS AND METHODS

The field study of the vascular flora in Tychowo and Wyszkowo was executed in the period 2014–2016. The nomenclature of the vascular herbaceous plants was adopted after Mirek et al. (2002). The nomenclature of syntaxons was approached after Ratyńska et al. (2010). The terminology of trees and bushes, and within their area the terminology of subspecies, mixed-species and cultivars is in accordance with the study of Seneta and Dolatowski (2003) and Rutkowski (2004). The classification of life forms presented by Raunkiaer (1905) was adopted according to Zarzycki et al. (2002). In the range diagnosis of the species well established at the area of the research study, the original and secondary range was taken into consideration and in the case of diaphytes, only the original range. The information about the ranges was obtained from the studies of Chmiel (1993), Zając (1979) and Zając M. and Zając A. (2009). The geographical and historical status of taxons and their affinity to social and ecological groups was established after Chmiel (2006). The selection of rare

species in the region was executed from the group of 167 species of special care (Sobisz 2015). In the brackets German names of the places and the names of physiographic units which had been valid before 1945 were given in italics (Gutzmerow 1974, Kaemmerer 1988, Białecki 2001).

THE HISTORY OF THE LAND ESTATES

In 1506 Count Bogusław X entered a treaty with Chancellor Jürgen von Kleist, in which he had bestowed upon him the fiefdom of Tychowo (*Wendisch Tychow*) (Klempin and Kratz 1863). In 1508, the Chancellor died and in 1509 the estate was inherited by Anna – the widow and subsequently by their minor son Georg (Brüggemann 1784). Since that time Tychowo was in the hands of the family of von Kleist. In 1770, Ewald Heinrich von Kleist transferred the estate to his son Ewald Georg and since that time until 1945 the estate had been bestowed exclusively from father to son (Bandemer-Kleist 1974). Ewald's son – Eduard Erdmann Heinrich – was the first president of the Economic Association and established the first breeding farm of merino sheep in Pomerania. In addition, due to his efforts, two manors were established: Rozdałowo (*Eduardsruh*) and Komorze (*Erdmannshof*). A half-timbered palace was built, which, according to historical resources was used as an amenity wing. The newer part of the manor house was renewed as a two floor construction after the fire in 1821 (Fig. 1). The park was established in the second half of the 18th century as a fragment of a forest area from the side of Warszkowo (*Alt Warschow*) and Warszkówko (*Neu Warschkow*). During the Napoleonic wars in the period 1812-1813, the park was protected by the security *landwehr* = the national guard (the units used for construction of defensive structures – here, most probably for digging and construction of ponds). In 1840, a 7 kilometers' long canal was built for watering of the meadows. In 1870, a brick yard and two houses for forest workers were built in Głownica (*Aalkaten*). In 1911, some of the buildings in the village were burnt down by the fire (Schulz 1989).



Fig. 1. Palace in Tychowo

The park along with the palace was in the year 1950 under administration of the Soviet Army and since 1951 of the National Land Fund. In 1956 a Breeding Farm was established which was managed by the State Breeding Center in Kwasowo. The palace was deteriorating, there were no repair works, and in 1973 it was abandoned by the administration of the farm (Świnicka and Świnicki 1975). Due to the risk of inundation, it was pulled down in winter 1978. In 1999, some of the post manor buildings were leased by a private company of carpenters.



Fig. 2. Manor house in Wyszkowo

Wyszkowo farm estate (*Sigurdshof*) belonged to the estate of Tychowo and was established in 1930 (Schulz 1989). The last owner was Sigurd von Kleist (the name of now non-existent estate comes from his name). In the years 1940-1941 in the manor house (Fig. 2) there was a secret Seminar for Vicars of the Confessing Church (established as the protest of some members of the Evangelic Church against German Evangelic Church dominated by Nazis). The work of Seminar was coordinated by Dietrich Bonhoeffer (Bethge et al. 1986, Quer 1989). In October 1999, members of the American section of International Association of Dietrich Bonhoeffer put a memorial plate commemorating the seminar of the Confessing Church and its founder behind the line of pine trees separating the park from the road Tychowo–Korzybie (Pejsa 2003).

THE CURRENT STATUS OF THE PARKS

The park in Tychowo comprising the area of 30.45 ha, has a natural, landscape character and is situated in the northern part of the village (Fig. 3). A part of the land after the former manor house with the surrounding area is a fenced private property. The park part belongs to Sławno Commune. The landscape advantages are enhanced by the scenic hills originating from the excavations under the ponds. The ponds are connected by a system of meander gutters in which the water flow used to be regulated by a system of dikes and moats. At present, both the ponds and the dikes, especially in the eastern part of the park, are to a large extent silted and overgrown. Of

many bridges, only one was preserved. The park is separated from the arable land in the northern part by the established chestnut tree parkway consisting of 214 trees. In the spatial arrangement of the park, there are clearly visible three sectors separated by parkways, diverse as to the maintenance and the floral composition.

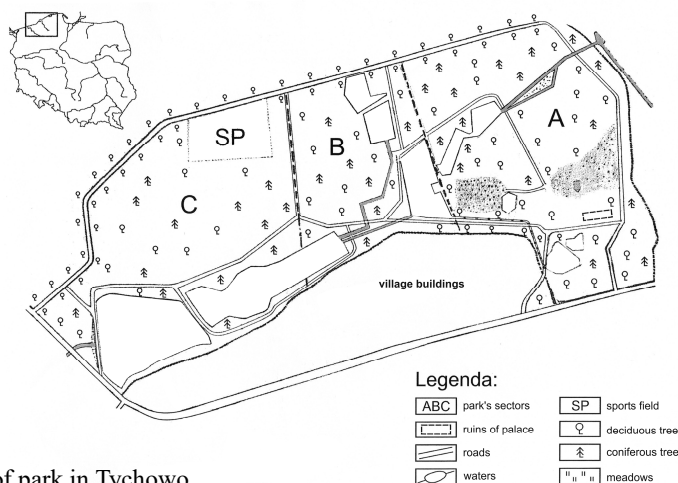


Fig. 3. Plan of park in Tychowo

SECTOR A

Comprises the eastern part of the park surrounding the former manor house (today a modern villa in its place) in which grow magnificent pedunculate oaks *Quercus robur* (the perimeter of trunks: 450 cm, 405 cm, 390 cm and 360 cm), *Platanus ×hispanica* 'Acerifolia' (the trunk perimeter 390 cm), Scotch pine *Pinus sylvestris* (the trunk perimeter 340 cm and 260 cm). No phellodendrons were found in the surrounding area *Phellodendron amurense* (provided hitherto as an existing object in various papers!). A tree with a destroyed bark and a broken bough which had been described by Misiewicz and Grodzka (1993) was destroyed during construction of the house of the new owners at the end of 1990s.

SECTOR B

The middle part of the park complex is covered by 4 ponds whose banks are covered with common alder *Alnus glutinosa*. An interesting phenomenon is a protected species of a common polypody – *Polypodium vulgare* – as an epiphyte on several trunks of the alder. In this part of the park a large number of species of a foreign origin was recorded. An outstanding curiosity is the sole specimen of a bald cypress *Taxodium distichum* (the trunk perimeter 175 cm). Other exotic plants comprise: *Chamaecyparis pisifera* 'Squarrosa' and 'Plumosa', *Picea sitchensis*, *Pseudotsuga menziesii* and *Thuja plicata* (the trunk perimeter 260 cm).

SECTOR C

The western part of the park is dominated by a pine tree stand with a big participation of European white birch *Betula pendula* and downy birch *Betula pubescens*. Worth mentioning is a big number of introduced species, among others Caucasian fir

Abies nordmanniana (Fig. 4), red oak *Quercus rubra*, weymouth pine *Pinus strobus* and Japanese larch *Larix kaempferi*. The most interesting ones comprise silver maple *Acer saccharinum* (the trunk perimeter 460 cm) (Fig. 5) and *Thuja plicata* (the trunk perimeter 375 cm) (Fig. 6). Under the canopy of the latter tree grows a group of *Sorbaria sorbifolia* with the lily of the valley *Convallaria majalis*.



Fig. 4. *Abies nordmanniana* in park Tychowo



Fig. 5. *Acer saccharinum* in park Tychowo

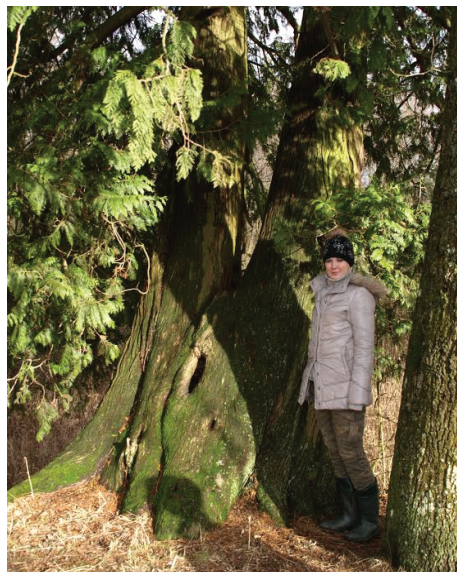


Fig. 6. *Thuja plicata* in park Tychowo

River Ściegnica constitutes the axis of the park Wyszkowo (Fig. 7). The sags along the river are covered with an ash and alder riparian forest *Fraxino-Alnetum*. The tree stand of the park is dominated by common beech and Norway maple *Acer platanoides*. In the underbrush woodbine *Lonicera periclymenum* rambles on many bushes and trees. The underbrush comprises black elder *Sambucus nigra*, common snowberry *Symphoricarpos albus*, glossy buckthorn *Frangula alnus* and common lilac *Syringa vulgaris*.

In the vicinity of *Salicetum pentandro-cinereae* grows *Dryopteris cristata* – a plant close to extinction in the scale of Western Pomerania as well as Poland (Żukowski and Jackowiak 1995, Markowski and Buliński 2004, Zarzycki and Szeląg 2006). An oak tree parkway consisting of 21 trees leads from the ruins of the manor house to River Ściegnica. By the memorial plate devoted to Dietrich Bonhoeffer grows a monumental Norway spruce *Picea abies* (the trunk perimeter 315 cm) and a protected species – snowdrop *Galanthus nivalis* and liver wort *Hepatica nobilis*. On both sides of the access road to the former park, there grows a line of spruce trees which consists of 51 trees. On the left side of the access road to the parking, 20 trees grow (70-220 cm), while 31 on the right side (60-210 cm). The tree line separated the former garden (now a parking) from the motor road. In a preserved plan of the Tychowo knight estate from 1941, one can separate manor buildings and garden belonging to Wyszkowo. The spruce tree line constitutes today a border of Section 421 of the precinct of Żukowo of Sławno Forest Inspectorate. In the vicinity of the ruins of the foundations of the manor house a stand of protected plants was observed: *Epipactis helleborine* and rest barrow *Ononis spinosa*.

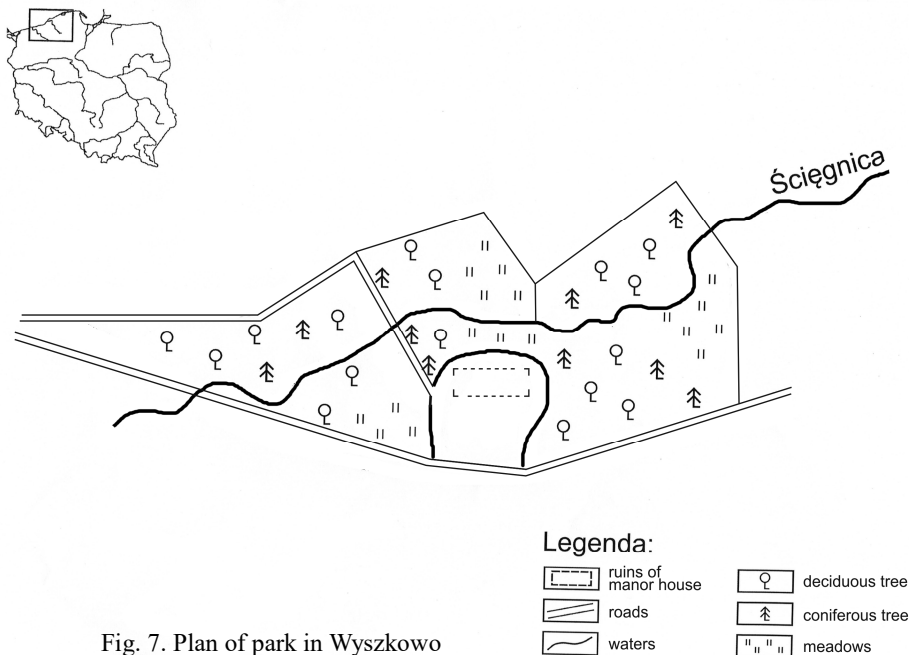


Fig. 7. Plan of park in Wyszkowo

Table 1

A register of vascular flora in former manor park complex Tychowo (T) – Wyszkowo (W)

| Family/Taxon | Park T | Park W | Life form groups | Geographical-historical groups | Range groups | Socio-ecological groups |
|---|--------|--------|------------------|--------------------------------|--------------|-------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| EQUISETACEAE | | | | | | |
| <i>Equisetum sylvaticum</i> L. | + | - | G | Sp/Ap | CB | 1 |
| <i>Equisetum pratense</i> Ehrh. | + | + | G | Sp | CB | 1 |
| <i>Equisetum arvense</i> L. | + | + | G | Ap | M-CB | 15 |
| HYPOLEPIDACEAE | | | | | | |
| <i>Pteridium aquilinum</i> (L.) Kuhn | + | + | G | Sp | KOSM | 2 |
| ATHYRIACEAE | | | | | | |
| <i>Athyrium filix-femina</i> (L.) Roth | + | + | H | Sp | KOSM | 1 |
| ASPIDIACEAE | | | | | | |
| RG <i>Dryopteris cristata</i> (L.) A. Gray | + | - | H | Sp | ES-AM | 6 |
| POLYPODIACEAE | | | | | | |
| <i>Polypodium vulgare</i> L. | + | - | H | Sp | KOSM | 2 |
| PINACEAE | | | | | | |
| <i>Abies alba</i> Mill. | + | - | M | D | E | 2 |
| <i>Abies nordmanniana</i> (Steven) Spach | + | - | M | D | OAS | 2 |
| <i>Abies procera</i> Rehder | + | - | M | D | AM | 2 |
| <i>Pseudotsuga menziesii</i> (Mirb.) Franco | + | - | M | D | AM | 2 |
| <i>Tsuga canadensis</i> L. Carrière | + | - | M | Ken | AM | 2 |
| <i>Picea abies</i> (L.) H. Karsten | + | + | M | Ken | ES | 2 |
| <i>Picea pungens</i> Engelm. | + | - | M | D | AM | 16 |
| <i>Larix decidua</i> Mill. | + | - | M | D | E | 2 |
| <i>Larix kaempferi</i> (Lamb.) Carrière | + | - | M | Ken | AM | 16 |
| <i>Pinus sylvestris</i> L. | + | + | M | Ap | ES | 5 |
| <i>Pinus strobus</i> L. | + | - | M | Ken | AM | 1 |
| ! <i>Pinus mugo</i> Turra | + | - | M | D | E | 16 |
| <i>Taxodium distichum</i> (L.) Rich. | + | - | M | D | AM | 16 |
| CUPRESSACEAE | | | | | | |
| <i>Chamaecyparis nootkatensis</i> (D. Don.) Spach | + | - | N | D | AM | 16 |
| <i>Chamaecyparis pisifera</i> (Siebold & Zucc.) Endl. | + | - | N | D | OAS | 16 |
| <i>Chamaecyparis pisifera</i> (Siebold & Zucc.) Endl. 'Squarrosa' | + | - | N | D | OAS | 16 |
| <i>Chamaecyparis pisifera</i> (Siebold & Zucc.) Endl. 'Plumosa' | + | - | N | D | OAS | 16 |
| <i>Chamaecyparis pisifera</i> (Siebold & Zucc.) Endl. 'Plumosa Aurea' | + | - | N | D | OAS | 16 |
| <i>Chamaecyparis pisifera</i> (Siebold & Zucc.) Endl. 'Filifera' | + | - | N | D | OAS | 16 |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|----|-------|---------|----|
| <i>Chamaecyparis lawsoniana</i> (Murray) Parl. | + | - | N | D | OAS | 16 |
| <i>Thuja occidentalis</i> L. | + | + | N | D | AM | 16 |
| <i>Thuja occidentalis</i> L. 'Aurescens' | + | - | N | D | AM | 16 |
| <i>Thuja plicata</i> D. Don. ex Lamb. | + | - | N | D | AM | 16 |
| <i>Platyclusus orientalis</i> (L.) Franco | + | - | N | D | OAS | 16 |
| <i>Juniperus communis</i> L. subsp. <i>communis</i> | + | + | N | Ap | CB | 4 |
| TAXACEAE | | | | | | |
| ! <i>Taxus baccata</i> L. | + | + | N | D | E | 16 |
| SALICACEAE | | | | | | |
| <i>Salix purpurea</i> L. | + | - | M | Ap | M-ES | 7 |
| <i>Salix fragilis</i> L. | + | + | M | Ap | M-ES-IT | 7 |
| <i>Salix alba</i> L. | + | - | M | Ap | M-ES-IT | 7 |
| <i>Salix caprea</i> L. | + | + | N | Ap | ES | 3 |
| <i>Salix cinerea</i> L. | + | - | N | Sp | ES | 6 |
| <i>Populus alba</i> L. | + | - | M | Ap | M-ES-IT | 7 |
| <i>Populus tremula</i> L. | + | + | M | Ap | ES | 2 |
| JUGLANDACEAE | | | | | | |
| <i>Juglans regia</i> L. | + | - | M | D | ZAS | 16 |
| <i>Carya ovata</i> (Mill.) K. Koch | + | - | M | D | AM | 16 |
| BETULACEAE | | | | | | |
| <i>Betula lenta</i> L. | + | - | M | D | AM | 16 |
| <i>Betula pubescens</i> Ehrh. | + | + | M | Sp | ES | 6 |
| <i>Betula pendula</i> Roth. | + | + | M | Ap | ES | 2 |
| <i>Alnus glutinosa</i> (L.) Gaertn. | + | + | M | Sp/Ap | ES | 6 |
| <i>Alnus incana</i> (L.) Moench | + | - | M | Ken | ES | 7 |
| CORYLACEAE | | | | | | |
| <i>Carpinus betulus</i> L. | + | + | M | Sp | E | 1 |
| <i>Corylus avellana</i> L. | + | + | N | Sp | E | 1 |
| FAGACEAE | | | | | | |
| <i>Fagus sylvatica</i> L. subsp. <i>sylvatica</i> | + | + | M | Sp/Ap | sOZ | 1 |
| <i>Fagus sylvatica</i> L. 'Purpurea' | + | - | M | D | AM | 16 |
| <i>Quercus robur</i> L. | + | + | M | Sp/Ap | E | 1 |
| <i>Quercus robur</i> L. 'Fastigiata' | + | - | M | D | E | 16 |
| <i>Quercus petraea</i> (Matt.) Liebl. | + | + | M | Sp | E | 1 |
| <i>Quercus rubra</i> L. | + | + | M | Ken | AM | 2 |
| ULMACEAE | | | | | | |
| <i>Ulmus laevis</i> Pall | + | + | M | Ap | E | 1 |
| <i>Ulmus minor</i> Miller | + | - | N | Ap | E | 1 |
| <i>Ulmus minor</i> Miller var. <i>suberosa</i> | + | - | N | Ap | E | 1 |
| <i>Ulmus glabra</i> | + | - | M | Ap | E | 1 |
| CANNABACEAE | | | | | | |
| <i>Humulus lupulus</i> L. | + | + | H | Sp | ES | 7 |
| URTICACEAE | | | | | | |
| <i>Urtica dioica</i> L. | + | + | H | Sp/Ap | KOSM | 3 |
| <i>Urtica urens</i> L. | + | + | T | AR | M-CB | 15 |
| LORANTHACEAE | | | | | | |
| <i>Viscum album</i> L. subsp. <i>album</i> | + | - | Ch | Ap | ES | 6 |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--|---|---|-----|-------|--------|----|
| POLYGONACEAE | | | | | | |
| <i>Polygonum aviculare</i> L. | + | + | T | Ap | KOSM | 10 |
| <i>Polygonum bistorta</i> L. | - | + | G | Sp | ES-AM | 8 |
| <i>Polygonum hydropiper</i> L. | + | - | T | Ap | KOSM | 11 |
| <i>Polygonum persicaria</i> L. | + | + | T | Ap | KOSM | 15 |
| <i>Polygonum lapathifolium</i> L. subsp. <i>pallidum</i> (With.) Fr. | + | + | T | Ap | KOSM | 15 |
| <i>Polygonum lapathifolium</i> L. subsp. <i>lapathifolium</i> | + | + | T | Ap | KOSM | 11 |
| <i>Fallopia convolvulus</i> (L.) Á. Löve | + | + | T | AR | KOSM | 15 |
| <i>Fallopia dumetorum</i> (L.) Holub | + | + | T | Sp | ES-AM | 2 |
| <i>Reynoutria japonica</i> Houtt. | + | - | G | D | OAS | 16 |
| <i>Rumex acetosella</i> L. | + | + | G | Ap | M-CB | 5 |
| <i>Rumex acetosa</i> L. | + | + | H | Ap | M-CB | 9 |
| <i>Rumex obtusifolius</i> L. | + | - | H | Ap | E | 12 |
| <i>Rumex conglomeratus</i> Murray | + | - | H | Sp/Ap | M-ES | 10 |
| <i>Rumex hydrolapathum</i> Huds. | + | - | Hel | Sp | E | 7 |
| <i>Rumex crispus</i> L. | + | + | H | Ap | ES | 10 |
| CHENOPODIACEAE | | | | | | |
| <i>Chenopodium album</i> L. | + | + | T | Ap | KOSM | 15 |
| <i>Atriplex patula</i> L. | + | - | T | Ap | M-ES | 15 |
| AMARANTHACEAE | | | | | | |
| <i>Amaranthus retroflexus</i> L. | + | - | T | Ken | AM | 13 |
| CARYOPHYLLACEAE | | | | | | |
| <i>Stellaria nemorosa</i> L. | + | + | H | Sp | E | 1 |
| <i>Stellaria media</i> (L.) Vill. | + | + | T | Ap | KOSM | 15 |
| <i>Stellaria holostea</i> L. | + | + | H | Sp | ES | 1 |
| <i>Stellaria graminea</i> L. | + | + | H | Ap | M-CB | 2 |
| <i>Cerastium holosteoides</i> Fr. emend. Hyl. | + | + | Ch | Ap | KOSM | 9 |
| <i>Scleranthus perennis</i> L. | + | - | H | Ap | E | 5 |
| <i>Scleranthus annuus</i> L. | + | + | T | AR | M-E | 15 |
| <i>Herniaria glabra</i> L. | + | + | H | Ap | M-E-IT | 5 |
| <i>Spergula arvensis</i> L. | + | + | T | AR | M-ES | 15 |
| <i>Lychnis flos-cuculi</i> L. | + | + | H | Sp | ES | 8 |
| <i>Melandrium album</i> (Mill.) Garcke | + | + | T | AR | ES | 13 |
| <i>Melandrium rubrum</i> (Weigel) Garcke | + | - | | | | |
| <i>Silene vulgaris</i> (Moench) Garcke | + | - | H | Ap | M-ES | 13 |
| <i>Saponaria officinalis</i> L. | + | + | G | Ap | ES | 13 |
| RANUNCULACEAE | | | | | | |
| <i>Aquilegia ×hybrida</i> Hort. | + | - | H | D | E | 16 |
| <i>Anemone nemorosa</i> L. | + | + | G | Sp | E | 1 |
| <i>Anemone ranunculoides</i> L. | + | - | G | Sp | E | 1 |
| <i>Ficaria verna</i> Huds. | + | + | G | Sp/Ap | E | 1 |
| <i>Ranunculus repens</i> L. | + | + | H | Ap | ES | 10 |
| <i>Ranunculus lanuginosus</i> L. | + | - | H | Sp | E | 1 |
| <i>Ranunculus acris</i> L. | + | + | H | Ap | ES | 9 |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--|---|---|----|-------|---------|----|
| BERBERIDACEAE | | | | | | |
| <i>Berberis vulgaris</i> L. | + | + | N | Sp/Ap | E | 4 |
| <i>Berberis thunbergii</i> DC. | + | - | N | D | OAS | 16 |
| PAPAVERACEAE | | | | | | |
| <i>Papaver somniferum</i> L. | + | - | T | D | E | 16 |
| <i>Papaver rhoeas</i> L. | + | - | T | AR | M-E-IT | 15 |
| <i>Chelidonium majus</i> L. | + | + | H | Ap | ES | 3 |
| FUMARIACEAE | | | | | | |
| RG <i>Corydalis intermedia</i> (L.) Mérat | + | - | G | Sp | E | 1 |
| <i>Fumaria officinalis</i> L. subsp. <i>officinalis</i> | + | + | T | AR | M-ES | 15 |
| BRASSICACEAE | | | | | | |
| <i>Sisymbrium officinale</i> (L.) Scop. | + | + | T | AR | M-ES | 15 |
| <i>Descurainia sophia</i> (L.) Webb ex Prantl | + | + | T | AR | M-ES-IT | 15 |
| <i>Alliaria petiolata</i> (M. Bieb.) Cavara & Grande | + | + | H | Ap | ES-IT | 3 |
| <i>Arabidopsis thaliana</i> (L.) Heynh. | + | + | T | Ap | KOSM | 15 |
| <i>Erysimum cheiranthoides</i> L. | + | + | T | AR | ES | 15 |
| <i>Rorippa palustris</i> (L.) Besser | + | - | T | Ap | M-CB | 10 |
| <i>Armoracia rusticana</i> P. Gaertn., B. Mey. & Scherb. | + | + | G | AR | M-E-P | 12 |
| <i>Cardamine amara</i> L. | + | - | H | Sp | ES | 7 |
| <i>Cardamine pratensis</i> L. | + | + | H | Sp | CB | 7 |
| <i>Berteroa incana</i> (L.) DC. | + | + | T | Ap | E-IT | 13 |
| <i>Erophila verna</i> (L.) Chevall | + | + | T | Ap | M-E-IT | 15 |
| <i>Capsella bursa-pastoris</i> (L.) Medik. | + | + | T | AR | KOSM | 15 |
| <i>Thlaspi arvense</i> L. | + | + | T | AR | ES-IT | 15 |
| <i>Sinapis arvensis</i> L. | + | + | T | AR | M-ES-IT | 15 |
| <i>Raphanus raphanistrum</i> L. | + | + | T | AR | M-E | 15 |
| SAXIFRAGACEAE | | | | | | |
| <i>Bergenia cordifolia</i> (Haw.) Sternb. | + | - | Ch | D | ZAS | 16 |
| <i>Saxifraga granulata</i> L. | + | + | G | Sp | M-sOZ | 4 |
| <i>Chrysosplenium alternifolium</i> L. | + | + | H | Sp | ES-AM | 1 |
| HYDRANGEACEAE | | | | | | |
| <i>Hydrangea arborescens</i> L. | + | - | N | D | AM | 16 |
| PHILADELPHACEAE | | | | | | |
| <i>Philadelphus coronarius</i> L. | + | + | N | D | M-E | 16 |
| GROSSULARIACEAE | | | | | | |
| <i>Ribes uva-crispa</i> L. subsp. <i>uva-crispa</i> | + | + | N | Ken | sOZ | 16 |
| <i>Ribes nigrum</i> L. | + | + | N | Sp | ES | 6 |
| <i>Ribes rubrum</i> L. | + | - | N | D | CB | 16 |
| PLATANACEAE | | | | | | |
| <i>Platanus</i> × <i>hispanica</i> Mill. ex Münchh. 'Acerifolia' | + | - | N | D | AM | 16 |
| ROSACEAE | | | | | | |
| <i>Sorbaria sorbifolia</i> (L.) A. Braun | + | - | N | Ken | ZAS | 16 |
| <i>Physocarpus opulifolius</i> (L.) Maxim. | + | - | N | Ken | AM | 16 |
| <i>Spiraea japonica</i> L. | + | + | N | D | ZAS | 16 |
| <i>Spiraea salicifolia</i> L. | + | - | N | D | ES | 16 |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|----|-------|--------|----|
| <i>Filipendula ulmaria</i> (L.) Maxim. | + | - | H | Sp | ES | 8 |
| RG <i>Rubus odoratus</i> L. | + | - | N | Ken | AM | 16 |
| <i>Rubus idaeus</i> L. | + | + | Ch | Sp/Ap | CB | 2 |
| <i>Rubus caesius</i> L. | + | + | Ch | Sp/Ap | ES-IT | 1 |
| <i>Rosa multiflora</i> Thunb. | + | - | N | Ken | OAS | 16 |
| <i>Rosa rugosa</i> Thunb. | + | + | N | Ken | OAS | 16 |
| <i>Rosa rubiginosa</i> L. | - | + | N | Ap | M-E | 4 |
| <i>Rosa canina</i> L. | + | - | N | Ap | M-E-IT | 4 |
| <i>Agrimonia eupatoria</i> L. | + | - | H | Ap | M-E | 4 |
| <i>Geum rivale</i> L. | + | + | H | Sp | M-E-AM | 8 |
| <i>Geum urbanum</i> L. | + | + | H | Ap | M-E-IT | 3 |
| <i>Potentilla anserina</i> L. | + | + | H | Ap | KOSM | 10 |
| <i>Potentilla erecta</i> (L.) Rausch | + | - | H | Sp | M-ES | 8 |
| <i>Potentilla argentea</i> L. | + | - | H | Ap | E-IT | 13 |
| <i>Fragaria vesca</i> L. | + | + | H | Sp | CB | 2 |
| <i>Alchemilla monticola</i> Opiz | + | + | H | Ap | ES | 8 |
| <i>Chaenomeles japonica</i> (Thunb.) Lindl. ex Spach. | + | - | N | D | OAS | 16 |
| <i>Pyrus pyraeaster</i> (L.) Burgsd. | + | + | M | Sp/Ap | E | 16 |
| <i>Malus domestica</i> Borkh. | + | - | M | D | ES | 16 |
| <i>Sorbus aucuparia</i> L. emend. Hedl. subsp. <i>aucuparia</i> | + | + | M | Sp | ES | 2 |
| !! <i>Sorbus intermedia</i> (Ehrh.) Pers. | + | - | M | D | E | 16 |
| <i>Cotoneaster intergerrimus</i> Medik. | + | - | N | D | E | 16 |
| <i>Crataegus monogyna</i> Jacq. | + | + | N | Ap | M-E-IT | 1 |
| <i>Crataegus rhipidophylla</i> Gand. subsp. <i>rhipidophylla</i> | + | - | N | Sp/Ap | E | 16 |
| <i>Crataegus laevigata</i> (Poir.) DC. | + | + | N | Ap | E | 2 |
| <i>Prunus padus</i> L. | + | + | M | Sp | ES | 1 |
| <i>Prunus serotina</i> Ehrh. | + | - | M | Ken | AM | 16 |
| <i>Prunus spinosa</i> L. | + | + | N | Ap | M-E | 4 |
| <i>Prunus cerasifera</i> Ehrh | + | - | N | Ken | KAUK | 16 |
| FABACEAE | | | | | | |
| <i>Sarothamnus scoparius</i> (L.) W.D.J. Koch | + | + | Ch | Ken | sOZ | 5 |
| <i>Lupinus polyphyllus</i> Lindl. | + | - | H | Ken | AM | 16 |
| <i>Robinia pseudoacacia</i> L. | + | + | M | Ken | AM | 13 |
| <i>Caragana arborescens</i> Lam. | + | - | N | D | OAS | 16 |
| <i>Vicia sativa</i> L. | + | + | T | D | M-ES | 15 |
| <i>Vicia angustifolia</i> L. | + | + | T | AR | M-ES | 15 |
| <i>Vicia hirsuta</i> (L.) Gray | + | + | T | AR | ES | 15 |
| <i>Vicia cracca</i> L. | + | + | G | Ap | ES | 15 |
| <i>Lathyrus pratensis</i> L. | + | + | H | Ap | KOSM | 9 |
| ! <i>Ononis spinosa</i> L. | + | - | Ch | Sp/Ap | sOZ-E | 9 |
| <i>Melilotus alba</i> Medik. | + | + | T | Ap | M-P-IT | 14 |
| <i>Melilotus officinalis</i> (L.) Pall. | + | - | T | Ap | M-P-IT | 14 |
| <i>Medicago lupulina</i> L. | + | + | H | Ap | KOSM | 9 |
| <i>Trifolium repens</i> L. | + | + | H | Ap | KOSM | 10 |
| <i>Trifolium pratense</i> L. | + | + | H | Ap | M-E-IT | 9 |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|-------|--------|----|
| <i>Trifolium arvense</i> L. | + | + | T | Ap | M-ES | 5 |
| <i>Anthyllis vulneraria</i> L. | + | - | H | Sp/Ap | M-E | 5 |
| <i>Ornithopus perpusillus</i> L. | + | - | T | Ap | M-E | 5 |
| OXALIDACEAE | | | | | | |
| <i>Oxalis fontana</i> Bunge | + | - | H | Ken | KOSM | 15 |
| <i>Oxalis acetosella</i> L. | + | + | H | Sp | ES | 2 |
| GERANIACEAE | | | | | | |
| <i>Geranium robertianum</i> L. | + | + | T | Sp/Ap | M-CB | 3 |
| <i>Geranium pusillum</i> Burm. F. ex L. | + | + | T | AR | E-IT | 15 |
| EUPHORBIACEAE | | | | | | |
| <i>Euphorbia helioscopia</i> L. | + | + | T | AR | M-E-IT | 15 |
| <i>Euphorbia peplus</i> L. | + | - | T | AR | KOSM | 15 |
| <i>Euphorbia cyparissias</i> L. | + | + | H | Ap | E | 4 |
| ANACARDIACEAE | | | | | | |
| <i>Rhus typhina</i> L. | + | - | N | D | AM | 16 |
| ACERACEAE | | | | | | |
| <i>Acer negundo</i> L. | + | - | M | Ken | AM | 3 |
| <i>Acer saccharinum</i> L. | + | - | M | Ken | AM | 16 |
| <i>Acer pseudoplatanus</i> L. | + | + | M | Ap | E | 1 |
| <i>Acer platanoides</i> L. | + | + | M | Ap | E | 1 |
| <i>Acer campestre</i> L. | + | - | M | Ap | M-E | 1 |
| HIPPOCASTANACEAE | | | | | | |
| <i>Aesculus hippocastanum</i> L. | + | + | M | D | M-E | 16 |
| BALSAMINACEAE | | | | | | |
| <i>Impatiens parviflora</i> DC. | + | + | T | Ken | OAS | 3 |
| <i>Impatiens noli-tangere</i> L. | + | + | T | Sp | ES-AM | 1 |
| <i>Impatiens glandulifera</i> Royle | + | - | T | Ken | ZAS | 16 |
| CELASTRACEAE | | | | | | |
| <i>Euonymus europaea</i> L. | + | - | N | Sp/Ap | E | 1 |
| <i>Euonymus fortunei</i> Hand.-Mazz. | + | - | N | D | OAS | 16 |
| BUXACEAE | | | | | | |
| <i>Buxus sempervirens</i> L. | + | - | N | D | M-E | 16 |
| VITACEAE | | | | | | |
| <i>Vitis vinifera</i> L. | + | - | N | D | E | 16 |
| <i>Parthenocissus quinquefolia</i> (L.) Planch. in A. & C. DC. | + | - | N | D | AM | 16 |
| <i>Parthenocissus inserta</i> (A. Kerner) Fritsch | - | + | N | D | AM | 16 |
| RHAMNACEAE | | | | | | |
| <i>Frangula alnus</i> L. | + | + | N | Sp | ES | 6 |
| TILIACEAE | | | | | | |
| <i>Tilia tomentosa</i> Moench | + | - | M | D | E | 16 |
| <i>Tilia cordata</i> Mill. | + | + | M | Ap | E | 1 |
| <i>Tilia platyphyllos</i> Mill. | + | - | M | D | E | 1 |
| <i>Tilia americana</i> L. | + | - | M | D | AM | 16 |
| MALVACEAE | | | | | | |
| <i>Malva alcea</i> L. | + | - | H | AR | M-E | 4 |
| <i>Malva neglecta</i> Wallr. | + | + | T | AR | E-IT | 13 |
| CLUSIACEAE | | | | | | |
| <i>Hypericum perforatum</i> L. | + | + | H | Ap | M-ES | 2 |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--|---|---|-----|-------|--------|----|
| VIOLACEAE | | | | | | |
| <i>Viola arvensis</i> Murray | + | - | T | AR | M-ES | 15 |
| <i>Viola reichenbachiana</i> Jord. ex Boreau | + | + | H | Sp | E | 1 |
| <i>Viola odorata</i> L. | + | + | H | AR | M-E | 3 |
| CUCURBITACEAE | | | | | | |
| <i>Bryonia alba</i> L. | + | - | G | Ken | M-E-IT | 13 |
| <i>Echinocystis lobata</i> (F. Michx.) Torr. & A. Gray | + | + | T | Ken | AM | 16 |
| LYTHRACEAE | | | | | | |
| <i>Lythrum salicaria</i> L. | + | + | H | Sp | KOSM | 7 |
| ONAGRACEAE | | | | | | |
| <i>Oenothera biennis</i> L. | + | - | T | Ap | CB | 13 |
| <i>Chamaenerion angustifolium</i> (L.) Scop. | + | + | H | Sp/Ap | CB | 2 |
| <i>Epilobium parviflorum</i> Schreb. | + | + | H | Sp | M-E-IT | 7 |
| <i>Epilobium palustre</i> L. | + | + | H | Sp | CB | 6 |
| <i>Epilobium ciliatum</i> Raf. | + | - | H | Ken | E-AM | 10 |
| CORNACEAE | | | | | | |
| <i>Cornus sanguinea</i> L. | + | - | N | Sp/Ap | M-E | 1 |
| <i>Cornus alba</i> L. | + | + | N | D | ES | 16 |
| ARALIACEAE | | | | | | |
| <i>Hedera helix</i> L. | + | + | Ch | Ap | M-sOZ | 1 |
| APIACEAE | | | | | | |
| <i>Chaerophyllum temulum</i> L. | + | + | T | Sp/Ap | M-E | 3 |
| <i>Anthriscus sylvestris</i> (L.) Hoffm. | + | + | H | Ap | KOSM | 3 |
| <i>Aegopodium podagraria</i> L. | + | + | H | Sp/Ap | ES | 1 |
| <i>Sium latifolium</i> L. | + | - | Hel | Sp | ES | 7 |
| <i>Conium maculatum</i> L. | + | - | T | AR | KOSM | 13 |
| <i>Peucedanum palustre</i> (L.) Moench | + | - | H | Sp | ES | 6 |
| <i>Peucedanum oreoselinum</i> (L.) Moench | + | - | H | Sp/Ap | E | 6 |
| <i>Heracleum sphondylium</i> L. | + | + | H | Ap | E | 9 |
| <i>Daucus carota</i> L. | + | + | H | Ap | KOSM | 9 |
| ERICACEAE | | | | | | |
| <i>Calluna vulgaris</i> (L.) Hull | + | + | Ch | Sp | sOZ | 5 |
| <i>Rhododendron catawbiense</i> Michx. | + | - | N | D | AM | 16 |
| <i>Vaccinium myrtillus</i> L. | + | + | Ch | Sp | ES | 5 |
| PRIMULACEAE | | | | | | |
| <i>Lysimachia nummularia</i> L. | + | + | H | Sp/Ap | E | 1 |
| <i>Lysimachia vulgaris</i> L. | + | - | H | Sp/Ap | ES | 7 |
| OLEACEAE | | | | | | |
| <i>Forsythia xintermedia</i> Zabel | + | - | N | D | E | 16 |
| <i>Fraxinus excelsior</i> L. | + | + | M | Ap | E | 1 |
| <i>Fraxinus pennsylvanica</i> Marshall | + | - | M | Ken | AM | 16 |
| <i>Syringa vulgaris</i> L. | + | + | N | Ken | E | 16 |
| <i>Ligustrum vulgare</i> L. | + | + | N | D | E | 16 |
| APOCYNACEAE | | | | | | |
| <i>Vinca minor</i> L. | + | - | Ch | D | E | 16 |
| RUBIACEAE | | | | | | |
| <i>Galium uliginosum</i> L. | + | - | H | Sp | ES | 6 |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--|---|---|-----|-------|---------|----|
| <i>Galium aparine</i> L. | + | + | T | Ap | ES | 3 |
| <i>Galium odoratum</i> (L.) Scop. | + | + | G | Sp | ES | 1 |
| <i>Galium mollugo</i> L. | + | + | H | Ap | ES | 9 |
| CONVOLVULACEAE | | | | | | |
| <i>Calystegia sepium</i> (L.) R. Br. | + | + | H | Sp | KOSM | 7 |
| <i>Convolvulus arvensis</i> L. | + | + | H | AR | KOSM | 13 |
| BORAGINACEAE | | | | | | |
| <i>Pulmonaria obscura</i> Dumort. | + | - | H | Sp | E | 1 |
| <i>Symphytum officinale</i> L. | + | + | H | Sp/Ap | ES | 7 |
| <i>Anchusa arvensis</i> (L.) M. Bieb. | + | + | T | AR | M-E | 15 |
| <i>Myosotis palustris</i> (L.) L. emend. Rchb. subsp. <i>palustris</i> | + | - | H | Sp | ES-AM | 7 |
| <i>Myosotis arvensis</i> (L.) Hill | + | + | T | AR | ES | 15 |
| LAMIACEAE | | | | | | |
| <i>Ajuga reptans</i> L. | + | + | H | Sp | E | 1 |
| <i>Scutellaria galericulata</i> L. | + | - | H | Sp | CB | 6 |
| <i>Galeopsis speciosa</i> Mill. | + | + | T | Sp/Ap | ES | 2 |
| <i>Galeopsis tetrahit</i> L. | + | + | T | Ap | E | 2 |
| <i>Lamium album</i> L. | + | + | H | AR | ES | 3 |
| <i>Lamium amplexicaule</i> L. | + | + | T | AR | M-E-IT | 15 |
| <i>Lamium purpureum</i> L. | + | + | T | AR | E | 15 |
| <i>Galeobdolon luteum</i> Huds. subsp. <i>luteum</i> | + | + | C | Sp | E | 1 |
| <i>Ballota nigra</i> L. subsp. <i>nigra</i> | + | - | H | AR | E | 13 |
| <i>Stachys sylvatica</i> L. | + | + | H | Sp | ES | 1 |
| <i>Stachys palustris</i> L. | + | - | G | Sp/Ap | CB | 7 |
| <i>Glechoma hederacea</i> L. | + | + | H | Ap | ES | 3 |
| <i>Prunella vulgaris</i> L. | + | + | H | Ap | M-ES | 9 |
| <i>Lycopus europaeus</i> L. | + | - | Hel | Sp/Ap | M-ES | 7 |
| <i>Mentha arvensis</i> L. | + | + | G | Ap | KOSM | 11 |
| <i>Mentha aquatica</i> L. | + | - | Hel | Sp | KOSM | 7 |
| SOLANACEAE | | | | | | |
| <i>Solanum dulcamara</i> L. | + | + | Ch | Sp/Ap | M-ES-IT | 7 |
| SCROPHULARIACEAE | | | | | | |
| <i>Verbascum nigrum</i> L. | + | - | H | Ap | E-IT | 2 |
| <i>Scrophularia nodosa</i> L. | + | - | H | Sp/Ap | ES | 1 |
| <i>Linaria vulgaris</i> Mill. | + | + | G | Ap | ES | 2 |
| <i>Digitalis purpurea</i> L. | + | - | H | Ken | sOZ | 16 |
| <i>Veronica arvensis</i> L. | + | + | T | Ap | M-E-IT | 15 |
| <i>Veronica hederifolia</i> L. | + | - | T | Ap | M-E-IT | 3 |
| <i>Veronica persica</i> Poir. | + | + | T | Ken | M-E-IT | 15 |
| <i>Veronica beccabunga</i> L. | + | - | H | Sp | M-ES | 7 |
| <i>Veronica officinalis</i> L. | + | + | H | Sp/Ap | E | 2 |
| <i>Veronica chamaedrys</i> L. | + | + | H | Ap | E | 9 |
| <i>Melampyrum nemorosum</i> L. | + | - | T | Sp | E | 2 |
| RG <i>Lathraea squamaria</i> L. | + | - | G | Sp | E | 1 |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--|---|---|---|-------|---------|----|
| PLANTAGINACEAE | | | | | | |
| <i>Plantago major</i> L. | + | + | H | Ap | KOSM | 10 |
| <i>Plantago intermedia</i> Gilib. | + | + | H | Ap | E | 11 |
| <i>Plantago lanceolata</i> L. | + | + | H | Ap | M-ES-IT | 10 |
| CAPRIFOLIACEAE | | | | | | |
| <i>Sambucus nigra</i> L. | + | + | N | Ap | E | 3 |
| <i>Symphoricarpos albus</i> (L.) S.F. Blake | + | - | N | Ken | AM | 16 |
| ! <i>Lonicera periclymenum</i> L. | + | + | N | Sp | sOZ | 2 |
| ADOXACEAE | | | | | | |
| <i>Adoxa moschatellina</i> L. | + | + | G | Sp | ES | 1 |
| VALERIANACEAE | | | | | | |
| <i>Valeriana officinalis</i> L. | + | - | H | Sp/Ap | ES | 8 |
| DIPSACACEAE | | | | | | |
| <i>Knautia arvensis</i> (L.) J.M. Coult. | + | - | H | Ap | ES | 2 |
| CAMPANULACEAE | | | | | | |
| <i>Campanula rotundifolia</i> L. | + | - | H | Sp/Ap | ES | 2 |
| <i>Campanula persicifolia</i> L. | + | - | H | Sp | E | 2 |
| <i>Phyteuma spicatum</i> L. | + | - | H | Sp | sOZ | 1 |
| <i>Jasione montana</i> L. | + | + | T | Ap | E | 5 |
| ASTERACEAE | | | | | | |
| <i>Solidago virgaurea</i> L. | + | + | H | Sp | KOSM | 2 |
| <i>Solidago gigantea</i> Aiton | + | + | G | Ken | E-AM | 12 |
| <i>Bellis perennis</i> L. | + | + | H | Ap | M-sOZ | 9 |
| <i>Aster novi-belgii</i> L. | + | - | H | Ken | AM | 16 |
| <i>Erigeron acris</i> L. | + | - | H | Ap | CB | 5 |
| <i>Conyza canadensis</i> (L.) Cronquist | + | + | T | Ken | AM | 14 |
| <i>Helianthus tuberosus</i> L. | + | - | G | Ken | AM | 16 |
| <i>Bidens frondosa</i> L. | + | - | T | Ken | AM | 11 |
| <i>Bidens tripartita</i> L. | + | + | T | Ap | M-ES | 11 |
| <i>Rudbeckia laciniata</i> L. | + | - | G | Ken | E-AM | 16 |
| <i>Galinsoga parviflora</i> Cav. | + | + | T | Ken | KOSM | 15 |
| <i>Galinsoga ciliata</i> (Raf.) S.F. Blake | + | - | T | Ken | KOSM | 15 |
| <i>Anthemis arvensis</i> L. | + | + | T | AR | M-E | 15 |
| RG <i>Achillea ptarmica</i> L. | + | - | G | Sp | ES | 8 |
| <i>Achillea millefolium</i> L. | + | + | G | Ap | ES | 9 |
| <i>Matricaria maritima</i> L. subsp. <i>inodora</i> L. Dostál | + | + | T | AR | ES | 15 |
| <i>Chamomila recutita</i> (L.) Rauschert | + | - | T | AR | M-E | 15 |
| <i>Chamomilla suaveolens</i> (Pursh) Rydb. | + | + | T | Ken | M-CB | 10 |
| <i>Tanacetum vulgare</i> L. | + | + | H | Ap | M-ES | 12 |
| <i>Leucanthemum vulgare</i> Lam. subsp. <i>vulgare</i> | + | + | H | Ap | ES | 9 |
| <i>Artemisia vulgaris</i> L. | + | + | H | Ap | M-ES | 12 |
| <i>Tussilago farfara</i> L. | + | + | G | Ap | ES | 10 |
| <i>Petasites hybridus</i> (L.) P. Gaertn., B. Mey & Scherb. | + | - | G | Ap | sOZ | 8 |
| <i>Senecio jacobaea</i> L. | + | + | H | Ap | ES | 4 |
| RG <i>Echinops sphaerocephalus</i> L. | + | - | H | Ken | M-E-IT | 13 |
| <i>Arctium tomentosum</i> Mill. | + | - | T | Ap | M-ES | 12 |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|-----|-------|--------|----|
| <i>Cirsium arvense</i> (L.) Scop. | + | + | G | Ap | M-ES | 12 |
| <i>Cirsium oleraceum</i> (L.) Scop. | + | + | H | Sp/Ap | ES | 8 |
| <i>Centaurea cyanus</i> L. | + | + | T | AR | M-ES | 15 |
| <i>Leontodon autumnalis</i> L. | + | + | H | Ap | ES | 10 |
| <i>Tragopogon pratensis</i> L. | + | + | T | Ap | M-E | 9 |
| <i>Sonchus oleraceus</i> L. | + | - | T | AR | M-ES | 15 |
| <i>Sonchus arvensis</i> L. | + | - | T | Ap | M-ES | 15 |
| <i>Mycelis muralis</i> (L.) Dumort | + | + | H | Sp/Ap | sOZ | 1 |
| <i>Taraxacum officinale</i> F.H. Wigg. | + | + | H | Ap | M-E | 9 |
| <i>Lapsana communis</i> L. | + | + | T | Ap | M-E | 3 |
| RG <i>Crepis paludosa</i> (L.) Moench | + | - | H | Sp | E | 8 |
| <i>Crepis tectorum</i> L. | + | - | T | Ap | ES | 15 |
| <i>Hieracium pilosella</i> L. | + | + | H | Ap | E | 5 |
| <i>Hieracium umbellatum</i> L. | + | - | H | Ap | CB | 2 |
| <i>Hieracium murorum</i> L. | + | - | H | Sp | E | 2 |
| HYDROCHARITACEAE | | | | | | |
| <i>Elodea canadensis</i> Michx. | + | - | Hyd | Ken | ES-AM | 7 |
| LILIACEAE | | | | | | |
| <i>Hemerocallis fulva</i> (L.) | + | - | G | D | ZAS | 16 |
| ! <i>Colchicum autumnale</i> L. | + | - | G | D | E | 16 |
| <i>Gagea lutea</i> (L.) Ker. Gawl. | + | - | G | Sp | ES | 1 |
| <i>Scilla sibirica</i> Haw. | + | - | G | D | E | 16 |
| <i>Convallaria majalis</i> L. | + | + | G | Sp | ES | 2 |
| <i>Paris quadrifolia</i> | + | - | G | Sp | ES | 1 |
| <i>Maianthemum bifolium</i> (L.) F.W. Schmidt | + | + | G | Sp | ES | 2 |
| <i>Polygonatum multiflorum</i> (L.) All. | + | - | G | Sp | ES | 1 |
| <i>Asparagus officinalis</i> L. | + | - | G | Ken | M-P-IT | 13 |
| AMARYLLIDACEAE | | | | | | |
| ! <i>Leucojum vernum</i> L. | + | - | G | D | E | 16 |
| ! <i>Galanthus nivalis</i> L. | + | - | G | D | E | 16 |
| IRIDACEAE | | | | | | |
| <i>Iris pseudacorus</i> L. | + | - | Hel | Sp | M-ES | 6 |
| JUNCACEAE | | | | | | |
| RG <i>Juncus tenuis</i> Willd. | + | - | H | Ken | KOSM | 10 |
| <i>Juncus effusus</i> L. | + | + | H | Ap | KOSM | 2 |
| <i>Juncus bufonius</i> L. | + | + | T | Ap | KOSM | 11 |
| <i>Luzula pilosa</i> (L.) Willd. | + | + | H | Sp | ES | 2 |
| POACEAE | | | | | | |
| <i>Festuca gigantea</i> (L.) Vill. | + | - | H | Sp/Ap | ES | 1 |
| <i>Festuca pratensis</i> Huds. | + | + | H | Ap | ES | 9 |
| <i>Festuca rubra</i> L. | + | - | H | Ap | CB | 9 |
| <i>Lolium perenne</i> L. | + | + | H | Ap | M-E | 10 |
| <i>Poa annua</i> L. | + | + | T | Ap | KOSM | 10 |
| <i>Poa pratensis</i> L. | + | + | H | Ap | CB | 9 |
| <i>Poa nemoralis</i> L. subsp. <i>nemoralis</i> | + | + | H | Sp/Ap | CB | 2 |
| <i>Poa trivialis</i> L. | + | + | H | Sp/Ap | ES | 11 |
| <i>Dactylis glomerata</i> L. | + | + | H | Ap | ES | 9 |
| <i>Apera spica-venti</i> (L.) P. Beauv. | + | - | T | AR | ES | 15 |
| <i>Bromus tectorum</i> L. | + | - | T | AR | M-E-IT | 14 |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--|---|---|-----|-------|---------|----|
| <i>Bromus hordaceus</i> L. | + | + | T | Ap | M-ES | 13 |
| <i>Elymus repens</i> (L.) Gould | + | + | G | Ap | M-ES | 10 |
| <i>Arrhenatherum elatius</i> (L.) P. Beauv. ex J. Presl & C. Presl | - | + | H | Ap | E | 9 |
| <i>Deschampsia caespitosa</i> (L.) P. Beauv. | + | + | H | Sp/Ap | KOSM | 8 |
| <i>Holcus lanatus</i> L. | + | + | H | Ap | M-E | 8 |
| <i>Calamagrostis epigejos</i> (L.) Roth. | + | - | G | Ap | KOSM | 2 |
| <i>Phleum pratense</i> L. | + | - | H | Ap | ES | 9 |
| <i>Phalaris arundinacea</i> L. | + | - | H | Ap | KOSM | 7 |
| <i>Milium effusum</i> L. | + | + | H | Sp | CB | 1 |
| <i>Phragmites australis</i> (Cav.) Trin. ex Steud. | + | + | Hel | Sp/Ap | KOSM | 7 |
| <i>Echinochloa crus-galli</i> (L.) P. Beauv. | + | - | T | AR | KOSM | 15 |
| <i>Setaria viridis</i> (L.) P. Beauv. | + | - | T | AR | M-ES-IT | 15 |
| ARACEAE | | | | | | |
| <i>Acorus calamus</i> L. | + | - | Hel | Ken | KOSM | 7 |
| <i>Calla palustris</i> L. | + | + | Hel | Sp | CB | 6 |
| LEMNACEAE | | | | | | |
| <i>Lemna minor</i> L. | + | + | Hyd | Sp/Ap | KOSM | 7 |
| <i>Spirodela polyrhiza</i> (L.) Schleiden | + | - | Hyd | Sp/Ap | KOSM | 7 |
| TYPHACEAE | | | | | | |
| <i>Typha latifolia</i> L. | + | - | Hel | Sp/Ap | KOSM | 7 |
| CYPERACEAE | | | | | | |
| <i>Scirpus sylvaticus</i> L. | + | - | H | Sp | ES | 8 |
| <i>Carex nigra</i> Reichard | + | - | H | Sp | ES-AM | 8 |
| <i>Carex acutiformis</i> Ehrh. | + | - | H | Sp | ES | 6 |
| ORCHIDACEAE | | | | | | |
| ! <i>Epipactis helleborine</i> (L.) Crantz | + | - | G | Sp/Ap | ES-AM | 8 |

Explanations

Column 1

Legal protection of species in Poland (Ministry of Environment Order 2014)

!! – species under strictly protection

! – species under partially protection

RG – rare species in region

Column 3

Life form: C – non-woody chamaephytes, Ch – woody chamaephytes, G – geophytes, H – hemicryptophytes, Hel – helophytes, Hyd – hydrophytes, M – megaphanerophytes, N – nanophanerophytes, T – therophytes

Column 4

Geographic-historical status: Ap – synanthropic spontaneophytes (apophytes), AR – archaeophytes, D – diaphytes, Ken – kenophytes, Sp – non-synanthropic spontaneophytes, Sp/Ap – half-synanthropic spontaneophytes

Column 5

Range group: AM – Boreo-American, CB – Circum-Boreal, E – Central European, ES – Euro-Siberian, IT – Irano-Turanian, KAUK – Caucasian, KOSM – Kosmopolitan, M – Mediterranean, OAS – East Asiatic, P – Pontic-Pannonian, sOZ – Sub-Atlantic, ZAS – Central Asiatic

Column 6

Socio-ecological group: 1 – fertile deciduous woods and shrub communities, 2 – acidophilous oak woods, mixed coniferous-deciduous forests and their substitutes, 3 – nitrophilous communities of shrubs and forest skirts, 4 – xerothermophilous communities of forest verges and grasslands, 5 – pine forests and sandy grasslands, 6 – wet alderwoods, lowland mires and bogs,

7 – aquatic vegetation and shrub communities and woods of lakes shores, 8 – humid meadows and communities of tall herbs, 9 – moderately humid meadows, 10 – nitrophilous flooded grasslands and communities of trodden places, 11 – therophytic communities of wet and humid habitats, 12 – mesophilous communities of tall perennials, 13 – xero-thermophilous communities of ruderal perennials, 14 – short-lived, pioneer communities of ruderal plants, 15 – communities of weeds of cornfields and root crops, 16 – species of undefined phytosociological classification

RESULTS

The vascular flora in Tychowo is represented by 388 taxons and in Wyszkowo by 212 taxons, which belong to 81 families (Table 1). The number of species in particular families varies from 1 to 41. The most numerous species are found in the following families: *Asteraceae* (41), *Rosaceae* (33), *Poaceae* (23), *Fabaceae* (18), *Lamiaceae* (16), *Brassicaceae* and *Polygonaceae* (15 each). The sequence of the enumerated plants is close to the sequence provided for Poland’s flora (Pawłowska 1977). The variation of the number of species in genii is from 1 to 6. The taxons found at the area of parks were classified into 250 kinds, of which 176 are the kinds represented by individual species. The most numerous kinds are: *Polygonum*, *Rumex* and *Veronica* (6 taxons each), *Acer* and *Salix* (5 taxons each) and *Galium*, *Poa*, *Prunus*, *Quercus*, *Rosa*, *Stellaria*, *Tilia*, *Ulmus* and *Vicia* (4 taxons each).

Participation of five basic life groups (phanerophytes, chamaephytes, hemicryptophytes, cryptophytes and therophytes) is typical for the flora of Poland (Table 2). Also in the flora of manor parks, there is a visible dominance of hemicryptophytes and therophytes which in total constitute 209 species in Tychowo and 136 in Wyszkowo, i.e. 53.9% and 64.1% of total flora respectively. Among cryptophytes, geophytes dominate hydro and helophytes, and among phanerophytes, the bush-like forms over the tree-like ones. Our attention is drawn by a relatively large number of geophytes which produce bulbs, rhizomes and root-tubers or stem tubers.

Table 2

Share of life forms in flora in former manor parks in Tychowo and Wyszkowo

| Life forms | Park Tychowo | | Park Wyszkowo | |
|------------------------|----------------|------------|----------------|------------|
| | number of taxa | percentage | number of taxa | percentage |
| Hemicryptophytes | 125 | 32.22 | 76 | 35.85 |
| Therophytes | 84 | 21.65 | 58 | 27.55 |
| Geophytes | 43 | 11.08 | 22 | 10.38 |
| Nanophanerophytes | 58 | 14.95 | 22 | 10.38 |
| Megaphanerophytes | 53 | 13.66 | 22 | 10.38 |
| Woody chamaephytes | 12 | 3.09 | 8 | 3.78 |
| Helophytes | 9 | 2.32 | 2 | 0.94 |
| Non-woody chamaephytes | 1 | 0.26 | 1 | 0.47 |
| Hydrophytes | 3 | 0.77 | 1 | 0.47 |
| Total | 388 | 100.00 | 212 | 100.00 |

They comprise, among others *Adoxa moschatelina*, *Anemone nemorosa*, *A. ranunculoides*, *Cirsium arvense*, *Corydalis intermedia*, *Elymus repens*, *Helianthus tuberosus*, *Mentha arvensis*, *Polygonatum multiflorum* and *Saxifraga granulata*. The flora of the parks in Tychowo and Wyszkowo is clearly dominated by the local species (62 and 76% respectively) (Table 3). In Tychowo 241 and in Wyszkowo 161 species were observed in addition to the natural and semi-natural plant communities, so they were classified as apophytes. The well-established anthropophytes are dominated by archeophytes in Tychowo 10.6%, and in Wyszkowo 11.8%).

Table 3

Share of geographic-historical groups in flora in former manor parks in Tychowo and Wyszkowo

| Geographical-historical groups | Park Tychowo | | Park Wyszkowo | |
|-----------------------------------|----------------|------------|----------------|------------|
| | number of taxa | percentage | number of taxa | percentage |
| Synanthropic spontaneophytes | 122 | 31.44 | 92 | 43.40 |
| Non-synanthropic spontaneophytes | 76 | 19.59 | 44 | 20.75 |
| Archeophytes | 41 | 10.57 | 28 | 13.21 |
| Diaphytes | 61 | 15.72 | 9 | 4.25 |
| Kenophytes | 45 | 11.60 | 14 | 6.60 |
| Half-synanthropic spontaneophytes | 43 | 11.08 | 25 | 11.79 |
| Total | 388 | 100.00 | 212 | 100.00 |

Archeophytes are dominated by the species connected with agriculture. They comprise: *Arabidopsis thaliana*, *Capsella bursa-pastoris*, *Papaver rhoeasi*, *Raphanus raphanistrum*, *Scleranthus annuus*, *Spergula arvensis*, *Thlaspi arvense*, *V. angustifolia* and *Viola arvensis*. Among kenophytes (in Tychowo 11.6% and in Wyszkowo 6.6%) the species were observed which were classified as invasive. Herbaceous plants are represented by: *Amaranthus retroflexus*, *Aster novi-belgii*, *Echinocystis lobata*, *Solidago gigantea*, *Impatiens glandulifera*, *I. parviflora*, *Reynoutria japonica*, *Rudbeckia laciniata*. The representatives of dendroflora recognized as invasive comprised: *Acer negundo*, *Fraxinus pennsylvanica*, *Larix kaempferi*, *Quercus rubra*, *Robinia pseudoacacia* and *Rosa rugosa* (Tokarska-Guzik et al. 2012).

Diaphytes comprise the species which are getting wild from the cultivation (ergasiophytes), which appear periodically or are intentionally planted.

In the flora of the parks, 12 range categories can be separated, strictly speaking, i.e. the ones connected by territory with a given phytogeographic unit (Table 4). Among them dominate the species of Euro-Syberian range. They comprise, respectively, in Tychowo – 78 and in Wyszkowo – 52 species, i.e. 20.1 and 24.5% respectively of the park flora. Much less important are the species of a Subatlantic, Boreal-American, Pontic Pannonian, East Asiatic, Caucasian and Iran-Turanian range.

Table 4

Share of range groups in flora in former manor parks in Tychowo and Wyszkowo

| Range groups | Park Tychowo | | Park Wyszkowo | |
|--------------|----------------|------------|----------------|------------|
| | number of taxa | percentage | number of taxa | percentage |
| ES | 78 | 20.10 | 52 | 24.53 |
| E | 67 | 17.27 | 33 | 15.57 |
| KOSM | 48 | 12.37 | 32 | 15.09 |
| M-ES | 28 | 7.22 | 15 | 7.08 |
| CB | 19 | 4.90 | 11 | 5.19 |
| M-E | 22 | 5.67 | 15 | 7.08 |
| AM | 37 | 9.54 | 7 | 3.30 |
| ME-IT | 16 | 4.12 | 10 | 4.71 |
| ES-AM | 8 | 2.06 | 4 | 1.89 |
| M-CB | 8 | 2.06 | 7 | 3,30 |
| M-ES-IT | 8 | 2.06 | 5 | 2.35 |
| sOZ | 9 | 2.32 | 6 | 2.83 |
| OAS | 16 | 4.12 | 2 | 0.94 |
| E-IT | 5 | 1.29 | 3 | 1.42 |
| M-P-IT | 3 | 0.77 | 1 | 0.47 |
| M-sOZ | 3 | 0.77 | 3 | 1.42 |
| ES-IT | 3 | 0.77 | 3 | 1.42 |
| ZAS | 6 | 1.55 | 1 | 0.47 |
| KAUK | 1 | 0.26 | - | - |
| M-E-AM | 1 | 0.26 | 1 | 0.47 |
| M-E-P | 1 | 0.26 | 1 | 0.47 |
| sOZ-E | 1 | 0.26 | - | - |
| Total | 388 | 100 | 212 | 100 |

No Mediterranean taxa were found in the strict meaning of the word, but participation of linking elements was noted Meditteraneo-Central-European, Mediterraneo-Euro-Syberian and other range groups going over the borders of Mediterranean region. They comprise numerous segetal taxa, eg. *Anchusa arvensis*, *Euphorbia helioscopia*, *Raphanus raphanistrum*, *Spergula arvensis*, *Veronica arvensis* and *Vicia villosa*. The species of the Mediterranean-Iran-Turanian region origin comprise, e.g. *Conium maculatum*, *Lamium amplexicaule*, *Papaver rhoeas* and *Veronica persica*. Variability of the number of species in social – ecologic groups is from 4 to 67 (Table 5). In the park flora, the most numerous representatives comprise the plants of not clearly specified phyto-sociological affiliation, to which diaphytes belong in the most part. A numerous group comprises the species from mesophilic forest

groups (in Tychowo 99 and 57 in Wyszkowo, i.e. 25.5% and 14.7 of total flora, respectively). An important group is also constituted by the species from the groups of agricultural crops (in Tychowo 45 and in Wyszkowo – 35 taxons, i.e. 11.6% and 9% of the total flora, respectively). There is a big participation of the species of alders, fens, water assemblages, rush assemblages and terrophytic assemblages at wet and moist habitats (in Tychowo – 51 and in Wyszkowo 22 species, i.e. 13.5% and 5.7 of total flora respectively).

Table 5

Share of socio-ecological groups in flora in former manor parks
in Tychowo and Wyszkowo

| Socio-ecological groups | Park Tychowo | | Park Wyszkowo | |
|-------------------------|----------------|------------|----------------|------------|
| | number of taxa | percentage | number of taxa | percentage |
| 1 | 57 | 14.69 | 32 | 15.09 |
| 2 | 42 | 10.82 | 25 | 11.79 |
| 3 | 15 | 3.87 | 15 | 7.10 |
| 4 | 7 | 1.80 | 7 | 3.31 |
| 5 | 16 | 4.12 | 9 | 4.24 |
| 6 | 14 | 3.61 | 6 | 2.83 |
| 7 | 27 | 6.96 | 10 | 4.71 |
| 8 | 16 | 4.12 | 7 | 3.31 |
| 9 | 22 | 5.68 | 20 | 9.43 |
| 10 | 20 | 5.15 | 13 | 6.13 |
| 11 | 10 | 2.58 | 6 | 2.83 |
| 12 | 7 | 1.80 | 5 | 2.35 |
| 13 | 19 | 4.90 | 7 | 3.31 |
| 14 | 4 | 1.03 | 2 | 0.94 |
| 15 | 45 | 11.60 | 35 | 16.50 |
| 16 | 67 | 17.27 | 13 | 6.13 |
| Total | 388 | 100 | 212 | 100 |

SUMMARY

At the premises of Tychowo-Wyszkowo manor-park complex, the following species under protection were discovered in the period 2014-2016: *Colchicum autumnale*, *Epipactis helleborine*, *Galanthus nivalis*, *Leucojum vernalis*, *Lilium martagon*, *Lonicera periclymenum*, *Ononis spinosa*, *Pinus mugo*, *Sorbus intermedia* and *Taxus baccata*. Except for *Epipactis helleborine*, they represent adventive element in Pomerania.

In the parks, *Dryopteris cristata* – a species close to extinction in Western Pomerania as well as Poland was discovered. The rare and potentially endangered ones in Western Pomerania comprise: *Conium maculatum* and *Corydalis intermedia*. The rare regional taxons comprise: *Crepis paludosa*, *Dryopteris cristata* and *Juncus tenuis*.

Within the park areas there the trees are found which meet the requirements of the monument of nature. In the park in Tychowo, they comprise: *Quercus robur* of the trunk perimeter: 450 cm, 405 cm, 390 cm and 360 cm, *Acer saccharinum* (460 cm) and *Thuja plicata* (375 cm). In Wyszkowo, there was *Picea abies* with the trunk perimeter of 315 cm. The rare dendroflora in Tychowo comprises: *Larix archangelica*, *Taxodium distichum* and *Ulmus minor* var. *suberosa*.

The manor park complex in Tychowo–Wyszkowo requires protection, since it comprises the natural advantages and cultural values which deserve attention. It is a heritage of the past generations and should be legal protected.

REFERENCES

- Bandemer-Kleist S. von, 1974. Wendisch Tychow, Kreis Schlawe/Pommern. (Tychowo, County Sławno/Pomerania). *Deutsches Adelsblatt*, 5, 12-14, (in German).
- Bethge E., Bethge R., Gremmels C., 1986. Dietrich Bonhoeffer: sein Leben in Bildern und Texten. (Dietrich Bonhoeffer: life in picture and text). Christian Kaiser Verlag, München, s. 171.
- Białecki T., 2001. Słownik nazw fizjograficznych Pomorza Zachodniego. (Dictionary of the physiographic names of Western Pomerania). Wyd. Uniwersytetu Szczecińskiego, Szczecin, (in Polish).
- Brüggemann L.W., 1784. Ausführliche Beschreibung des gegenwärtigen Zustandes des Königl. Preussischen Herzogthums Vor- und Hinter- Pommern. (Detailed description of present state of Prussia Royal Principality in Pomerania). Stettin, Th. 2, Bd. 2, (in German).
- Chmiel J., 1993. Flora roślin naczyniowych wschodniej części Pojezierza Gnieźnieńskiego i jej antropogeniczne przeobrażenia w wieku XIX i XX. Część 2. Atlas rozmieszczenia roślin. (Flora of vascular plants of the eastern part of the Gniezno Lake District and its transformation under the influence of man in the 19th and 20th centuries. Part 2. Atlas of distribution of plants). Prace Zakładu Taksonomii Roślin UAM w Poznaniu. Wyd. Sorus, Poznań, (in Polish).
- Chmiel J., 2006. Zróżnicowanie przestrzenne flory jako podstawa ochrony przyrody w krajobrazie rolniczym. (Spatial diversity of flora as a basis for nature conservancy in the agricultural landscape). Bogucki Wyd. Nauk., Poznań, (in Polish).
- Duncker A., 1857/1883. Die ländlichen Wohnsitze, Schlösser und Residenzen der ritterschaftlichen Grundbesitzer in der preussischen Monarchie: nebst den königlichen Familien-, Haus-Fideicommiss-Schatull-Gütern in naturgetreuen, künstlerisch ausgeführten, farbigen Darstellungen; nebst begleitendem Text. (Rural places of residence, palaces and residences of knight's owner in Prussia Monarchy along with royal estates with retain faithfulnes artists work, colourful pictures, with accompanying text). Duncker Alexander Verlag, Berlin, 3, 123, (in German).
- Gutzmerow G., 1974. Von der Oder ostwärts. Polnische Ortsnamen in Pommern. (In the East from Odra. Place names in Pomerania). *Unsere Heimat*, 23, 5-202, (in German).
- Kaemmerer M., 1988. Ortsnamenverzeichnis der Ortschaften jenseits von Oder und Neiß. (Place names register of localities from Odra and Nysa). Verlag Gerhard Rautenberg, Leer, (in German).
- Klempin R., Kratz G., 1863. Matrikeln und Verzeichnisse der Pommerschen Ritterschaft vom XIV bis in das XIX Jahrhundert. (Notes and register of Pomerania Knighthood from 14th to 19th centuries). In Commission bei A. Bath, Berlin, s. 492.

- Kondracki J., 1994. Geografia Polski. Mezoregiony fizyczno-geograficzne. (Geography of Poland. Physical-geographical mesoregions). Wyd. Nauk. PWN, Warszawa, s. 5-340.
- Mirek Z., Piękoś-Mirkowa H., Zając A., Zając M., 2002. Flowering plants and pteridophytes of Poland. A checklist. *Biodiv. of Poland*, 1, 9-442.
- Misiewicz J., Grodzka I., 1993. Park w Tychowie koło Sławna. (Park in Tychowo near Sławno). *Słupskie Pr. Mat.-Przyr.*, 9b, 15-26, (in Polish).
- Markowski R., Buliński M., 2004. Ginące i zagrożone rośliny naczyniowe Pomorza Gdańskiego. (Endangered and threatened vascular plants of Gdańsk Pomerania). *Acta Bot. Cass. Monogr.*, 1, 1-75, (in Polish).
- Misiewicz J., 1977. Nieznane zbiory zielnikowe flory Pomorza zachowane w Muzeum w Darłowie. W: Ochrona i kształtowanie środowiska przyrodniczego Pomorza Środkowego. (The unknown herbarium collection of the Pomeranian flora preserved in the Darłowo Museum. In: Protection and environmental shaping of Central Pomerania). (Eds) E.R. Śpiewakowski, M. Kalfus, Wyd. WSP, Słupsk, s. 195-226.
- Pawłowska S., 1977. Charakterystyka statystyczna i elementy flory polskiej. W: Szata roślinna Polski. (Statistics characteristic and Polish flora elements. In: Plant cover of Poland). (Eds) W. Szafer, K. Zarzycki, 1, 129-206, (in Polish).
- Pejsa J., 2003. Misja na Pomorzu. (Mission in Pomerania). *Zesz. Sławieńskie*, 1, 54-59, (in Polish).
- Quer G., 1989. Dietrich Bonhoeffer und die theologische Kandidatenausbildung der Bekennenden Kirche in Hinterpommern. In: Der Kreis Schlawe. Ein pommersches Heimatbuch. (Dietrich Bonhoeffer and theological education Creed Church in Pomerania. In: Sławno County. Country book of Pomerania). (Ed.) M. Vollack, Husum, vol. I, 336-341, (in German).
- Ratyńska H., Wojterska M., Brzeg A., 2010. Multimedialna encyklopedia zbiorowisk roślinnych Polski. (A multimedia encyclopaedia of plant communities of Poland). Narodowy Fundusz Ochrony Środowiska i Gospodarki Wodnej w Warszawie, CD 1-2, (in Polish).
- Raunkiaer C., 1905. Types biologiques pour la géographie botanique. (Biological types for plants geography). Overs. Kongel. Danske Vidensk. Selsk. Forh. Madlemmers Arbeider, 5, 347-437, (in French).
- Rutkowski L., 2004. Klucz do oznaczania roślin naczyniowych Polski niżowej. (Botanical key of vascular plants of Polish Lowland). Wyd. Nauk. PWN, Warszawa, (in Polish).
- Schulz P., 1989. Tychow. In: Der Kreis Schlawe. Ein pommersches Heimatbuch. (Tychowo. In: Sławno County. Country book of Pomerania). (Ed.) M. Vollack, Husum, vol. II, 1238-1248, (in German).
- Seneta W., Dolatowski J., 2003. Dendrologia. (Dendrology). Wyd. Nauk. PWN, Warszawa, (in Polish).
- Sieber H., 1959. Schlösser und Herrensitze in Pommern. (Castles and courts in Pomerania). Verlag Wolfgang Weidlich, Frankfurt am Main, (in German).
- Sienicka A., Kownas S., 1965. Parki, zabytkowe drzewa i rezerwy województwa koszalińskiego. (Parks, monumental trees and reserves of Koszalin Province). *Szczecińskie Tow. Nauk. Wýdz. Nauk Przyr.-Roln.*, 27, 3-180, (in Polish).
- Sobisz Z., 2015. Rośliny specjalnej troski Pomorza Środkowego. (Plants of special care of Central Pomerania). Zakład Botaniki i Ochrony Przyrody, Akademia Pomorska w Słupsku (manuscript), (in Polish).
- Świetlicka A., Wisławska E., 1998. Słownik historyczny miast i wsi województwa słupskiego. (Historic dictionary of towns and villages of Słupsk Province). Stowarzyszenie Bibliotekarzy Polskich, Okręg Słupski, Słupsk, (in Polish).
- Szpilowski S., 1983. Parki województwa słupskiego. W: Pomorskie środowisko przyrodnicze – jego ochrona i kształtowanie. (Parks of Słupsk Province. In: Natural environment of

- Pomerania – protection and shaping). (Eds) J. Cieplik et al., Naczelna Organizacja Techniczna, Słupsk, 11, 114-128, (in Polish).
- Świnicka H., Swinicki A., 1975. Ewidencja parku Tychowo Sławieńskie, gmina Sławno. (Register of park in Tychowo Sławieńskie, Sławno Commune). Biuro Badań i Dokumentacji Zabytków w Słupsku, Towarzystwo Urbanistów Polskich, Oddział Koszalin, Koszalin, (manuscript), (in Polish).
- Tokarska-Guzik B., Dajdok Z., Zajac M., Zajac A., Urbisz A., Danielewicz W., Hołdyński C., 2012. Rośliny obcego pochodzenia w Polsce ze szczególnym uwzględnieniem gatunków inwazyjnych. (Alien plants in Poland with particular reference to invasive species). NFOŚ i GW, Warszawa, (in Polish).
- Wendlandt J., Andruszkiewicz K., Szelańska T., 1992. Spis parków i ogrodów w Polsce. Stan w 1991 roku. (List of monumental parks and gardens in Poland. Status for 1991). *Studia i Materiały. Ogrody*, 1, 267-273, (in Polish).
- Zajac A., 1979. Pochodzenie archeofitów występujących w Polsce. (The origin of the archaeophytes occurring in Poland). UJ, Kraków, (in Polish).
- Zajac M., Zajac A., 2009. Elementy geograficzne rodzimej flory Polski. (The geographical elements of native flora of Poland). Pracownia Chorologii Komputerowej IB UJ, Kraków, (in Polish).
- Zarzycki K., Szelańska Z., 2006. Czerwona lista roślin naczyniowych w Polsce. W: Czerwona lista roślin i grzybów Polski. (Red list of the vascular plants in Poland. In: Red list of plants and fungi of Poland). (Eds) Z. Mirek, K. Zarzycki, W. Wojewoda, Z. Szelańska, Instytut Botaniki im. W. Szafera PAN, Kraków, s. 9-20.
- Zarzycki K., Trzcinańska-Taciak H., Różański W., Szelańska Z., Wołek J., Korzeniak U., 2002. Ecological indicator values of vascular plants in Poland. *Biodiv. of Poland*, 2, 7-183.
- Żukowski W., Jackowiak B., 1995. Lista roślin naczyniowych ginących i zagrożonych na Pomorzu i w Wielkopolsce. W: Ginące i zagrożone rośliny naczyniowe Pomorza Zachodniego i Wielkopolski. (List of endangered and threatened vascular plants of Western Pomerania and Great Poland. In: Endangered and threatened vascular plants of Western Pomerania and Great Poland). (Eds) W. Żukowski, B. Jackowiak, UAM, Poznań, 9-92, (in Polish).

WALORY FLORY NACZYNIOWEJ W DAWNYCH PARKACH DWORSKICH W TYCHOWIE-WYSZKOWIE (POMORZE ŚRODKOWE)

Streszczenie

Na terenie zespołu dworsko-parkowego Tychowo-Wyszkowo w latach 2014-2016 zanotowano występowanie dziesięciu gatunków objętych ochroną gatunkową: *Colchicum autumnale*, *Epipactis helleborine*, *Galanthus nivalis*, *Leucojum vernalis*, *Lilium martagon*, *Lonicera periclymenum*, *Ononis spinosa*, *Pinus mugo*, *Sorbus intermedia* i *Taxus baccata*. Z wyjątkiem *Epipactis helleborine* reprezentują one adwentywny element na Pomorzu.

W parkach zanotowano występowanie *Dryopteris cristata* – gatunku narażonego na wyginięcie w skali Pomorza Zachodniego, jak i Polski. Do rzadkich i potencjalnie zagrożonych na Pomorzu Zachodnim należą: *Conium maculatum* i *Corydalis intermedia*. Do rzadkich taksonów w skali regionu zaliczono: *Crepis paludosa*, *Dryopteris cristata* i *Juncus tenuis*. Na terenie parków występują drzewa spełniające wymogi pomnika przyrody. W parku w Tychowie należą do nich: *Quercus robur* o obwodach pni: 450 cm, 405 cm, 390 cm i 360 cm, *Acer saccharinum* (460 cm) i *Thuja plicata* (375 cm). W Wyszkowie odnotowano *Picea abies* o obwodzie pnia

315 cm. Do rzadkich przedstawicieli dendroflory w Tychowie zaliczono *Taxodium distichum* i *Ulmus minor* var. *suberosa*.

Zespół dworsko-parkowy Tychowo-Wyszkowo zasługuje na szczególną ochronę, łączy bowiem godne uwagi walory przyrodnicze i wartości kulturowe. Jest spuścizną minionych pokoleń i powinien być objęty ochroną zabytkową.