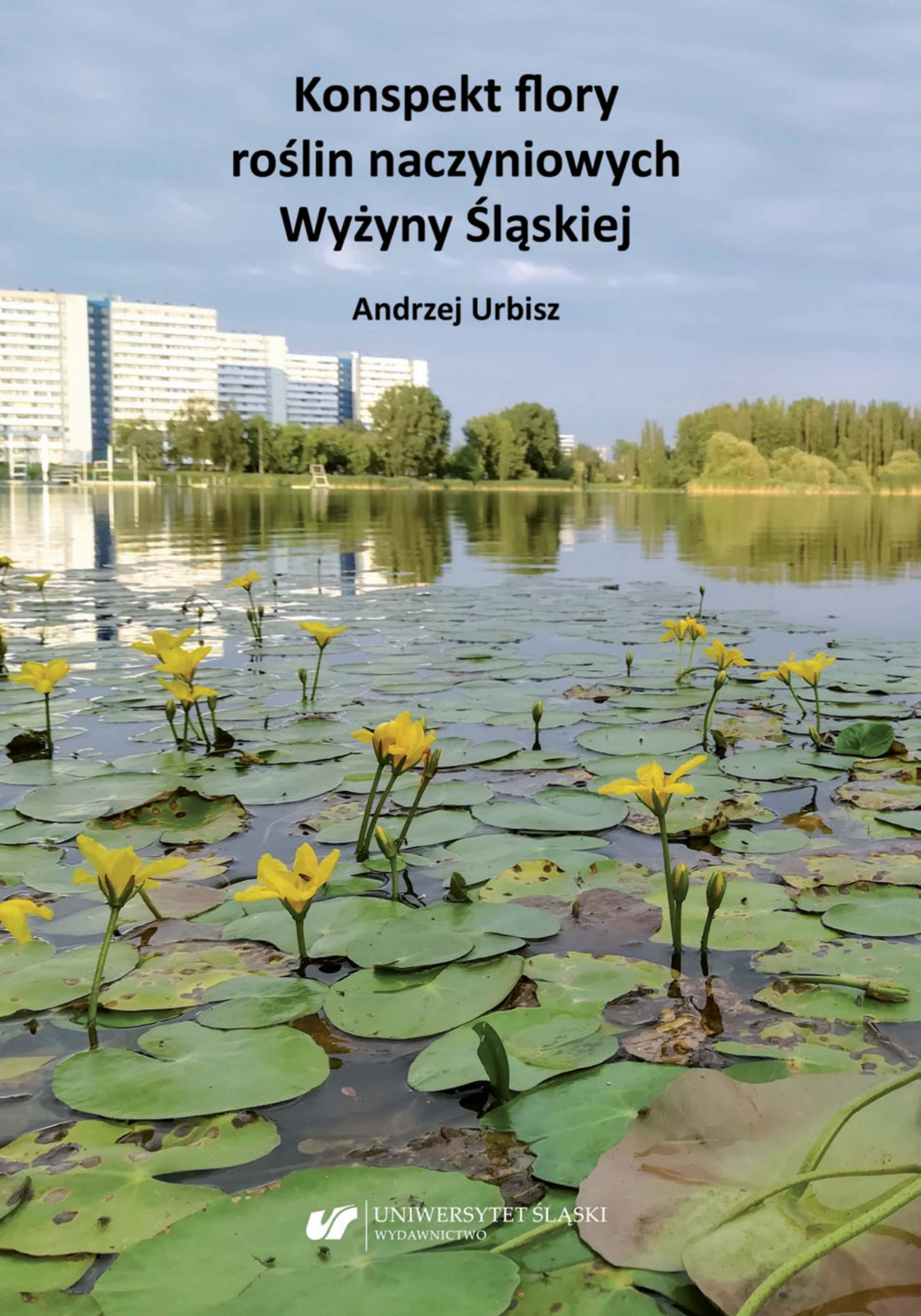
Konspekt flory roślin naczyniowych Wyżyny Śląskiej

Andrzej Urbisz



UNIWERSYTET ŚLĄSKI
WYDAWNICTWO

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Wydawnictwo Uniwersytetu Śląskiego ▪ Katowice 2021

Recenzent
Arkadiusz Nowak

Spis treści

Wstęp

Opracowania florystyczne są podstawowym źródłem informacji na temat różnorodności biologicznej – zachowują aktualność przez wiele lat. Zawarte w nich dane mają duże znaczenie dla ochrony przyrody, a także mogą zostać wykorzystane do badań nad ekologią i rozmieszczeniem poszczególnych gatunków oraz przemianami zachodzącymi we florze pod wpływem antropopresji.

Działalność człowieka jest jednym z najważniejszych czynników, które powodują zmiany składu gatunkowego flory określonego obszaru. Prowadzi ona zarówno do pojawiania się gatunków, które do tej pory na nim nie występowały (antropofitów), jak i do zanikania taksonów rodzimych. Nowe gatunki mogą przybyć na dany teren w wyniku celowych działań człowieka (rośliny uprawne i ozdobne) lub zostać przypadkowo zawleczone (efemerofity). W przeciwieństwie do nich wiele roślin od dawna występujących w danym miejscu nie jest w stanie przystosować się do zmiany warunków siedliskowych spowodowanej rozwojem przemysłu, rolnictwa i urbanizacji. Ich liczebność w ciągu ostatnich dziesięcioleci stopniowo maleje, a stanowiska, na których występują, zanikają. Doprowadziło to do całkowitego wyginięcia niektórych gatunków.

Przemiany flory i roślinności zachodzące w środowisku przyrodniczym pod wpływem działalności człowieka są definiowane jako synantropizacja szaty roślinnej – proces polegający na zastępowaniu układów pierwotnych, zawierających taksony endemiczne, stenotopowe, autochtoniczne przez układy wtórne, które są tworzone przez składniki kosmopolityczne, eurytopowe, allochtoniczne (Faliński 1972). Prowadzi to do degradacji naturalnych zbiorowisk roślinnych i dlatego bardzo ważne jest określenie składu flory każdego obszaru podlegającego antropopresji, co w przyszłości może pozwolić na przynajmniej częściowe odtworzenie jego naturalnej szaty roślinnej.

Niniejsza praca dotyczy Wyżyny Śląskiej – regionu, w którym wpływ działalności człowieka na środowisko przyrodnicze jest szczególnie intensywny. Jej celem jest przedstawienie pełnego wykazu flory roślin naczyniowych tego obszaru na podstawie dotychczasowych opracowań botanicznych, materiałów zielnikowych oraz własnych badań terenowych.

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oraz Żonie i Córce za wsparcie i wyrozumiałość

składam serdeczne podziękowania

Synopsis of the vascular plant flora of the Silesian Upland

Summary

The aim of the study is to summarize and verify the data on the vascular plants flora of the Silesian Upland. The information about the occurrence of all permanently established species recorded in the study area (approximately 300,000 records in total) was gathered on the basis of the existing literature, herbarium collections, available databases and unpublished results of various field studies. The monograph contains the complete list of very rare and very rare species (i.e. with up to 25 present localities) occuring in the Silesian Upland.

The earliest information about the flora of the Silesian Upland come from the end of the 18th century (Mattuschka 1776; Krocker 1787). The more detailed floristic data can be found in the following monographs: Wimmer and Grabowski (1827, 1828, 1829), Grabowski (1843), Wimmer (1844, 1857), Fiek (1881) i Schube (1903).

After World War II further field studies were carried out in the area by Polish florists and naturalists from academic centers in Katowice, Opole, Wrocław and others (e.g. Dobrzańska 1955; Mądalski et al. 1961, 1962, 1963; Kowal et al. 1962; Serwatka 1962, 1964, 1965; Wachowska-Serwatka 1962; Michalak 1963, 1964, 1965, 1968, 1973, 1976; Ciaciura and Kowal 1964; Ciaciura 1965, 1966, 1968, 1970, 1971, 1972; Sendek 1965, 1971; Żukowski 1965, 1966, 1969, 1974; Krawiecowa and Kuczyńska 1970; Ciaciura and Mądalski 1971; Kuczyńska 1973, 1974; Szotkowski 1971; Celiński et al. 1974–1975, 1976, 1979, 1982, 1983; Michalak and Sendek 1974–1975; Baron 1977; Kuźniewski 1977; Sendek and Wika 1978–1979; Mazaraki 1979a,b, 1981; Dobrzańska 1980; Magiera 1980).

Many papers presenting the localities of rare and protected plants and also the complete flora of selected areas were published in the following years (e.g. Szotkowski 1988; Cabała 1990; Jędrzejko et al. 1991; Stebel and Domański 1993; Rostański 1994; Urbisz and Urbisz 1994a,b, 1998, 2014; Spałek 1996, 1997a,b,c,d, 1999, 2002, 2004, 2005, 2006a,b, 2012; Urbisz 1996, 1997, 2003, 2018, 2019; Domański et al. 1997; Stebel et al. 1997; Żarnowiec et al. 1997; Bernacki 1998, 2000; Dajdok et al. 1998a,b; Dubiel et al. 2000; Nowak et al. 2000; Krotoski 2001, 2005a,b, 2007, 2008, 2009, 2010a,b, 2012a,b; Sojka 2001, 2005; Babczyńska-Sendek et al. 2003; Nowak and Nowak 2004, 2005a,b, 2007, 2008a,b; Babczyńska-Sendek 2005; Kowalczyk 2005, 2009, 2011; Nowak 2005, 2011; Zalewska-Gałosz 2008; Krajewski 2009, 2011a,b, 2012a,b, 2013, 2016, 2017; Błońska 2012, 2013; Nowak et al. 2011; Wąsowicz et al. 2011; Piwowarczyk 2012a,b,c, 2014a,b; Folcik and Urbisz 2013; Halabowski et al. 2016). Moreover, it is worth to mention the regional red lists […] or red books of vascular plants occurring in the Silesian Upland (Bernacki et al. 2000; Nowak and Spałek 2002; Nowak i in. 2003; Parusel and Urbisz 2012).

In the last fifty years detailed studies have also been conducted on the flora of selected parts of the Silesian Upland: The Tarnowskie Góry Ridge (Kobierski 1974), the middle part of the Katowice Upland (Sendek 1984), Rybnik Plateau (Urbisz 1996), Jaworzno (Tokarska-Guzik 1999), the eastern part od the Tarnowskie Góry Ridge (Nowak 1999), the south-western part of the Katowice Upland (Urbisz 2001), the western part of the Tarnowskie Góry Ridge (Błażyca-Szczerbowska and Urbisz 2016) and Chełm (Folcik and Urbisz 2020). Apart from the first two

monographs, all the above-mentioned works were carried out with the use of the cartogramme method, and the data collected therein constitutes the basis for this monograph.

The Silesian Upland is the geographical region in southern Poland, covering an area of approximately 4,000 square km. According the physical-geographical division of Poland, it is the macroregion which belongs to the Cracow-Silesian Upland subprovince and Polish Uplands province. The Silesian Upland consists of 5 mesoregions (Katowice Upland, Tarnowskie Góry Ridge, Rybnik Plateau, Jaworzno Hills and Chełm). It is the biggest industrial and urbanized area in Poland (Kondracki 1988).

Due to many years of floristic data collection in dedicated computer database and software, used for a long time to collect records from the studied mesoregion, in this monograph the borders of the Silesian Upland follow the older edition of Physical Geography of Poland (Kondracki 1988).

According to the administrative division, the Silesian Upland is located in the Silesian Voivodeship. Only a small fragment of its westernmost part belongs to the Opolskie Voivodeship, and the easternmost part to the Małopolskie Voivodeship. In the study area, the largest cities in terms of the number of inhabitants are Katowice, Sosnowiec, Gliwice, Zabrze, Bytom, Rybnik, Ruda Śląska, Tychy, Dąbrowa Górnicza and Chorzów (fig. 1).

The average elevation a.s.l. of the Silesian Upland is 250–350 m. The highest point is Góra Świętej Anny (408 m a.s.l.). The geology of this region is very diversified. The most economically important are the Upper Carboniferous coal beds. Podzolic soils dominate in the Silesian Upland, while brown, marsh spoils and rendzinas are less frequent. (Lazar 1962). The study area is located on the border of main drainage divide of the Vistula and Odra rivers. The main rivers of the region are Przemsza, Brynica, Kłodnica and Ruda. The short distance from the exit of the Moravian Gate contributes to the mitigation of climatic conditions which are manifested by warming, extension of the growing season and an increased frequency of rains and hailstorms (Cimała et al. 1985; Kruczała 2000).

This monograph attempts to organize and summarize various types of data on the vascular plants locations recorded in the Silesian Upland. The following sources were taken into account:

- literature (monographs, original papers, environmental valorisation for local governments, communes and master or doctoral theses graduated from the Faculty of Biology […] and Environmental Protection, University of Silesia – WBiOŚ UŚ; nowadays the Faculty of Environmental […] Sciences),
- herbarium collections (the most numerous data sets come from the Laboratory […] of Botanical Documentation and Scientific Herbarium of the University of Silesia; herbaria acronyms are given according to Mirek i et al. 1997),
- databases – Distribution Atlas of Vascular Plants of Poland (ATP), BioGeo-Silesia (BGS), the Upper Silesia Natural Heritage Center (CDP) and the Regional Environmental Protection Directorate in Katowice (RDOŚ),
- unpublished data (npb.) – other authors and own field studies.

The research subject are mainly vascular plants which are permanently established in Poland (Mirek et al. 2002, Tokarska-Guzik et al. 2012). Casual taxa occurring in the study area (ephemerophytes, ergasiophygophytes and planted or cultivated trees and shrubs) are included but for these groups of species the list of localities was omitted. Only the most important data sources are cited (papers, monographs, herbarium collections), where further information can be found.

The localities of permanently established species were divided into two groups: historical (published before 1990) and present (after 1990). Historical localities were described in the traditional form (locality – city, village etc., author, date). The frequency category the species belong to was determined by the number of present localities. The distribution maps are based on car-

togramme method – the study area was divided into equal units (mainly squares). Division into the cartogramme units (10 x 10 km squares) and its designations according to the Distribution Atlas of Vascular Plants in Poland – ATPOL (Zając 1978) is are shown in Fig. 2. Each square unit was divided into 25 basic cartogramme units – 2×2 km squares. A single locality is interpreted as an occurrence of the species in such a square. In the end, the study area was divided into over 1000 basic cartogramme units. If, on the basis of the given location, it was not possible to precisely determine the basic cartogramme unit within which the site was located then the "most probable" square was arbitrarily selected, i.e. the square containing the largest area of habitats where a given species occurs most often.

For permanently established, common, very frequent and frequent species the precise list of localities was not provided. Further data on these species distribution can be found in other monographs on flora of selected cities or whole mesoregions of the Silesian Upland (Kobierski 1974; Sendek 1984; Urbisz 1996; Nowak 1999; Tokarska-Guzik 1999; Urbisz 2001; Nowak et al. 2011; Urbisz and Urbisz 2014; Błażyca-Szczerbowska and Urbisz 2016; Folcik and Urbisz 2020). For not frequent species, the part of the Silesian Upland with the localities concentration was additionally given, such as […] the most important data sources with the species distribution details. The precise list of localities (historical and present ones) is given only for rare and very rare species i.e. with the number of localities not exceeding 25.

In the given list, the species were ranked alphabetically. The nomenclature of the species follows Mirek et al. (2002) and The Plant List (2013). Hybrid taxa were designated with the × symbol.

All the species listed include the following information:

1. Number of for permanently established species or anthropophytes found locally naturalised in Poland. Species whose occurrence in the Silesian Upland is doubtful (species given by mistake, misidentificated, conspecific, distributed mainly outside the study area) and species not permanently established were not numbered. Description of such a species was given with a smaller font.
2. Latin name of the species (permanently established species bolded).
3. Polish name of the species (if available).
4. Latin name of the family.
5. Geographical-historical group. The Trzcińska-Tacik (1979) and Kornaś (1981) classifications were used. The following groups have been distinguished:

R. – native species – species that originated and evolved in a given area or colonised this area spontaneously without any human intent
[*] – permanently established species with uncertain status in the flora of Poland
Ar. – archaeophytes – species introduced before the 15th century
Ke. – kenophytes – species introduced from the beginning of the 16th century
Ke?. – "potential" kenophytes – permanent establishment of species in the study area, not sufficiently documented, enough documented but species locally naturalised in Poland (Mirek et al. 2002, Tokarska-Guzik et al. 2012)
Ef. – ephemerophytes – ephemeral species, accidentally brought, not established
Erg. – ergasiophygophytes – not established species, escaping from the cultivation
U. – not established cultivated or planted species (only woody species taken into account).

6. Phytosociological class, in which communities a given species occurs. Phytosociological affiliation was adapted from the following: Ellenberg et al. 1992; Zarzycki et al. 2002; Matuszkiewicz 2012; Zając and Zając 2019. The following abbreviations were used:

Agr.i.r. – *Agropyretea intermedio-repentis* (semiruderal xerothermic communities)
Al.glut. – *Alnetea glutinosae* (swamp forests – alder carrs)
Amm. – *Ammophiletea* (coastal sand vegetation – secondary habitats in the study area)
Art. – *Artemisietea* (ruderal habitats and moist lagg)
Asp.rup. – *Asplenietea rupestria* (rock crevices communities)

Ast.tr. – *Asteretea tripolium* (halophilous communities)
Bet.Ad. – *Betulo-Adenostyletea* (tall herb)
Bid.tr. – *Bidentetea tripartiti* (aquatic therophytes communities)
Ep.ang. – *Epilobietea angustifolii* (herbaceous vegetation on forest clearings)
Er.Pin. – *Erico Pinetea* (xero- and basophilous montane pine forests)
Fest.Br. – *Festuco-Brometea* (steppe grasslands)
Is.Nan. – *Isoëto-Nanojuncetea* (communities of small therophytes on wetland areas)
Kg.Cc. – *Koelerio glaucae-Corynephoretea canescentis* (sand grasslands)
Lem. – *Lemnetea minoris* (communities of small plants in stagnant or slowly flowing waters)
Lit.un. – *Littorelletea uniflorae* (communities of small aquatic or semi-aquatic perennials)
Mol.Ar. – *Molinio-Arrhenatheretea* (meadows and pastures)
Mon.Car. – *Montio-Cardaminetea* (spring areas communities)
Nar.Cal. – *Nardo-Callunetea* (acid grasslands and heathlands)
Ox.Sph. – *Oxycocco-Sphagnete* (wet heaths and high peat bogs)
Phr. – *Phragmitetea* (rush vegetation)
Pot. – *Potametea* (communities of rooted aquatic plants)
Qu.r.p. – *Quercetea robori-petraeae* (acidophilous oak forests)
Qu.Fag. – *Querco-Fagetea* (deciduous forests)
Rh.Prun. – *Rhamno-Prunetea* (shrub communities)
Rup.mar. – *Ruppietea maritimae* (halophilic communities of aquatic plants)
Sal.pur. – *Salicetea purpureae* (forests and willow scrubs in the river valleys)
Sch.Car. – *Scheuchzerio-Caricetea nigrae* (marshy meadows and bogs)
Ses.var. – *Seslerietea variae* (alpine basophilous grasslands)
St.med. – *Stellarietea mediae* (fields and therophytes of ruderal habitats)
Th.rot. – *Thlaspietea rotundifolii* (vegetation of mobile screes)
Tri.Ger. – *Trifolio-Geranietea sanguinei* (fringe communities)
Utr.i.m. – *Utricularietea intermedio-minoris* (communities occurring in dystrophic lakes and ponds)
Vac.Pic. – *Vaccinio-Piceetea* (coniferous forests)

7. Habitats where a species occurs.

8. Frequency of occurrence.

Number of cartogramme units	Category
1–5	very rare
6–25	rare
26–125	not frequent
126 –625	frequent
>625	common

9. The list of localities.

Hist. – historical localities (till 1989) in chronological order.
Wsp. – present localities (from 1990).
The following information is presented:

- number of the cartogramme unit (for present localities only);
- locality (district, village, town, forest complexes etc.);
- the name of the author/authors (the first and the second) and a year of publication or plant collection;
- for herbarium collection and databases, the herbarium acronyms and database abbreviation were given.

If a given locality was cited more than twice, only the first available (the oldest) and the most recent data source was given.

General abbreviations:

? – uncertain data
cz. – part
E – east
f. – form
jez. – lake, pond
k. – in the vicinity of/by
kol. – colony
leś. – forests
m. – between
N – north
os. – housing estate
rez. – nature reserve
S – south
subsp. – subspecies
ul. – street
var. – varietes
W – west

Conclusions

1. The complete vascular plant flora of the Silesian Upland consists of 2373 taxa (species and hybrids) – 1863 permanently established and 510 not established species. Additionally, in the floristic list 77 species, whose occurrence in the Silesian Upland is doubtful, are included. The present floristic composition (data since 1990) counts 1629 permanently established species and after 1989, 234 were was not confirmed. Over 300 000 sets of floristic data were collected.
2. Native plant recorded – 1349 species, 19 with uncertain status in the flora of Poland, 151 archaeophyctes, 270 kenophytes, 74 "potential" kenophytes, 65 ephemerophytes, 206 ergasiophygophytes and 239 planted woody species.
3. The most numerous species belong to the following phytosociological classes: *Molinio-Arrhenatheretea* (234), *Stellarietea mediae* (225), *Querco-Fagetea* (191) and *Artemisietea* (188).
4. In the study area 84 mountain species descending into lowlands were recorded.
5. The list of protected vascular plants (Rozporządzenie 2014) occuring in the Silesian Upland consists of 200 species (113 strictly and 87 partially protected). After 1989, as many as 35 of them were not confirmed.
6. As many as 754 species (85%) are listed in the Red List of Vascular Plants of Silesian Voivodeship (containing 887 species) and 479 (91%) – in the Red List of Vascular Plants of Opole Voivodeship (consisting of 526 species). Probably a significant part of them became extinct due to intensive industrial development and urbanization.
7. The vascular plants flora of the Silesian Upland is exceptionally rich and diverse, providing this macroregion a leading position in Poland in terms of species richness.

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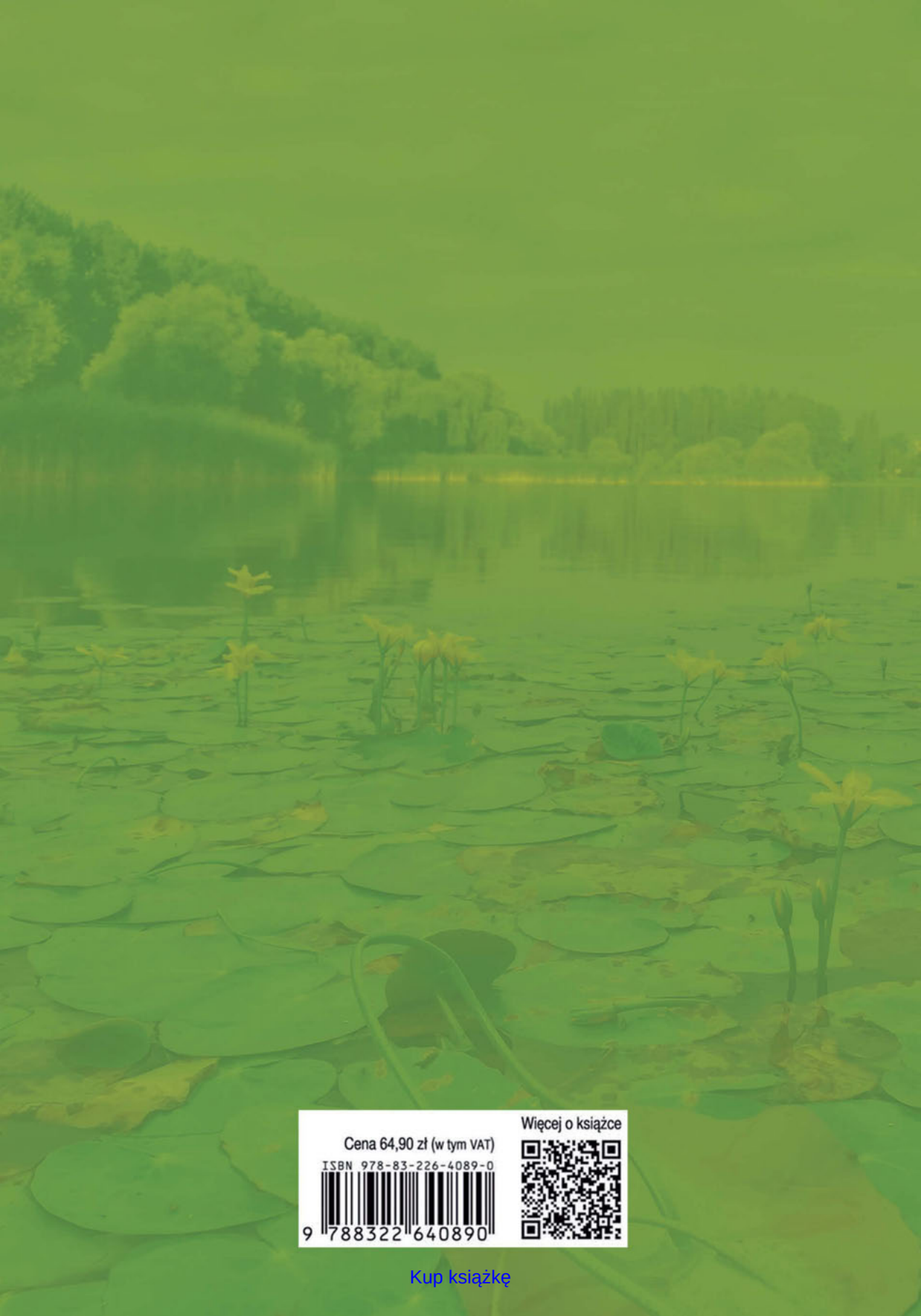

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