

Flora of Dragoevska Mountain (Northeastern Bulgaria)

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Abstract

Dragoevska Mountain is located in Northeastern Bulgaria. Inventory of its flora is made for the first time. As a result, 822 species of wild vascular plants from 400 genera and 83 families are described. In phytogeographical terms, the flora of the mountain includes 50 floristic elements. Of these, 2 species are Bulgarian endemics and 9 species are Balkan endemics. The relic species are 57 and are represented mainly by tertiary relicts. The species with conservation status are 41. The hemicryptophytes predominate among the life forms. Among the biological types with most species are perennial and annual herbaceous plants. The number of medicinal plants is significant: almost 50% of all established plants in the Mountain are medicinal plants. More than half of the plant species in the mountain are anthropophytes. The number of invasive species is 18. There are 10 new species found in the floristic region Northeastern Bulgaria, 2 of which are new species for Northern Bulgaria.

Keywords: *Dragoevska Mountain, flora, floristic analysis, vascular plants*

1. Introduction

Dragoevska Mountain is part of Eastern Forebalkan in Northeastern Bulgaria. It is located between Golyama Kamchiya River and the Brestova River. It is oriented to the northwest-southeast. Its length is about 32 km and its maximum width is 8 km. The area of the mountain is about 190 km². Dragoevska mountain's boundaries are as follows: To the northwest, Golyama Kamchiya River separates it from Preslavska Mountain. To the northeast, Dragoevska Mountain borders on Smyadovsko pole and part of Golyama Kamchiya River and here, at its foot, is the provisional boundary between Eastern Danube Plain and Eastern Forebalkan. To the southwest, Dragoevska Mountain borders on Gerlovska Valley, and to the south on Rishka Valley. To the east, Lopushanska River (the right tributary of Golyama Kamchiya River) and Ticha Dam separated it from Varbishka Mountain. To the south, Dragoevska Mountain and Varbishka Mountain are connected through low saddle (390 m) in the west of Rish village [1].

Near the northern slope is Dragoevo, the village that gave its name to the mountain. There are 2 small towns in the vicinity: Veliki Preslav and Smyadovo. There are 4 other villages near the southern slope of the mountain: Veselinovo, Aleksandrovo, Rish, and Tushovitsa.

Dragoevska Mountain consists of folded limestone-marble layers of the Preslav anticline, dating from Lower Cretaceous. The ridge of the mountain is flat, slightly inclined to the southeast, with an average altitude of 500-600 m. The highest point of the mountain is called Otuka (608.7 m a.s.l.), and is located in its northwest part [1].



Fig. 1. Geographical position of Dragoevska Mountain, marked with yellow point in the eastern part of the Balkan Peninsula (at the bottom right is a map of Europe)

Dragoevska Mountain is located in the Transcontinental Climatic Area, a climatic region of the Dobrudzha Plateau. The mountain's climate is impacted by the Ludogorsko Plateau and Dobrudzha Plateau, located to the north, the Eastern Stara Planina, located to the south, as well as the Black Sea, located to the east. The predominant winds are western and northwestern; and in spring and summer the prevailing winds are eastern and northeastern [2].

According to Bulgaria's soil-geographic zoning, Dragoevska Mountain is located in the East Balkan soil province, which is part of the Carpathian-Danube soil area. The soils in the mountain are three types (according to the FAO classification): leptosols (LP), luvisols (LV), and planosols (PL). The leptosols are of subtype umbric (LPu). The luvisols in the mountain are two subtypes: haplic (LVh) and albic (LVa). The planosols in the mountain are of subtype dystic (PLd) [3].

From a botanical-geographic perspective, Dragoevska Mountain is located in the Illyrian province of the European broad-leaved forest area [4]. In floristic terms, the mountain is situated in the Northeastern Bulgaria floristic region [5].

The vegetation of the mountain is represented by the following plant communities: Mizian beech (*Fageta moesiaca*) forests; Mixed Mizian beech (*Fagus sylvatica* ssp. *moesiaca* (K.Maly) Hyelmq.) and ordinary hornbeam (*Carpinus betulus* L.) forests; Mixed Mizian beech (*Fagus sylvatica* ssp. *moesiaca* (K.Maly) Hyelmq.), Oriental hornbeam (*Carpinus orientalis* Mill.) and ordinary hornbeam (*Carpinus betulus* L.) forests; Mixed Mizian beech (*Fagus sylvatica* ssp. *moesiaca* (K.Maly) Hyelmq.), balkanic durmast (*Quercus dalechampii* Ten.), mountain ashtree (*Fraxinus excelsior* L.), sycamore (*Acer pseudoplatanus* L.), Hyrcanian maple (*Acer hyrcanum* Fush. & Mey.), etc. forests; Hornbeam-balkanic durmast (*Querceto-Carpineta betuli*) forests; Balkanic durmast (*Querceta dalechampii*) forests; Mixed balkanic durmast (*Quercus dalechampii* Ten.), cerris oak (*Quercus cerris* Ten.) and *Quercus frainetto* Ten. forests; Mixed balkanic durmast (*Quercus dalechampii* Ten.) and Oriental hornbeam (*Carpinus orientalis* Mill.) forests, partly of secondary origin; Mixed cerris oak (*Quercus cerris* Ten.) and Oriental hornbeam (*Carpinus orientalis* Mill.) forests, partly also with flowering-ash (*Fraxinus ornus* L.); Forest and shrubs of Oriental hornbeam (*Carpinus orientalis* Mill.); Farm areas, replacing Mizian beech (*Fagus sylvatica* ssp. *moesiaca* (K.Maly) Hyelmq.) and ordinary hornbeam (*Carpinus betulus* L.); Farm areas, replacing balkanic durmast (*Quercus dalechampii* Ten.) forests; Farm areas, replacing mixed cerris oak (*Quercus cerris* Ten.) and *Quercus frainetto* Ten. Forests [6].

There is no data for research on the Dragoevska Mountain's flora. In 1885, Josef Velenovsky conducted botanical research in Northern Bulgaria [7]. The closest point of its route is Shumen. There is no evidence that he visited the area of Dragoevska Mountain. Velenovsky's project, however, was not to describe the flora of individual geographic objects, but on the entire territory of Bulgaria. To date, the floristic studies in the region describe the flora of Bulgaria and present the results according to administrative units [8].

On the Dragoevska Mountain's territory are located two protected areas and two protected zones of the Natura 2000 ecological network. The protected areas are Patleyna Managed Nature Reserve and Div Rozhkov Protected Site. The protected zones are Ticha (with code BG0000178) and Ekocoridor Kamchiya-Emine (with code BG0000393) [9].

The goal of our study is to inventorize the flora of Dragoevska mountain and to conduct floristic analysis of the data obtained.

2. Materials and Methods

The present study was conducted on the route method in the period 2011-2015. The following sources are used in the determination of the taxa and the life forms: Handbook for Plants in Bulgaria [10], Flora of the People's Republic of Bulgaria [11, 12], and Flora of the Republic of Bulgaria [5, 13]. The names of the species are under Conspectus of the Bulgarian vascular flora [14]. The abbreviations of the authors' names of the plants are according to the International Plant Names Index [15]. The names of the family are according to APG IV [16].

The life forms are represented in the system of Raunkiaer [17]. The biological types are defined by Delipavlov et al. [10]. The floristic elements and the endemics are according to Asyov et al. [14]. The relics are presented according to Zahariev [18].

The conservation statute is recognized using the following documents: Annex II to Council Directive 92/43/EEC of the European Community to protect natural habitats and of wild fauna and flora [19], Appendix I to Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) [20], Appendix II to Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) [21], Red Data Book of the Republic of Bulgaria, Vol. 1. Plants and Fungi [22], Red List of Bulgarian vascular plants [23], Annex III and Annex IV to Act on Amending and Supplementing the Biological Diversity Act of the Republic of Bulgaria [24]. Recorded are the species included in Order for special arrangements for the conservation and use of the medicinal plants in Bulgaria [25].

The medicinal plants are under the Annex to the Medicinal Plants Act of the Republic of Bulgaria [26], Stoyanov [27, 28], Stoyanov and Kitanov [29], Petkov [30], Pamukov and Ahtardzhiev [31], Landzhev [32], Nikolov [33]. The anthropophytes are presented by Stefanov and Kitanov [34]. The Invasive alien plant species are by Petrova et al. [35].

3. Results and Discussion

As a result of our study, 822 species of wild vascular plants belonging to 400 genera and 83 families were described. This represents 20.04% from all species, 43.81% from all genera and 59.71% from all plant families in Bulgaria. The described species represent 36.30% of the vascular plants distributed in the range 0-500 m a.s.l. according to Peev et al. [36]. Systematic list of identified species is represented in Appendix.

The taxonomic structure of the flora is as follows: The Division Lycopodiophyta includes 1 family, 1 genus, and 1 species. The Division Equisetophyta is represented by 1 family, 1 genus, and 3 species. The Division Polypodiophyta consists of 4 families, 4 genera, and 6

species. The Division Magnoliophyta includes the most taxa: 77 families, 394 genera and 812 species. The distribution of taxa is as follows: Class Magnoliopsida includes 62 families, 312 genera, and 657 species; Class Liliopsida includes 15 families, 82 genera, and 155 species.

Most families and genera are represented with smaller number of lower taxa: from 1 to 4. The majority of families, 67 (80.72%) are represented by 1–4 genera. Only 16 (19.28%) of the families are represented by 5 or more genera (Table 1). Most genera belong to the following families: Asteraceae (48 genera), Poaceae (45 genera), and Apiaceae (30 genera). Most families, 49 (59.04%) are represented by 1–4 species. The remaining 34 families (40.96%) are represented by 5 or more species (Table 1). Most species belong to the following families: Asteraceae (105 species), Poaceae (73 species), Fabaceae (70 species), Lamiaceae (59 species), Rosaceae (41 species), Apiaceae (38 species), Scrophulariaceae (36 species), and Brassicaceae (33 species). Most genera are represented by 1–4 species. Only 34 (8.50%) genera are represented by 5 or more species. Most species belong to the following genera: *Lathyrus* L. (14 species), *Veronica* L. (13 species), *Trifolium* L. (12 species), and *Carex* L. (11 species).

Table 1. Families with most genera and species (5 or more in number)

Families	Genera	Species
Amaranthaceae	<5	8
Amaryllidaceae	<5	8
Apiaceae	30	38
Asparagaceae	6	14
Asteraceae	48	105
Betulaceae	<5	6
Boraginaceae	11	21
Brassicaceae	23	33
Campanulaceae	<5	10
Caprifoliaceae	8	14
Caryophyllaceae	14	24
Convolvulaceae	<5	6
Cyperaceae	5	15
Euphorbiaceae	<5	11
Fabaceae	22	70
Fagaceae	<5	6
Geraniaceae	<5	7
Juncaceae	<5	10
Lamiaceae	25	59
Malvaceae	5	7
Oleaceae	<5	7
Onagraceae	<5	6
Orchidaceae	8	14
Papaveraceae	<5	6
Poaceae	45	73

Polygonaceae	<5	16
Primulaceae	<5	5
Ranunculaceae	9	18
Rosaceae	14	41
Rubiaceae	<5	12
Salicaceae	<5	8
Sapindaceae	<5	6
Scrophulariaceae	13	36
Violaceae	<5	5

The phytogeographical structure of the flora includes 50 floristic elements. The largest number of species belongs to the following floristic elements: European-Asiatic (15.45%), European-Mediterranean (14.48%), and Sub-Mediterranean (12.65%). This distribution of floristic elements can be explained with the geographic location of the studied area.

The endemic taxa are represented by 2 Bulgarian endemic species and 9 Balkan endemic species. The total number of endemic taxa is 11 species (1.34% of all species). It is significantly lower than the average in the country, which is 4.9% (Peev et al., 1998). The reason for this is the low altitude of the studied area characterized by a smaller number of endemic plant species.

The relic species are 57 (6.93% of all species). The Tertiary relics are 50 species (6.57% of all species). The Quaternary relics are 3 species (0.36% of all species). 1 species of these is Quaternary glacial relic and 2 species are Quaternary interglacial relics. The small number of quaternary relics proceeds from the same reason as with the representation of endemic species, namely the low altitude.

The species with conservation status are 41 species (4.99% of all species). One species is included in the Annex II of Directive 92/43/EEC. 2 species are included in the Annex V of Directive 92/43/EEC. One species is included in the Appendix I of Convention on the Conservation of European Wildlife and Natural Habitats (Berne Convention). 16 species are included in the Appendix II of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). 5 species in two categories: Endangered (3 species) and Vulnerable (2 species) are included in the Red Data Book of the Republic of Bulgaria. 18 species are included in the Red List of Bulgarian vascular plants in following categories: Critically Endangered (1 species), Endangered (3 species), Vulnerable (12 species), Nearly Threatened (1 species), and Least Concern (1 species). 34 species are included in Annex III and Annex IV of the Act on Amending and Supplementing the Biological Diversity Act of the Republic of Bulgaria. The collecting of herbs from natural habitats is prohibited for 10 species.

Restricted collection of herbs from natural habitats applies to 7 species.

In our analysis of life forms (Table 2), we established dominant participation of hemicryptophytes: 384 species (46.72%). Next in number of species are the following groups: therophytes, 175 species (21.29%), phanerophytes, 103 species (12.53%), and cryptophytes, 89 species (10.83%). This distribution is explained with the mountain's location in the Trans-Continental Climatic Area and the large area of forest habitats.

Table 2. Distribution of the species by life form

Group	Subgroup	Number of species	Percentage
Phanerophytes (Ph)		103	12.53
	Mega-phanerophytes	5	0.61
	Meso-phanerophytes	50	6.08
	Micro-phanerophytes	30	3.65
	Nano-phanerophytes	18	2.19
Chamaephytes (Ch)		24	2.92
Hemicryptophytes (H)		384	46.72
Therophytes-Hemicryptophytes (Th-H)		47	5.72
Cryptophytes (Cr)		89	10.83
	Geophytes	74	9.00
	Helophytes	9	1.09
	Hydrophytes	6	0.73
Therophytes (Th)		175	21.29

The biological spectrum includes all biological types, as well as all possible transitions between them (Table 3). Most species are perennial herbaceous plants, 448 species (54.50%) and annual herbaceous plants, 175 species (21.29%). The dominant presence of perennial herbaceous plants can be explained by the wide variety of plant communities and habitats on the territory of Dragoevska Mountain. The relatively large number of annual herbaceous plants is due to the presence of natural habitats with shallow and eroded soil cover.

Table 3. Distribution of the species by biological type

Biological type	Symbol	Number of species	Percentage
Annual herbaceous plant	a	175	21.29
Annual or biannual herbaceous plant	a-b	38	4.62
Annual or perennial herbaceous plant	a-p	9	1.09
Biannual herbaceous plant	b	30	3.65
Biannual or perennial herbaceous plant	b-p	21	2.55
Perennial herbaceous plant	p	448	54.50
Perennial herbaceous plant or shrub	p-sh	2	0.24
Shrub	sh	38	4.62
Shrub or tree	sh-t	16	1.95
Tree	t	45	5.47

The medicinal plants of Dragoevska Mountain are 388 species that belong to 259 genera and 72 families. This represents 47.20% of the species, 64.75% from all genera and 86.75% from all plant families of vascular plants, identified in the study area. They are distributed within the following groups: 37 species of trees (9.54% of all medicinal plants), 23 species of shrubs (5.93% of all medicinal plants), 209 species of perennial plants (53.87% of all medicinal plants), 14 species of biennial plants (3.61% of all medicinal plants) and 57 species of annual plants (14.69% of all medicinal plants). The remaining 48 species (12.37% of all medicinal plants) belong to transitional groups between them.

The presence of anthropophytes species is significant, 454 species (55.23%) that are distributed as follows: 14 tree species (3.08% of all anthropophytes), 17 shrub species (3.74% of all anthropophytes), 205 perennial plants species (45.15% of all anthropophytes), 22 biennial plants species (4.85% of all anthropophytes) and 142 annual plants species (31.28% of all anthropophytes). The remaining 54 species (11.89% of all anthropophytes) belong to the transitional groups between them. The number of adventive species in the flora of the mountain is 20 (2.43%). The cosmopolitan species are 38 (4.62%). These results can be explained by the presence of

settlements and arable land adjacent to the mountain. Wood production is also a major cause for the introduction of anthropopytes and adventive species.

There are 18 invasive species in the mountain's flora. These species are: *Acer negundo* L., *Ailanthus altissima* (Mill.) Swingle, *Amaranthus retroflexus* L., *Amorpha fruticosa* L., *Bidens frondosa* L., *Datura stramonium* L., *Elaeagnus angustifolia* L., *Erigeron annuus* (L.) Pers., *Erigeron canadensis* L., *Erigeron sumatrensis* Retz., *Galinsoga parviflora* Cav., *Juncus tenuis* Willd., *Laburnum anagyroides* Medik., *Robinia pseudoacacia* L., *Solidago gigantea* Aiton, *Sorghum halepense* (L.) Pers., *Xanthium italicum* Moretti, *Xanthium spinosum* L.

Most invasive plants (12 species) are herbaceous plants, 4 species are trees and 2 species are shrubs. Most of the invasive species (6 species) originate from North America. 5 species originate from both North America and South America. 3 species originate in South America and 2 species are from Asia. One species originates from other parts of Europe and one species originates from the Mediterranean.

In the DASIE List of Worst Invasive Alien Species threatening biodiversity in Europe [37], are included 2 species: *Ailanthus altissima* (Mill.) Swingle and *Robinia pseudoacacia* L.

In the List of Invasive Species of EPPO [38] are included 3 species: *Ailanthus altissima* (Mill.) Swingle, *Amorpha fruticosa* L., and *Solidago gigantea* Aiton. In the List of Observed Invasive Species of EPPO [38] is included *Bidens frondosa* L.

The main routes for the spread of invasive species in the mountain are the road infrastructure and the presence of rivers and water basins.

We recommend monitoring the distribution and count of the invasive species and taking measures to control their numbers in the protected areas and zones.

As a result of the study we have identified 10 species, which are new to the Northeastern Bulgaria floristic region. These species are: *Avena clauda* Dur., *Brassica juncea* (L.) Czern. & Coss. (by the river between Smyadovo town and Veselinovo village), *Juncus acutiflorus* Ehrh. ex Hoffm. (by the river between Smyadovo town and Veselinovo village), *Juncus tenuis* Willd. (Dragoevo Dam), *Ophrys insectifera* L. (between Dragoevo village and Dragoevo Dam), *Persicaria minor* (Huds.) Opiz (by forest road between Smyadovo town and Veselinovo village), *Peucedanum cervaria* (L.) Lapeyr (by asphalt road between Smyadovo town and Veselinovo village), *Potamogeton perfoliatus* L. (Dragoevo Dam), *Rubus thyrsoiflorus* Weihe & Nees ex Bluff & Fingerh. (Patleyna Managed Nature Reserve), *Trachystemon orientalis* (L.) G. Don (by forest road between Smyadovo town and Veselinovo village). 2 of these species are new

to the territory of Northern Bulgaria: *Juncus acutiflorus* Ehrh. ex Hoffm. and *Ophrys insectifera* L. The investigation of the distribution of these species in Bulgaria shows that only 3 of these species are distributed in the Stara Planina floristic region (Eastern part), which is situated in close proximity to Dragoevska Mountain. These species are: *Persicaria minor*, *Rubus thyrsoiflorus*, and *Trachystemon orientalis*. Taking into account the localities in which these species are found, it can be assumed that they were spread by means of transportation via the road infrastructure and via waterfowl on the banks of the water basins.

4. Conclusions

The results of the inventory of vascular plants on the Dragoevska Mountain territory show a considerable variety of vascular plants. The obtained results can be used for comparison with the data on the flora of different geographic sites in Northeastern Bulgaria, as well as in the whole country.

Appendix

Systematic list of species of vascular plants, established in Dragoevska Mountain (Northeastern Bulgaria)

Division Lycopodiophyta

Fam. Selaginellaceae: *Selaginella helvetica* (L.) Spring

Division Equisetophyta

Fam. Equisetaceae: *Equisetum arvense* L.; *Equisetum ramosissimum* Desf.; *Equisetum telmateia* Ehrh.

Division Polypodiophyta

Fam. Aspleniaceae: *Asplenium adiantum-nigrum* L.; *Asplenium ruta-muraria* L.; *Asplenium trichomanes* L.; *Phyllitis scolopendrium* (L.) Newm.

Fam. Athyriaceae: *Cystopteris fragilis* (L.) Bernh.

Fam. Hypolepidaceae: *Pteridium aquilinum* (L.) Kuhn

Fam. Polypodiaceae: *Polypodium vulgare* L.

Division Magnoliophyta

Class Magnoliopsida

Fam. Amaranthaceae: *Amaranthus blitoides* S.Watson; *Amaranthus retroflexus* L.; *Atriplex hastata* L.; *Atriplex patula* L.; *Beta trigyna* Waldst. & Kit.; *Chenopodium album* L.; *Chenopodium hybridum* L.; *Chenopodium murale* L.; **Fam. Anacardiaceae:** *Cotinus coggygria* Scop.; **Fam. Apiaceae:** *Aegopodium podagraria* L.; *Anethum graveolens* L.; *Angelica pancicii* Vandas ex Velen; *Angelica sylvestris* L.; *Anthriscus cerefolium* Hoffm.; *Berula erecta* (Huds.) Coville; *Bupleurum affine* Sadler; *Bupleurum praealtum* L.; *Bupleurum rotundifolium* L.; *Caucalis platycarpus* L.; *Chaerophyllum bulbosum* L.; *Chaerophyllum temulentum* L.; *Cnidium silaifolium* Fiori & Paol.; *Conium maculatum* L.; *Daucus*

carota L.; *Eryngium campestre* L.; *Falcaria vulgaris* Bernh.; *Ferulago campestris* (Besser) Grecescu; *Ferulago sylvatica* (Besser) Rchb.; *Foeniculum vulgare* Mill.; *Heracleum sibiricum* L.; *Heracleum ternatum* Velen.; *Laser trilobum* Borkh. ex Gaertn.; *Malabaila graveolens* Hoffm.; *Myrrhoides nodosa* (L.) Cannon; *Oenanthe stenoloba* Schur; *Orlaya grandiflora* (L.) Hoffm.; *Pastinaca sativa* L.; *Pastinaca umbrosa* Steven ex DC.; *Peucedanum cervaria* Cusson ex Lapeyr.; *Physospermum cornubiense* DC.; *Pimpinella peregrina* L.; *Pimpinella saxifraga* L.; *Sanicula europaea* L.; *Seseli tortuosum* L.; *Sium latifolium* L.; *Tordylium maximum* L.; *Torilis arvensis* (Huds.) Link; *Turgenia latifolia* Hoffm.; **Fam. Apocynaceae:** *Vincetoxicum hirundinaria* Medik.; **Fam. Araliaceae:** *Hedera helix* L.; **Fam. Aristolochiaceae:** *Aristolochia clematitis* L.; *Asarum europaeum* L.; **Fam. Asteraceae:** *Achillea clypeolata* Sm.; *Achillea crithmifolia* Waldst. & Kit.; *Achillea millefolium* L.; *Achillea setacea* Waldst. & Kit.; *Anthemis cotula* L.; *Arctium lappa* L.; *Arctium minus* Bernh.; *Artemisia absinthium* L.; *Artemisia alba* L.; *Artemisia annua* L.; *Artemisia vulgaris* L.; *Aster amellus* L.; *Bellis perennis* L.; *Bidens cernua* L.; *Bidens frondosa* L.; *Bidens tripartita* L.; *Carduus candicans* Waldst. & Kit.; *Carduus crispus* L.; *Carduus hamulosus* Ehrh.; *Carduus pycnocephalus* L.; *Carlina acanthifolia* All.; *Carlina vulgaris* L.; *Carpesium cernuum* L.; *Carthamus lanatus* L.; *Centaurea affinis* Friv.; *Centaurea arenaria* M.Bieb.; *Centaurea calcitrapa* L.; *Centaurea cyanus* L.; *Centaurea diffusa* Lam.; *Centaurea phrygia* L.; *Centaurea rutifolia* Sm.; *Centaurea scabiosa* L.; *Centaurea solstitialis* L.; *Chondrilla juncea* L.; *Cichorium intybus* L.; *Cirsium arvense* (L.) Scop.; *Cirsium canum* (L.) All.; *Cirsium creticum* D'Urv.; *Cirsium ligulare* Boiss.; *Cirsium pannonicum* Link; *Cirsium vulgare* (Savi) Ten.; *Cota austriaca* Sch.Bip.; *Cota tinctoria* (L.) J.Gay.; *Crepis biennis* L.; *Crepis foetida* L.; *Crepis sancta* (L.) Babç.; *Crepis setosa* Haller f.; *Crupina vulgaris* Pers. ex Cass.; *Echinops sphaerocephalus* L.; *Erigeron annuus* (L.) Pers.; *Erigeron canadensis* L.; *Erigeron sumatrensis* Retz.; *Eupatorium cannabinum* L.; *Filago germanica* L.; *Galinsoga parviflora* Cav.; *Hieracium bauhinii* Besser; *Hieracium cymosum* L.; *Hieracium pilosella* L.; *Hieracium praealtum* Gochnat; *Hieracium racemosum* Waldst. & Kit. ex Willd.; *Inula britanica* L.; *Inula conyza* L.; *Inula ensifolia* L.; *Inula hirta* L.; *Inula oculus-christi* L.; *Inula salicina* L.; *Jacobaea aquatica* G.Gaertn., B.Mey. & Scherb.; *Jurinea ledebourii* Bunge; *Lactuca saligna* L.; *Lactuca serriola* L.; *Lactuca viminea* (L.) J.Presl. & C.Presl.; *Lapsana communis* L.; *Leontodon autumnalis* L.; *Leontodon crispus* Vill.; *Leontodon hispidus* L.; *Leucanthemum vulgare* Lam.; *Matricaria chamomilla* L.; *Mycelis muralis* Dumort.; *Petasites hybridus* (L.) G.Gaertn., B.Mey. & Scherb.; *Picris hieracioides* L.; *Picris echioides* L.;

Pulicaria dysenterica (L.) Bernh.; *Scorzonera austriaca* Willd.; *Scorzonera cana* (C.A.Mey.) Hoffm.; *Scorzonera hispanica* L.; *Scorzonera mollis* M.Bieb.; *Senecio vernalis* Waldst. & Kit.; *Solidago gigantea* Aiton; *Sonchus arvensis* L.; *Sonchus asper* (L.) Hill; *Sonchus oleraceus* L.; *Tanacetum corymbosum* (L.) Sch.Bip.; *Tanacetum parthenium* Sch.Bip.; *Tanacetum vulgare* L.; *Taraxacum officinale* F.H.Wigg.; *Taraxacum serotinum* Poir.; *Tephrosia papposa* (Rchb.) Schur; *Tragopogon dubius* Scop.; *Tragopogon pratensis* L.; *Tripleurospermum inodorum* (L.) Sch.Bip.; *Tripleurospermum tenuifolium* Freyn ex Freyn & E.Brandis; *Tussilago farfara* L.; *Xanthium italicum* Moretti; *Xanthium spinosum* L.; *Xeranthemum annuum* L.; **Fam. Berberidaceae:** *Berberis vulgaris* L.; **Fam. Betulaceae:** *Alnus glutinosa* (L.) Gaertn.; *Betula pendula* Roth; *Carpinus betulus* L.; *Carpinus orientalis* Mill.; *Corylus avellana* L.; *Corylus colurna* L.; **Fam. Boraginaceae:** *Anchusa officinalis* L.; *Buglossoides arvensis* (L.) I.M.Johnst.; *Buglossoides purpureoacerulea* (L.) I.M.Johnst.; *Cerinthe minor* L.; *Cynoglossum hungaricum* Simonk.; *Cynoglossum officinale* L.; *Echium italicum* L.; *Echium vulgare* L.; *Heliotropium europaeum* L.; *Myosotis arvensis* (L.) Hill.; *Myosotis aspera* Velen.; *Myosotis ramosissima* Rochel; *Myosotis stricta* Link ex Roem. & Schult.; *Nonea atra* Griseb.; *Nonea pulla* DC.; *Onosma aucherana* DC.; *Onosma thracica* Velen.; *Onosma visianii* Clementi; *Pulmonaria obscura* Dumort.; *Symphytum ottomanum* Friv.; *Trachystemon orientalis* (L.) G.Don; **Fam. Brassicaceae:** *Alliaria petiolata* (M.Bieb.) Cavara & Grande; *Alyssum minutum* Schlecht. ex DC.; *Alyssum montanum* L.; *Alyssum murale* Waldst. & Kit.; *Alyssum tortuosum* Waldst. & Kit.; *Arabis sagittata* (Bertol.) DC.; *Arabis turrita* L.; *Berteroa incana* (L.) DC.; *Brassica juncea* (L.) Czern.; *Calepina irregularis* Thell.; *Camelina sativa* (L.) Crantz; *Capsella bursa-pastoris* (L.) Medik.; *Cardamine bulbifera* Crantz; *Cardamine graeca* L.; *Cardamine impatiens* L.; *Cardaria draba* (L.) Desv.; *Conringia orientalis* (L.) Dumort.; *Descurainia sophia* (L.) Webb ex Prantl; *Erophila verna* (L.) Chevall.; *Erysimum cheiranthoides* L.; *Erysimum cuspidatum* DC.; *Erysimum odoratum* Ehrh.; *Fibigia clypeata* (L.) Medik.; *Lepidium campestre* (L.) W.T.Aiton; *Lunaria annua* L.; *Nasturtium officinale* R.Br.; *Raphanus raphanistrum* L.; *Rorippa prolifera* Simonk.; *Rorippa sylvestris* (L.) Besser; *Sinapis arvensis* L.; *Sisymbrium loeselii* L.; *Thlaspi alliaceum* L.; *Thlaspi perfoliatum* L.; **Fam. Campanulaceae:** *Campanula bononiensis* L.; *Campanula glomerata* L.; *Campanula grossekii* Heuff.; *Campanula lingulata* Waldst. & Kit.; *Campanula persicifolia* L.; *Campanula rapunculoides* L.; *Campanula sibirica* L.; *Campanula sparsa* Friv.; *Campanula trachelium* L.; *Legousia speculum-veneris* (L.) Chaix; **Fam. Cannabaceae:** *Cannabis sativa* L.; *Humulus lupulus* L.;

Fam. Caprifoliaceae: *Cephalaria transylvanica* (L.) Roem. & Schult.; *Dipsacus fullonum* L.; *Dipsacus laciniatus* L.; *Knautia arvensis* Coult.; *Knautia integrifolia* Bertol.; *Knautia macedonica* Griseb.; *Sambucus ebulus* L.; *Sambucus nigra* L.; *Scabiosa ochroleuca* L.; *Scabiosa rotata* M.Bieb.; *Scabiosa triniifolia* Friv.; *Valeriana officinalis* L.; *Valerianella turgida* Betsche; *Viburnum lantana* L.; **Fam. Caryophyllaceae:** *Arenaria serpyllifolia* L.; *Cerastium brachypetalum* Desp.; *Cerastium glomeratum* Thuill.; *Cerastium semidecandrum* L.; *Cucubalus baccifer* L.; *Dianthus armeria* L.; *Dianthus giganteus* D'Urv.; *Lychnis coronaria* (L.) Desr.; *Minuartia caespitosa* (Ehrh.) Degen; *Minuartia setacea* (Thuill.) Hayek; *Moehringia trinervia* (L.) Clairv.; *Moenchia mantica* (L.) Bartl.; *Myosoton aquaticum* Moench; *Petrorrhagia prolifera* (L.) P.W.Ball & Heywood; *Saponaria glutinosa* M.Bieb.; *Saponaria officinalis* L.; *Scleranthus perennis* L.; *Silene alba* (Mill.) E.H.L.Krause; *Silene conica* L.; *Silene dichotoma* Ehrh.; *Silene italica* (L.) Pers.; *Silene viridiflora* L.; *Silene vulgaris* (Moench) Garcke; *Stellaria media* (L.) Vill.; **Fam. Celastraceae:** *Euonymus europaeus* L.; *Euonymus latifolius* Mill.; *Euonymus verrucosus* Scop.; **Fam. Ceratophyllaceae:** *Ceratophyllum demersum* L.; **Fam. Cistaceae:** *Helianthemum nummularium* Mill.; *Rhodax canus* Fuss.; **Fam. Convolvulaceae:** *Calystegia sepium* (L.) R.Br.; *Calystegia sylvatica* (Kit.) Griseb.; *Convolvulus arvensis* L.; *Convolvulus cantabrica* L.; *Cuscuta epithimum* L.; *Cuscuta europaea* L.; **Fam. Cornaceae:** *Cornus mas* L.; *Cornus sanguinea* L.; **Fam. Crassulaceae:** *Sedum acre* L.; *Sedum album* L.; *Sedum hispanicum* L.; *Sedum maximum* Suter; **Fam. Dioscoreaceae:** *Tamus communis* L.; **Fam. Elaeagnaceae:** *Elaeagnus angustifolia* L.; **Fam. Euphorbiaceae:** *Euphorbia agraria* M.Bieb.; *Euphorbia amygdaloides* L.; *Euphorbia cyparissias* L.; *Euphorbia esula* L.; *Euphorbia helioscopia* L.; *Euphorbia nicaeensis* All.; *Euphorbia plathyphyllos* L.; *Euphorbia polychroma* Kern.; *Euphorbia seguenerana* Neck.; *Mercurialis ovata* Sternb. & Hoppe; *Mercurialis perennis* L.; **Fam. Fabaceae:** *Amorpha fruticosa* L.; *Anthyllis vulneraria* L.; *Astragalus cicer* L.; *Astragalus glycyphylloides* DC.; *Astragalus glycyphyllos* L.; *Astragalus onobrychis* L.; *Astragalus vesicarius* L.; *Bituminaria bituminosa* (L.) C.H.Stirt.; *Cercis siliquastrum* L.; *Chamaecytisus ciliatus* (Wahlenb.) Rothm.; *Chamaecytisus hirsutus* Link; *Chamaecytisus supinus* (L.) Link; *Colutea arborescens* L.; *Coronilla elegans* L.; *Coronilla scorpioides* W.D.J.Koch; *Coronilla varia* L.; *Dorycnium germanicum* Rouy; *Dorycnium herbaceum* Vill.; *Galega officinalis* L.; *Genista januensis* Viv.; *Genista ovata* Waldst. & Kit.; *Genista tinctoria* L.; *Laburnum anagyroides* Medik.; *Lathyrus annuus* L.; *Lathyrus aphaca* L.; *Lathyrus aureus* (Steven) Bornm.; *Lathyrus hirsutus* L.; *Lathyrus latifolius* L.; *Lathyrus laxiflorus* Kuntze; *Lathyrus niger* (L.)

Bernh.; *Lathyrus nissolia* L.; *Lathyrus pratensis* L.; *Lathyrus sphaericus* Retz.; *Lathyrus sylvestris* L.; *Lathyrus tuberosus* L.; *Lathyrus venetus* Rouy; *Lathyrus vernus* (L.) Bernh.; *Lembotropis nigricans* (L.) Griseb.; *Lotus corniculatus* L.; *Lotus tenuis* Waldst. & Kit. ex Willd.; *Medicago arabica* (L.) Huds.; *Medicago falcata* L.; *Medicago lupulina* L.; *Medicago minima* (L.) Bartal.; *Medicago sativa* L.; *Melilotus alba* Medik.; *Melilotus officinalis* Pall.; *Onobrychis arenaria* DC.; *Ononis arvensis* L.; *Ononis pusilla* L.; *Ononis spinosa* L.; *Robinia pseudoacacia* L.; *Trifolium alpestre* L.; *Trifolium angustifolium* L.; *Trifolium arvense* L.; *Trifolium campestre* Schreb.; *Trifolium hybridum* L.; *Trifolium michelianum* Savi; *Trifolium ochroleucon* Huds.; *Trifolium pratense* L.; *Trifolium purpureum* Loisel.; *Trifolium repens* L.; *Trifolium setiferum* Boiss.; *Trifolium striatum* L.; *Vicia cassubica* L.; *Vicia cracca* L.; *Vicia grandiflora* Scop.; *Vicia narbonensis* L.; *Vicia peregrina* L.; *Vicia sativa* L.; **Fam. Fagaceae:** *Fagus orientalis* Lipsky; *Fagus sylvatica* L.; *Quercus cerris* L.; *Quercus dalechampii* Ten.; *Quercus frainetto* Ten.; *Quercus pubescens* Willd.; **Fam. Gentianaceae:** *Centaurium erythraea* Rafn; *Centaurium pulchellum* (Sw.) Druce; *Gentiana cruciata* L.; **Fam. Geraniaceae:** *Erodium cicutarium* (L.) L'Her.; *Geranium columbinum* L.; *Geranium dissectum* L.; *Geranium lucidum* L.; *Geranium pyrenaicum* Burm.f.; *Geranium robertianum* L.; *Geranium sanguineum* L.; **Fam. Haloragaceae:** *Myriophyllum spicatum* L.; **Fam. Hypericaceae:** *Hypericum elegans* Stephan ex Willd.; *Hypericum hirsutum* L.; *Hypericum perforatum* L.; **Fam. Juglandaceae:** *Juglans regia* L.; **Fam. Lamiaceae:** *Acinos arvensis* (Lam.) Dandy; *Acinos rotundifolius* Pers.; *Ajuga chamaepitys* (L.) Schreb.; *Ajuga genevensis* L.; *Ajuga laxmanii* (L.) Benth.; *Ajuga reptans* L.; *Ballota nigra* L.; *Betonica officinalis* L.; *Calamintha nepeta* (L.) Savi; *Calamintha sylvatica* Bromf.; *Clinopodium vulgare* L.; *Galeopsis speciosa* Mill.; *Glechoma hederacea* L.; *Glechoma hirsuta* Waldst. & Kit.; *Lamium amplexicaule* L.; *Lamium galeobdolon* (L.) L.; *Lamium garganicum* L.; *Lamium maculatum* L.; *Lamium purpureum* L.; *Leonurus cardiaca* L.; *Lycopus europaeus* L.; *Lycopus exaltatus* L.f.; *Marrubium peregrinum* L.; *Marrubium vulgare* L.; *Melissa officinalis* L.; *Mentha aquatica* L.; *Mentha arvensis* L.; *Mentha longifolia* (L.) Huds.; *Mentha pulegium* L.; *Mentha spicata* L.; *Nepeta cataria* L.; *Origanum vulgare* L.; *Phlomis tuberosa* L.; *Prunella laciniata* L.; *Prunella vulgaris* L.; *Salvia amplexicaulis* Lam.; *Salvia glutinosa* L.; *Salvia nemorosa* L.; *Salvia nutans* L.; *Salvia ringens* Sm.; *Salvia sclarea* L.; *Salvia verticillata* L.; *Salvia virgata* Jacq.; *Satureja coerulea* Janka; *Scutellaria albida* L.; *Scutellaria altissima* L.; *Scutellaria columnae* All.; *Sideritis montana* L.; *Stachys annua* L.; *Stachys atherocalix* K.Koch.; *Stachys*

germanica L.; *Stachys sylvatica* L.; *Teucrium chamaedrys* L.; *Teucrium polium* L.; *Teucrium scordium* L.; *Thymus callieri* Halácsy ex Litv.; *Thymus jankae* Čelak.; *Thymus pulegioides* L.; *Thymus zygoides* Griseb.; **Fam. Linaceae:** *Linum bienne* Mill.; *Linum hirsutum* L.; *Linum nervosum* Waldst. & Kit.; *Linum tenuifolium* L.; **Fam. Lythraceae:** *Lythrum salicaria* L.; **Fam. Malvaceae:** *Alcea pallida* (Waldst. & Kit. ex Willd.) Waldst. & Kit.; *Althaea cannabina* L.; *Lavatera thuringiaca* L.; *Malva sylvestris* L.; *Tilia cordata* Mill.; *Tilia platyphyllos* Scop.; *Tilia tomentosa* Moench; **Fam. Moraceae:** *Morus alba* L.; *Morus nigra* L.; **Fam. Oleaceae:** *Fraxinus excelsior* L.; *Fraxinus ornus* L.; *Fraxinus oxycarpa* Willd.; *Fraxinus pallisiae* Wilmott; *Jasminum fruticans* L.; *Ligustrum vulgare* L.; *Syringa vulgaris* L.; **Fam. Onagraceae:** *Circaea lutetiana* L.; *Epilobium hirsutum* L.; *Epilobium montanum* L.; *Epilobium obscurum* Schreb.; *Epilobium roseum* Schreb.; *Epilobium tetragonum* L.; **Fam. Orobanchaceae:** *Orobanche pubescens* D'Urv.; **Fam. Papaveraceae:** *Chelidonium majus* L.; *Corydalis slivenensis* Velen. ex Nyman; *Corydalis solida* Sw.; *Fumaria officinalis* L.; *Fumaria rostellata* Knaf; *Papaver rhoeas* L.; **Fam. Plantaginaceae:** *Globularia aphyllanthes* Crantz; *Plantago lanceolata* L.; *Plantago major* L.; *Plantago media* L.; **Fam. Polygalaceae:** *Polygala major* Jacq.; *Polygala vulgaris* L.; **Fam. Polygonaceae:** *Fallopia aubertii* (L. Henry) Holub; *Fallopia convolvulus* (L.) Á. Löve; *Fallopia dumetorum* (L.) Holub; *Persicaria hydropiper* (L.) Spach; *Persicaria lapathifolia* (L.) Gray; *Persicaria minor* (Huds.) Opiz; *Persicaria mitis* (Schrank) Assenov; *Polygonum aviculare* L.; *Polygonum patulum* M. Bieb.; *Polygonum pulchellum* Loisel.; *Rumex acetosella* L.; *Rumex aquaticus* L.; *Rumex conglomeratus* Murray; *Rumex crispus* L.; *Rumex obtusifolius* L.; *Rumex sanguineus* L.; **Fam. Portulacaceae:** *Portulaca oleracea* L.; **Fam. Primulaceae:** *Anagallis arvensis* L.; *Lysimachia nummularia* L.; *Lysimachia vulgaris* L.; *Primula veris* L.; *Primula vulgaris* subsp. *rubra* (Sm.) Arcang.; **Fam. Ranunculaceae:** *Anemone ranunculoides* L.; *Clematis vitalba* L.; *Consolida hispanica* (Costa) Greuter & Burdet; *Consolida regalis* Gray; *Delphinium fissum* Waldst. & Kit.; *Helleborus odoratus* Waldst. & Kit. ex Willd.; *Isopyrum thalictroides* L.; *Nigella arvensis* L.; *Ranunculus bulbosus* L.; *Ranunculus ficaria* L.; *Ranunculus millefoliatus* Vahl; *Ranunculus oxyspermus* Willd.; *Ranunculus polyanthemus* L.; *Ranunculus repens* L.; *Ranunculus sardous* Crantz; *Ranunculus villosus* DC.; *Thalictrum aquilegifolium* L.; *Thalictrum minus* L.; **Fam. Resedaceae:** *Reseda lutea* L.; **Fam. Rhamnaceae:** *Paliurus spina-christi* Mill.; *Rhamnus saxatilis* Jacq.; **Fam. Rosaceae:** *Agrimonia eupatoria* L.; *Aremonia agrimonoides* (L.) DC.; *Crataegus monogyna* Jacq.; *Crataegus pentagyna* Waldst. & Kit. ex Willd.;

Filipendula vulgaris Moench; *Fragaria moschata* Duchesne; *Fragaria vesca* L.; *Fragaria viridis* Duchesne; *Geum urbanum* L.; *Malus dasyphylla* Borkh.; *Malus praecox* Borkh.; *Malus sylvestris* Mill.; *Potentilla argentea* L.; *Potentilla laciniata* Waldst. & Kit. ex Nestl.; *Potentilla micrantha* Ramond ex DC.; *Potentilla neglecta* Baumg.; *Potentilla pedata* Willd.; *Potentilla reptans* L.; *Prunus avium* L.; *Prunus cerasifera* Ehrh.; *Prunus insititia* L.; *Prunus mahaleb* L.; *Prunus spinosa* L.; *Pyrus nivalis* Jacq.; *Pyrus pyrastra* (L.) Burgsd.; *Pyrus sativa* DC.; *Rosa canina* L.; *Rosa corymbifera* Borkh.; *Rosa dumalis* Bechst.; *Rosa gallica* L.; *Rosa micrantha* Borrer; *Rubus caesius* L.; *Rubus canescens* DC.; *Rubus discolor* Weiche & Nees; *Rubus hirtus* Waldst. & Kit.; *Rubus thyranthus* Focke; *Rubus thyriflorus* Weihe & Nees ex Bluff & Fingerh.; *Sanguisorba minor* Scop.; *Sorbus aucuparia* L.; *Sorbus domestica* L.; *Sorbus torminalis* (L.) Crantz; **Fam. Rubiaceae:** *Asperula cynanchica* L.; *Asperula purpurea* (L.) Ehrend.; *Cruciata glabra* (L.) Ehrend.; *Cruciata pedemontana* (Bellardi) Ehrend.; *Galium album* Mill.; *Galium aparine* L.; *Galium heldreichii* Halácsy; *Galium odoratum* Scop.; *Galium pseudoaristatum* Schur; *Galium verum* L.; *Galium volhynicum* Pobed.; *Sherardia arvensis* L.; **Fam. Rutaceae:** *Dictamnus albus* L.; *Haplophyllum suaveolens* G. Don.; **Fam. Salicaceae:** *Populus alba* L.; *Populus nigra* L.; *Populus tremula* L.; *Salix alba* L.; *Salix caprea* L.; *Salix fragilis* L.; *Salix purpurea* L.; *Salix triandra* L.; **Fam. Santalaceae:** *Thesium simplex* Velen.; **Fam. Sapindaceae:** *Acer campestre* L.; *Acer heldreichii* Boiss. & Heldr.; *Acer negundo* L.; *Acer platanoides* L.; *Acer pseudoplatanus* L.; *Acer tataricum* L.; **Fam. Scrophulariaceae:** *Digitalis ferruginea* L.; *Digitalis lanata* Ehrh.; *Euphrasia pectinata* Ten.; *Euphrasia stricta* J.P. Wolff ex J.F. Lehm.; *Kickxia elatine* (L.) Dumort.; *Lathraea squamaria* L.; *Linaria dalmatica* (L.) Mill.; *Linaria genistifolia* (L.) Mill.; *Linaria vulgaris* Mill.; *Melampyrum arvense* L.; *Misopates orontium* (L.) Raf.; *Odontites serotina* (Lam.) Dumort.; *Pseudolysimachion orchideum* (Crantz) Wraber; *Rhinanthus rumelicus* Velen.; *Scrophularia nodosa* L.; *Scrophularia umbrosa* Dumort.; *Verbascum blattaria* L.; *Verbascum densiflorum* Bertol.; *Verbascum dieckianum* Borbás & Degen; *Verbascum nigrum* L.; *Verbascum phlomoides* L.; *Verbascum phoeniceum* L.; *Verbascum speciosum* Schrad.; *Veronica anagallis-aquatica* L.; *Veronica arvensis* L.; *Veronica austriaca* L.; *Veronica beccabunga* L.; *Veronica chamaedrys* L.; *Veronica hederifolia* L.; *Veronica officinalis* L.; *Veronica persica* Poir.; *Veronica polita* Fr.; *Veronica prostrata* L.; *Veronica serpyllifolia* L.; *Veronica teucrium* L.; *Veronica urticifolia* Jacq.; **Fam. Simaroubaceae:** *Ailanthus altissima* (Mill.) Swingle; **Fam. Solanaceae:** *Datura stramonium* L.; *Physalis alkekengii* L.; *Solanum dulcamara* L.; *Solanum nigrum* L.; **Fam. Staphyleaceae:** *Staphylea pinnata* L.; **Fam.**

Ulmaceae: *Ulmus glabra* Huds.; *Ulmus laevis* Pall.; *Ulmus minor* Mill.; **Fam. Urticaceae:** *Parietaria officinalis* L.; *Urtica dioica* L.; *Urtica urens* L.; **Fam. Verbenaceae:** *Verbena officinalis* L.; **Fam. Violaceae:** *Viola arvensis* Murray; *Viola kitaibeliana* Schult.; *Viola odorata* L.; *Viola riviniana* Rchb.; *Viola tricolor* L.; **Fam. Vitaceae:** *Vitis sylvestris* C.C.Gmel.

Class Liliopsida

Fam. Alismataceae: *Alisma lancetolatum* With.; *Alisma plantago-aquatica* L.; **Fam. Amaryllidaceae:** *Allium flavum* L.; *Allium paniculatum* L.; *Allium rotundum* L.; *Allium scorodoprasum* L.; *Allium sphaerocephalon* L.; *Allium ursinum* L.; *Galanthus elwesii* Hook.f.; *Galanthus nivalis* L.; **Fam. Araceae:** *Arum elongatum* Steven; *Arum maculatum* L.; **Fam. Asparagaceae:** *Asparagus tenuifolius* Lam.; *Muscari botryoides* (L.) Mill.; *Muscari comosum* (L.) Mill.; *Muscari neglectum* Ten.; *Muscari tenuiflorum* Tausch; *Ornithogalum comosum* L.; *Ornithogalum fimbriatum* Willd.; *Ornithogalum kochii* Parl.; *Ornithogalum narbonense* L.; *Polygonatum latifolium* Desf.; *Polygonatum odoratum* (Mill.) Druce; *Ruscus aculeatus* L.; *Ruscus hypoglossum* L.; *Scilla bifolia* L.; **Fam. Colchicaceae:** *Colchicum autumnale* L.; **Fam. Cyperaceae:** *Carex bueckii* Wimm.; *Carex caryophyllea* Latourr.; *Carex depauperata* Curtis; *Carex divulsa* Stokes; *Carex flacca* Schreb.; *Carex halleriana* Asso; *Carex hirta* L.; *Carex otrubae* Podp.; *Carex pendula* Huds.; *Carex sylvatica* Huds.; *Carex vulpina* L.; *Cyperus glaber* L.; *Eleocharis palustris* R.Br.; *Schoenoplectus lacustris* (L.) Palla; *Scirpus sylvaticus* L.; **Fam. Hydrocharitaceae:** *Najas marina* L.; *Vallisneria spiralis* L.; **Fam. Iridaceae:** *Crocus flavus* Weston; *Iris graminea* L.; *Iris pumila* L.; **Fam. Juncaceae:** *Juncus acutiflorus* Ehrh. ex Hoffm.; *Juncus articulatus* L.; *Juncus bufonius* L.; *Juncus compressus* Jacq.; *Juncus conglomeratus* L.; *Juncus effusus* L.; *Juncus inflexus* L.; *Juncus tenuis* Willd.; *Luzula campestris* (L.) DC.; *Luzula forsteri* DC.; **Fam. Liliaceae:** *Fritillaria pontica* Wahlenb.; *Gagea arvensis* (Pers.) Dumort.; *Lilium martagon* L.; *Tulipa urumoffii* Hayek; **Fam. Orchidaceae:** *Anacamptis pyramidalis* (L.) Rich.; *Cephalanthera damasonium* Druce; *Cephalanthera longifolia* (L.) Fritsch; *Epipactis helleborine* (L.) Crantz; *Himantoglossum caprinum* Spreng.; *Limodorum abortivum* (L.) Sw.; *Neottia nidus-avis* (L.) Rich.; *Ophrys cornuta* Steven ex M.Bieb.; *Ophrys insectifera* L.; *Ophrys mammosa* Desf.; *Orchis morio* L.; *Orchis purpurea* Huds.; *Orchis simia* Lam.; *Orchis tridentata* Scop.; **Fam. Poaceae:** *Achnatherum bromoides* (L.) P.Beauv.; *Aegilops cylindrica* Host; *Aegilops geniculata* Roth; *Agrostis capillaris* L.; *Agrostis stolonifera* L.; *Aira elegantissima* Schur; *Alopecurus myosuroides* Huds.; *Anthoxanthum odoratum* L.; *Apera spica-venti* (L.) P.Beauv.; *Arrhenatherum elatius* (L.) P.Beauv. ex J.Presl & C.Presl;

Avena clauda Durieu; *Avena fatua* L.; *Avenula compressa* (Heuff.) W.Sauer & Chmel.; *Botriochloa ischaemum* (L.) Keng.; *Brachypodium pinnatum* (L.) P.Beauv.; *Brachypodium sylvaticum* P.Beauv.; *Briza media* L.; *Bromus arvensis* L.; *Bromus mollis* L.; *Bromus racemosus* L.; *Bromus squarrosus* L.; *Bromus sterilis* L.; *Calamagrostis arundinacea* (L.) Roth; *Calamagrostis epigeios* (L.) Roth; *Chrysopogon gryllus* (L.) Trin.; *Cleistogenes serotina* (L.) Keng.; *Cynodon dactylon* (L.) Pers.; *Cynosurus cristatus* L.; *Cynosurus echinatus* L.; *Dactylis glomerata* L.; *Dasyphyrum villosum* (L.) P.Candargy; *Digitaria sanguinalis* (L.) Scop.; *Echinochloa crus-galli* (L.) P.Beauv.; *Elymus hispidus* (Opiz) Melderis; *Elymus repens* (L.) Gould; *Eragrostis minor* Host; *Festuca heterophylla* Lam.; *Festuca pratensis* L.; *Festuca pseudovina* Hack. ex Wiesb.; *Glyceria maxima* (Hartm.) Holmb.; *Holcus lanatus* L.; *Hordeum bulbosum* L.; *Hordeum hystrix* Roth; *Hordeum leporinum* Link; *Hordeum murinum* L.; *Koeleria macrantha* (Ledeb.) Schult.; *Koeleria nitidula* Velen.; *Koeleria simonkaii* Adamovič; *Lolium perenne* L.; *Lolium temulentum* L.; *Melica ciliata* L.; *Melica uniflora* Retz.; *Milium effusum* L.; *Phleum phleoides* H.Karst.; *Phleum pratense* L.; *Phragmites australis* (Cav.) Steud.; *Piptatherum holciforme* Roem. & Schult.; *Piptatherum virescens* Boiss.; *Poa annua* L.; *Poa bulbosa* L.; *Poa compressa* L.; *Poa nemoralis* L.; *Poa pratensis* L.; *Sclerochloa dura* (L.) P.Beauv.; *Sesleria latifolia* Degen; *Setaria italica* (L.) P.Beauv.; *Setaria pumila* (Poir.) Roem. & Schult.; *Setaria viridis* (L.) P.Beauv.; *Sorghum halepense* (L.) Pers.; *Stipa epilosa* Martinovský; *Taeniatherum caput-medusae* (L.) Nevski; *Tragus racemosus* (L.) All.; *Vulpia myuros* (L.) C.C.Gmel.; **Fam. Potamogetonaceae:** *Potamogeton nodosus* Poir.; *Potamogeton perfoliatus* L.; **Fam. Typhaceae:** *Typha angustifolia* L.; *Typha latifolia* L.; *Typha laxmanii* Lepech.; **Fam. Xanthorrhoeaceae:** *Asphodeline lutea* Rchb.; *Asphodeline liburnica* Rchb.

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