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RESEARCH ARTICLE

FLORA OF CHEPAN MOUNTAIN (WESTERN BULGARIA).

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Abstract

Chepan Mountain is located in Western Bulgaria. It is part of Balkan Mountains on the territory of Balkan Peninsula in Southern Europe. As a result of this study in Chepan Mountain on the territory of only 25 km^2 were found 784 species of wild vascular plants from 378 genera and 84 families. Such amazing biodiversity can be found in Southern Europe only. The floristic analysis indicates that the most of the families and the genera are represented by a small number of inferior taxa. The hemicryptophytes dominate among the life forms with 53.32%. The biological types are represented mainly by perennial herbaceous plants (59.57%). In the flora of the Mountain there are 49 floristic elements. The most of the species are European-Asiatic floristic elements (14.54%), followed by European-Mediterranean floristic elements (13.78%) and subMediterranean floristic elements (13.52%). Among the vascular plants, there are 26 Balkan endemic species, 4 Bulgarian endemic species and 26 relic species. The species with protection statute are 66 species. The anthropophytes among the vascular plants are 390 species (49.74%). The information about invasive alien plants species in the mountain is published for the first time.

Introduction:-

Chepan Mountain is part of the western part of Balkan Mountains on the territory of Balkan Peninsula in Southern Europe. It is located only 40 km northwest of the city of Sofia, which is the capital of Bulgaria (Figure 1). It bordered to the north by the valley of Nishava River, to the east bordered to Mala Mountain, to the south are Dragoman Marsh and Sofia Valley and on the west the road Dragoman–Godech separates it from the neighboring hills. The mountain is oriented in an east–west. Its length is about 20 km, and its width varies from 1 to 1.5 km. Its area is about 25 km^2. The highest peak is Petrov crast height 1205.6 m above sea level, in the western part of the mountain, about 3 km northeast of town of Dragoman.

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Figure 1:- Geographical position of Chepan Mountain, marked with yellow point in the central part of the Balkan Peninsula (at the bottom right is a map of Europe)

In phytogeographic terms Chepan Mountain is in Balkan floristic province of European deciduous forest area. It is in two floristic regions: western parts are in Znepolski floristic region and east parts are in Stara planina (Western) floristic region. During the Crusades, between the cities of Nis and Sofia there was a huge array, that included Chepan Mountain and was going through narrow mountain roads [1]. Today, in the mountain dominates the treeless landscape. Its entire length Chepan Mountain is a typical karst terrain with typical phenomena: karst surfaces, potholes and cliffs. Southwestern slopes of the mountain are rugged and difficult to pass. At the bottom of the northern slopes reserved arrays of deciduous forests. On the southern slopes are common mosaic forest plantations of pine.

In 1889, during his third trip to Bulgaria Velenovski, accompanied by his collaborator Hermengild Shkorpil collected and described plants near to town of Dragoman. In the following years Shkorpil continues to send materials to Velenovski from this region. The results are reflected in the first Bulgarian flora and supplement to it [2].

The herbaceous vegetation of Chepan Mountain is explored by Velchev as part of a study of grass cover near to the area Dragoman–Belidie Khan [3]. The first inventory of the flora of the mountain is made by Tashev and Angelova [4, 5, 6]. They found the presence of 465 species and subspecies of vascular plants belonging to 252 genera and 63 families and publish data on the medicinal plants in the mountain [7]. The information on species with conservation status publish Angelova [8], Tashev and Angelova [6], Vassilev & al. [9].

In 2007, Chepan mountain is included in Dragoman Protected area (BG0000322) with a total area of 21357.18 ha. The protected area is designated under Directive 92/43/EEC of the Council of the European Community for the conservation of natural habitats and of wild fauna and flora. It overlaps a protected area under Directive 79/409/EEC

on the conservation of wild birds, replaced by Directive 2009/147/EO. Chepan Mountain occupies 12.45% of the territory of the protected area [10]. The subjects to protection in the protected area are 17 natural habitats and 3 plant species, and from them in Chepan Mountain there are 12 habitats and one plant species *Himantoglossum caprinum* (Bieb.) C. Koch.

The aim of this study was to perform a new inventory of the flora of Chepan Mountain. The reason for this is that in the study of relatively close in size sites in Eastern Bulgaria (Shumensko Plateau, Preslavska Mountain) the author of this study found significantly greater wealth of flora [11, 12].

Materials and Methods:-

This survey was conducted on the route method in the period 2010–2011. In determining of the species are used: Handbook for Vascular Plants in Bulgaria [13], Flora of PR Bulgaria, Volumes 1 to 9 [14, 15] and Flora of the Republic of Bulgaria, Volume 10 [16]. The names of the taxa are under Conspectus of the Bulgarian vascular flora [17]. Updating of the families is based on APG III [18].

The life forms are represented in the system of Raunkiaer [19]. For their determination are used Flora of PR Bulgaria, Volumes 1 to 9 [14, 15] and Flora of the Republic of Bulgaria, Volumes 10 and 11 [16, 20]. Biological types are defined by Handbook for Plants in Bulgaria [21]. The floristic elements and the endemics are on the basis of the classification done by Walter, with some amendments and completions [17]. The relics are presented under Zahariev [22].

The medicinal plants are under the Annex to Medicinal Plants Act [23].
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 [24], Appendix I to *Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)* [25], Appendix II to *Convention on International Trade in Endangered Species* of Wild Fauna and Flora (CITES) [26], Red Data Book of the Republic of Bulgaria, Vol. 1. Plants and Fungi [27], IUCN Red List for Bulgaria [28], Annex III and Annex IV to Biodiversity Act of the Republic of Bulgaria [29]. Some species are included in Order for special arrangements for the conservation and use of the medicinal plants in Bulgaria [30].

The anthropophytes are presented by Stefanov & Kitanov [31]. The Invasive alien plant species are by Petrova & al. [32].

Results and Discussion:-

As a result of authors field investigations of Chepan Mountain were found a significantly greater number of taxa in comparison with the known up to now: 784 species of vascular plants from 378 genera and 84 families were identified. This represents 19.11% from all species, 41.40% from all genera and 60.43% from all plant families in Bulgaria. Systematic list of identified species is presented in Appendix. The author not found 82 species from 68 genera and 31 families described by Tashev and Angelova. The collection of herbarium specimens demonstrating described species from these authors, gives reason to believe that these species are part of the flora of Chepan Mountain.

The most of the families and genera are presented with smaller number of lower taxa: from 1 to 4. The majority of families, 69 (82.14%) were presented with 1–4 genera. Only 15 (17.86%) of the families are represented by 5 or more genera (Table 1). Most genera belong to the following families: Asteraceae (41), Poaceae (37), Apiaceae (30), Lamiaceae (23) and Fabaceae (21). The majority of families, 53 (63.10%) were presented with 1–4 species. Only 31 (36.90%) of the families are represented by 5 or more species (Table 1). Most species belong to the following families: Asteraceae (94), Poaceae (70), Fabaceae (67), Lamiaceae (55), Caryophyllaceae (46) and Rosaceae (44). Only 41 (10.85%) of the genera included 5 or more species. Most species belong to the following genera: *Trifolium* (14), *Lathyrus* (11), *Centaurea* (10), *Carex* (9), *Silene* (9) and *Potentilla* (9).

Table 1:- Families with most genera and species (5 or more)

Families	Genera	Species
Amaranthaceae		6
Amaryllidaceae		10
Apiaceae	30	37
Asparagaceae	7	15
Asteraceae	41	94
Boraginaceae	11	17
Brassicaceae	17	33
Campanulaceae		12
Caprifoliaceae	9	14
Caryophyllaceae	17	46
Crassulaceae		7
Cyperaceae		11
Euphorbiaceae		9
Fabaceae	21	67
Fagaceae		5
Geraniaceae		8
Juncaceae		6
Lamiaceae	23	55
Malvaceae		5
Onagraceae		5
Orchidaceae	8	11
Poaceae	37	70
Polygalaceae		6
Polygonaceae		11
Primulaceae		5
Ranunculaceae	12	22
Rosaceae	18	44
Rubiaceae	5	16
Salicaceae		5
Scrophulariaceae	12	33
Violaceae		6

The established taxonomically diversity can be explained by the variety of combinations of terrain, hydrological, climatic and soil conditions as a prerequisite for the variety of communities and habitats within the territory of the mountain.

Regarding the phytogeographical structure were found a considerable variation. There are 49 different floristic elements. The most of the species are European-Asiatic floristic elements (14.54%), followed by European-Mediterranean floristic elements (13.78%) and subMediterranean floristic elements (13.52%). This can be explained by the complex influence of many factors: 1. The geographical location of Chepan Mountain (in the southern parts of the Balkan Mountain Range, to which still reach the warm air masses from the Mediterranean); 2. Climatic conditions (it is located in the temperate climatic zone, but relatively closes to the border with transitional-continental climate); 3. Altitude, which corresponds to the lower mountain belt; 4. Glaciations during the Quaternary, which led to changes in the flora both during colder weather conditions and after subsequent warming.

Among the vascular plants were found 30 endemic species. They are 3.83% of the total number of species. It is close to the average number (4.86%) of endemic species for Bulgaria [33]. Of these, 26 species are Balkan endemics (3.32% of all species) and 4 species are Bulgarian endemics (0.51% of all species).

The relic species in Chepan Mountain are describe for the first time. The majority of the relics are Tertiary relics. They are ancient representatives of Arctic tertiary flora. From the period of the last glaciations in the Northern and Central Europe in Chepan Mountain are settled only 2 species of Quaternary (glacial) relics. They have migrated

from the north to the south and the mountains of the Balkan Peninsula have become their refuge. Only one relic species is remained from the period after glaciations and belongs to the group of post-glacial steppe relics.

In analysis of the life forms (Table 2) were found dominant participation of hemicryptophytes, 418 species (53.32%), followed by therophytes, 146 species (18.62%), phanerophytes, 76 species (9.70%) and cryptophytes, 68 species (8.67%). The significant number of hemicryptophytes can be explained with the wide variety of communities and habitats within the mountain. Relatively the large number of therophytes is result of prolonged erosion and the largest area of dry rocky terrain with shallow skeletal soils. Cryptophytes are distributed both in forest communities and in secondary grasslands, located primarily in the ridge of the mountain.

Table 2:- Distribution of the species by life form

Group	Subgroup	Number of species	Percentage
Phanerophytes (Ph)		**76**	**9.70**
	Megaphanerophytes	3	0.38
	Mesophanerophytes	33	4.21
	Microphanerophytes	22	2.81
	Nanophanerophytes	18	2.30
Chamaephytes (Ch)		**31**	**3.95**
Hemicryptophytes (H)		**418**	**53.32**
Therophytes-Hemicryptophytes (Th-H)		**45**	**5.74**
Cryptophytes (Cr)		**68**	**8.67**
	Geophytes	59	7.53
	Helophytes	7	0.89
	Hydrophytes	2	0.26
Therophytes (Th)		**146**	**18.62**

One can witness the whole variety of biological types as well as all of the possible transitions between them. The results show (Table 3) that the largest groups are the group of perennial plants, 467 species (59.57%) and the group of annual plants, 146 species (18.62%). The significant number of perennial plants can be explained with the wide variety of communities and habitats within the mountain. Relatively the large number of annual herbaceous plants is result of the largest area of dry rocky terrain with shallow skeletal soils.

Table 3:- Distribution of the species by biological type

Biological type	Symbol	Number of species	Percentage
Annual herbaceous plant	a	146	18.62
Annual or biannual herbaceous plant	a-b	34	4.34
Annual or perennial herbaceous plant	a-p	12	1.53
Biannual herbaceous plant	b	30	3.83
Biannual or perennial herbaceous plant	b-p	20	2.55
Perennial herbaceous plant	p	467	59.57
Perennial or annual herbaceous plant	p-a	1	0.13
Perennial herbaceous plant or shrub	p-sh	1	0.13
Shrub	sh	31	4.95
Shrub or tree	sh-t	10	1.28
Tree	t	32	4.08

The medicinal plants of Chepan Mountain are 344 species, which are divided in 237 genera and 83 families. They represent 43.88% from all species, 62.53% from all genera and 93.26% from all plant families of the mountain. They are distributed within the following groups: 23 species of trees (6.69%), 14 species of shrubs (4.07%), 208 species of perennial plants (60.47%), 11 species of biennial plants (3.20%) and 48 species of annual plants (13.95%). The remaining 40 species (11.63%) relate to the transitional groups between them. The number of medicinal plants, which were found, is significantly higher than those described by Angelova and Tashev [7]. Despite the high biodiversity of medicinal plants, only a small number of them are a subject to collection of drugs.

The total number of species with conservation statute is 66 (8.42% of all species). In Annex II of Directive 92/43/EEC is included one species. In Appendix I of Convention on the Conservation of European Wildlife and Natural Habitats (Berne Convention) is included one species. In Appendix II of *Convention on International Trade in Endangered Species* of Wild Fauna and Flora (CITES) are included 14 species. In IUCN Red List for Bulgaria are included 29 species in following categories: Endangered – 4 species, Vulnerable – 10 species, Nearly threatened – 7 species and Least concern – 8 species. In the Red Data Book of the Republic of Bulgaria are included 6 species in two categories: Endangered – 3 species, Vulnerable – 3 species. In the Biodiversity Act of the Republic of Bulgaria 17 species are included in Annex III and 28 species are included in Annex IV. Prohibited is the collecting of herbs from the natural habitats for 9 species. Under restricted collection of herbs from their natural habitats are 8 species.

Among the species with conservation status with the highest conservation value are 2 species: *Himantoglossum caprinum* (M. Bieb.) Spreng. (included in 6 documents) and *Galanthus elwesii* Hook. f. (included in 4 documents).

The number of the endemics and species with conservation status identified in this study is significant, despite the small territory of the mountain. It is larger than the number of taxa identified by Tashev and Angelova [6]. They describe 11 endemic species (5 Bulgarian endemics and 6 Balkan endemics) and 22 species with conservation status. Approximately in this period Vassilev & al. [9] published the results of their independent research. They describe 36 endemic species (3 Bulgarian endemic and 33 Balkan endemic) and 31 species with conservation status. In our study have not been established 13 species of described species of Vassilev & al.

During the inventory of the flora were found *Thlaspi goesingense* Halácsy (family Brassicaceae) in the western part of the mountain that falls in Znepolski floristic region (under number 7 in Figure 2). The distribution of this species in Bulgaria is debatable. In creating of the Handbook of vascular plants in Bulgaria [13] the authors have included this species as spread in 3 floristic regions: Stara Planina, Znepolski floristic region and Slavyanka. In Handbook of plants in Bulgaria [21] the species is indicated in 6 floristic regions, but is not listed for Znepolski floristic region. According to the authors of Conspectus of the Bulgarian vascular flora [17] the distribution of species in Bulgaria is uncertain and needs to be clarified. In the published chorological map with question marks are marked floristic regions for possible distribution of this species: Stara Planina, Znepolski floristic region and Pirin (Southern). The author of this study believe that the spread of *Thlaspi goesingense* Halácsy in Znepolski floristic region can be considered confirmed.

The information about the number of anthropopytes is presented for the first time. They are 390 species (49.74%): 10 species of trees, 8 species of shrubs, 6 species of transitional group shrubs – trees and 366 species of herbaceous plants. This information is important to track the human impact on the history of vegetation cover. Additionally, information on the current state of the flora of the mountain is derived from the number of adventive and cosmopolitan species. Due to human activity in the past and especially in the last century there are many antropophytes. In the mountain there is a relatively small number of adventive and cosmopolitan species – respectively 9 species (1.15%) and 32 species (4.08%). In the Mountain were found 3 species distributed as forest plantations: *Picea abies* (L.) Karst., *Pinus nigra* Arnold and *Pinus sylvestris* L.

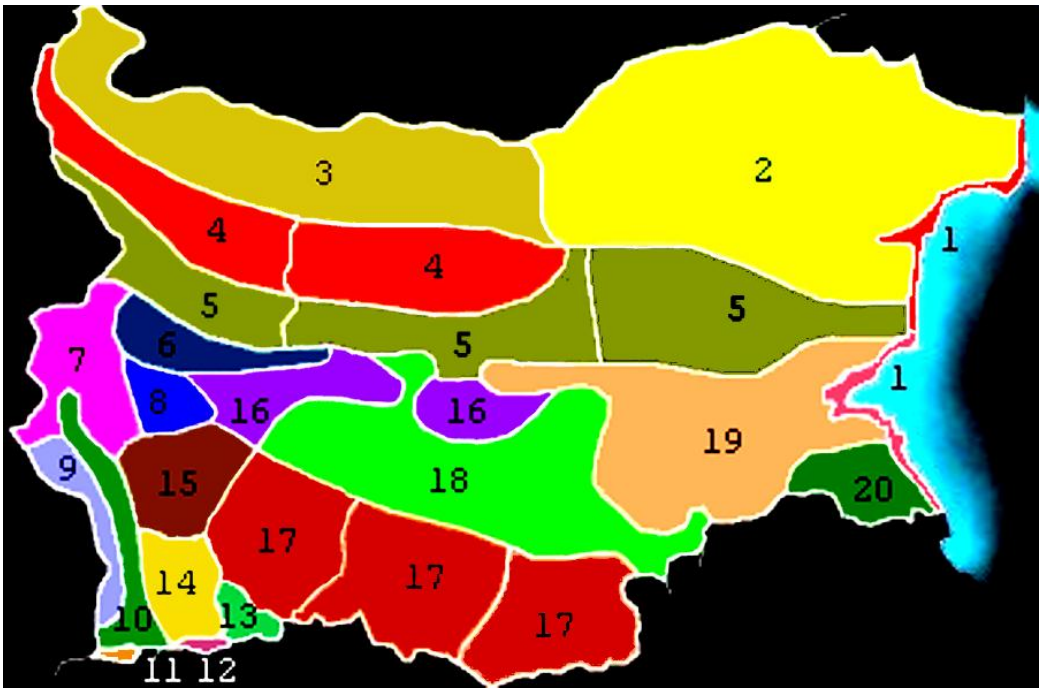

Figure 2:- Map of floristic regions in Bulgaria

Legend: 1. The Black Sea coast; 2. North-Eastern Bulgaria; 3. The Danubian Plain; 4. The Predbalkan; 5. Stara Planina (the Balkan); 6. Sofia Region; 7. Znepole Region; 8. Vitosha Region; 9. West Frontier Mountains; 10. The Struma Valley; 11. The Belasitza; 12. The Slavianka; 13. The Mesta Valley; 14. The Pirin; 15. The Rila; 16. Sredna Gora; 17. The Rhodopes; 18. Thracian Plane; 19. The Tundja Hilly Plane 20. The Strandzha

The information about invasive alien plants species in the mountain is published for the first time. 9 invasive alien plants species were found: *Ailanthus altissima* (Mill.) Swingle, *Amaranthus retroflexus* L., *Datura stramonium* L., *Erigeron annuus* (L.) Pers., *Erigeron canadensis* L., *Gleditsia triacanthos* L., *Laburnum anagyroides* Medicus, *Robinia pseudoacacia* L., *Xanthium spinosum* L. The majority of these species originate from North America. Different origins have the following species: *Xanthium spinosum* (South America), *Ailanthus altissima* (East Asia) and *Laburnum anagyroides* (Central Europe). *Ailanthus altissima* and *Robinia pseudoacacia* are included in List of worst invasive alien species threatening biodiversity in Europe [34]. The populations of all species have low numbers. They are represented by single individuals or groups with a small area and number of individuals. Most of them are located near to the villages and the roads that connect them. The author recommends being conducted periodic monitoring of their populations.

Conclusion:-

The results of the inventory of vascular plants on the territory of Chepan Mountain show considerable variety of vascular plants in comparison with the data known up to now. The relic species, anthropopytes and invasive alien plants species in Chepan Mountain are describe for the first time. The obtained data can be used as a basis for comparison with data of the flora of different geographical sites in Znepolski floristic region and Stara planina (Western) floristic region, as well as throughout the country.

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Appendix:-

Systematic list of species of vascular plants, established in Chepan Mountain (Western Bulgaria)

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

Division Equisetophyta
Fam. Equisetaceae: *Equisetum arvense* L.

Division Polypodiophyta
Fam. Aspidiaceae: *Dryopteris filix-mas* (L.) Schott; **Fam. Aspleniaceae:** *Asplenium ruta-muraria* L., *Asplenium trichomanes* L.; **Fam. Polypodiaceae:** *Polypodium vulgare* L.; **Fam. Athyriaceae:** *Cystopteris fragilis* (L.) Bernh.

Division Magnoliophyta
Class Pinopsida
Fam. Cupressaceae: *Juniperus communis* L.

Class Magnoliopsida:-
Fam. Acanthaceae: *Acanthus balcanicus* Heywood & I. Richardson; **Fam. Amaranthaceae:** *Amaranthus graecizans* L.; *Amaranthus lividus* L., *Amaranthus retroflexus* L., *Atriplex patula* L., *Chenopodium album* L., *Chenopodium hybridum* L.; **Fam. Anacardiaceae:** *Cotinus coggygria* Scop.; **Fam. Apiaceae:** *Aegopodium podagraria* L., *Anthriscus sylvestris* (L.) Hoffm., *Bifora radians* M. Bieb., *Bupleurum affine* Sadler, *Bupleurum commutatum* Bois. & Balansa, *Bupleurum praealtum* L., *Bupleurum rotundifolium* L., *Cachrys alpina* M. Bieb., *Caucalis platycarpos* L., *Chaerophyllum bulbosum* L., *Chaerophyllum temulentum* L., *Cnidium silaifolium* (Jacq.) Simonk., *Conium maculatum* L., *Daucus carota* L., *Eryngium campestre* L., *Eryngium palmatum* Pančič & Vis., *Falcaria vulgaris* Bernh., *Ferula heuffelii* Griseb., *Ferulago campestris* (Besser) Grecescu, *Ferulago sylvatica* (Besser) Rchb., *Heracleum sibiricum* L., *Heracleum ternatum* Velen., *Laser trilobum* (L.) Borkh., *Laserpitium siler* L., *Myrrhoides nodosa* (L.) Cannon, *Orlaya grandiflora* (L.) Hoffm., *Pastinaca hirsuta* Pančič, *Peucedanum alsaticum* L., *Pimpinella saxifraga* L., *Sanicula europaea* L., *Seseli pallasii* Besser, *Silaum silaus* (L.) Schinz. & Thell., *Sium latifolium* L., *Tordylium maximum* L., *Torilis arvensis* (Hudson) Link, *Trinia glauca* (L.) Dumort., *Turgenia latifolia* (L.) Hoffm.; **Fam. Apocynaceae:** *Vinca herbacea* Waldst. & Kit., *Vincetoxicum fuscatum* (Hornem.) Rchb. f., *Vincetoxicum hirundinaria* Medicus; **Fam. Araliaceae:** *Hedera helix* L.; **Fam. Aristolochiaceae:** *Asarum europaeum* L.; **Fam. Asteraceae:** *Achillea ageratifolia* (Sm.) Boiss., *Achillea clypeolata* Sm., *Achillea millefolium* L., *Anthemis austriaca* Jacq., *Anthemis ruthenica* M. Bieb., *Arctium lappa* L., *Arctium minus* Bernh., *Artemisia absinthium* L., *Artemisia alba* L., *Artemisia annua* L., *Artemisia pontica* L., *Artemisia vulgaris* L., *Aster amellus* L., *Aster linosyris* (L.) Bernh., *Bellis perennis* L., *Carduus candicans* Waldst. & Kit., *Carduus nutans* L., *Carduus thoermeri* Weinm., *Carlina acanthifolia* All., *Carlina vulgaris* L., *Carthamus lanatus* L., *Centaurea affinis* Friv., *Centaurea alba* L., *Centaurea calcitrapa* L., *Centaurea chrysolepis* Vis., *Centaurea cyanus* L., *Centaurea orientalis* L., *Centaurea rhenana* Boreau, *Centaurea scabiosa* L., *Centaurea solstitialis* L., *Centaurea triumfetti* All., *Chondrilla juncea* L., *Cichorium intybus* L., *Cirsium arvense* (L.) Scop., *Cirsium canum* (L.) All., *Cirsium creticum* (Lam.) D'Urv., *Cirsium ligulare* Boiss., *Cirsium vulgare* (Savi) Ten., *Conyza canadensis* (L.) Cronquist, *Crepis foetida* L., *Crepis sancta* (L.) Babc., *Crepis setosa* Haller f., *Crepis tectorum* L., *Crupina vulgaris* Cass., *Doronicum columnae* Ten., *Echinops bannaticus* Rochel ex Schrad., *Echinops microcephalus* Sm., *Echinops sphaerocephalus* L., *Erigeron annuus* (L.) Pers., *Eupatorium cannabinum* L., *Filago vulgaris* Lam., *Hieracium cymosum* L., *Hieracium hoppeanum* Schult., *Hieracium pilosella* L., *Hieracium praealtum* Vill. ex Goch., *Inula britanica* L., *Inula conyza* L., *Inula ensifolia* L., *Inula oculus-christi* L., *Inula salicina* L., *Jurinea consanguinea* DC., *Jurinea tzar-ferdinandii* Davidov, *Lactuca perennis* L., *Lactuca quercina* L., *Lactuca serriola* L., *Lactuca viminea* (L.) J. & C. Presl., *Lapsana communis* L., *Leontodon autumnalis* L., *Leontodon crispus* Vill., *Leucanthemum vulgare* Lam., *Logfia arvensis* (L.) Holub, *Matricaria perforata* Mérat, *Matricaria trichophylla* (Boiss.) Boiss., *Mycelis muralis* (L.) Dumort., *Ptilostemon afer* (Jacq.) Greuter, *Pulicaria dysenterica* (L.) Bernh., *Scorzonera austriaca* Willd., *Senecio jacobaea* L., *Senecio macedonicus* Griseb., *Senecio papposus* (Rchb.) Less., *Senecio vernalis* Waldst. & Kit., *Sonchus arvensis* L., *Tanacetum corymbosum* (L.) Sch. Bip., *Taraxacum erythrospermum* Andrz. ex Besser, *Taraxacum officinale* Weber, *Tragopogon balcanicum* Velen., *Tragopogon crocifolius* L., *Tragopogon dubius* Scop., *Tragopogon porrifolius* L., *Tragopogon pratensis* L., *Tussilago farfara* L., *Xanthium spinosum* L., *Xanthium strumarium* L., *Xeranthemum annuum* L.; **Fam. Berberidaceae:** *Berberis vulgaris* L.; **Fam. Betulaceae:** *Betula pendula* Roth, *Carpinus betulus* L., *Carpinus orientalis* Mill., *Corylus*

avellana L.; **Fam. Boraginaceae:** *Anchusa barrelieri* (All.) Vitman, *Buglossoides arvensis* (L.) I. M. Johnst., *Buglossoides purpurocaerulea* (L.) I. M. Johnst., *Cerinthe minor* L., *Cynoglossum creticum* Mill., *Cynoglossum hungaricum* Simonk., *Echium vulgare* L., *Lappula squarrosa* (Retz.) Dumort., *Myosotis arvensis* (L.) Hill., *Myosotis ramosissima* Rochel, *Myosotis stricta* Link ex Roem. & Schult., *Nonea atra* Griseb., *Nonea pulla* (L.) DC., *Onosma visianii* Clementi, *Pulmonaria officinalis* L., *Symphytum officinale* L., *Symphytum tuberosum* L.; **Fam. Brassicaceae:** *Alliaria petiolata* (M. Bieb.) Cavara & Grande, *Alyssum desertorum* Stapf., *Alyssum minutum* Schlecht. ex DC., *Alyssum montanum* L., *Alyssum murale* Waldst. & Kit., *Alyssum tortuosum* Willd., *Arabis hirsuta* (L.) Scop., *Arabis procurrens* Waldst. & Kit., *Arabis recta* Vill., *Arabis sagittata* (Bertol.) DC., *Arabis turrita* L., *Aurinia saxatilis* (L.) Desv., *Berteroa incana* (L.) DC., *Camelina rumelica* Velen., *Capsella bursa-pastoris* (L.) Medicus, *Cardaria draba* (L.) Desv., *Descurainia sophia* (L.) Webb ex Prantl, *Draba lasiocarpa* Rochel, *Draba muralis* L., *Erophila verna* (L.) Chevall., *Erysimum comatum* Pančič, *Erysimum diffusum* Ehrh., *Erysimum odoratum* Ehrh., *Lepidium campestre* (L.) R. Br., *Malcolmia orsiniana* (Ten.) Ten., *Neslia paniculata* (L.) Desv., *Rorippa pyrenaica* (L.) Rchb., *Thlaspi alliaceum* L., *Thlaspi arvense* L., *Thlaspi goesingense* Halácsy, *Thlaspi kovatsii* Heuff., *Thlaspi perfoliatum* L., *Thlaspi praecox* Wulfen; **Fam. Campanulaceae:** *Asyneuma anthericoides* (Janka) Bornm., *Asyneuma canescens* (Waldst. & Kit.) Griseb. et Schenk, *Campanula bononiensis* L., *Campanula glomerata* L., *Campanula grossekii* Heuff., *Campanula patula* L., *Campanula persicifolia* L., *Campanula sparsa* Friv., *Campanula trachelium* L., *Campanula velebitica* Borbás, *Edraianthus serbicus* (A. Kern.) Petrovič, *Jasione heldreichii* Boiss. & Orph.; **Fam. Cannabaceae:** *Humulus lupulus* L.; **Fam. Caprifoliaceae:** *Cephalaria transsylvanica* (L.) Roem. & Schult., *Cephalaria uralensis* (Murr.) Roem. & Schult., *Dipsacus laciniatus* L., *Knautia arvensis* (L.) Coult., *Knautia macedonica* Griseb., *Lonicera xylosteum* L., *Sambucus ebulus* L., *Sambucus nigra* L., *Scabiosa columbaria* L., *Scabiosa ochroleuca* L., *Scabiosa triniifolia* Friv., *Valeriana officinalis* L., *Valerianella pumila* (L.) DC., *Viburnum lantana* L.; **Fam. Caryophyllaceae:** *Arenaria leptoclados* (Rchb.) Guss., *Arenaria serpyllifolia* L., *Cerastium arvense* L., *Cerastium banaticum* (Rochel) Heuff., *Cerastium fontanum* Baumg., *Cerastium petricola* Pančić, *Cerastium tauricum* Spreng., *Dianthus armeria* L., *Dianthus giganteus* D'Urv., *Dianthus moesiacus* Vis. & Pančič, *Dianthus petraeus* Waldst. & Kit., *Dianthus urumoffii* Stoj. & Acht., *Herniaria hirsuta* L., *Herniaria incana* Lam., *Holosteum umbellatum* L., *Lychnis coronaria* (L.) Desr., *Minuartia bulgarica* (Velen.) Graebn., *Minuartia caespitosa* (Ehrh.) Degen, *Minuartia glomerata* (M. Bieb.) Degen, *Minuartia rhodopaea* (Degen) Kožuharov & Kuzmanov, *Minuartia setacea* (Thuill.) Hayek, *Minuartia viscosa* (Schreb.) Schinz. & Thell., *Moehringia pendula* (Waldst. et Kit.) Fenzl, *Moehringia trinervia* (L.) Clairv., *Myosoton aquaticum* (L.) Moench, *Paronychia cephalotes* (M. Bieb.) Besser, *Petrorhagia illyrica* (Ard.) P. W. Ball et Heywood, *Petrorhagia prolifera* P. W. Ball & Heywood, *Saponaria officinalis* L., *Scleranthus annuus* L., *Scleranthus perennis* L., *Silene armeria* L., *Silene bupleuroides* L., *Silene csereii* Baumg., *Silene fabarioides* Hausskn., *Silene gigantea* L., *Silene otites* (L.) Wibel., *Silene subconica* Friv., *Silene viridiflora* L., *Silene vulgaris* (Moench) Garcke, *Spergularia rubra* (L.) J. & C. Presl, *Stellaria graminea* L., *Stellaria holostea* L., *Stellaria media* (L.) Vill., *Stellaria pallida* (Dumort.) Piré, *Viscaria vulgaris* Röhl.; **Fam. Celastraceae:** *Euonymus europaeus* L., *Euonymus verrucosus* Scop.; **Fam. Cistaceae:** *Fumana procumbens* (Dunal) Gren. & Godr., *Rhodax canus* (L.) Fuss; **Fam. Convolvulaceae:** *Convolvulus arvensis* L., *Convolvulus cantabrica* L., *Cuscuta epithymum* (L.) L., *Cuscuta europaea* L.; **Fam. Cornaceae:** *Cornus mas* L., *Cornus sanguinea* L.; **Fam. Crassulaceae:** *Sedum acre* L., *Sedum album* L., *Sedum cepaea* L., *Sedum hispanicum* L., *Sedum maximum* (L.) Suter, *Sedum ochroleucum* Chaix, *Sempervivum marmoreum* Griseb.; **Fam. Cucurbitaceae:** *Bryonia alba* L.; **Fam. Dioscoreaceae:** *Tamus communis* L.; **Fam. Euphorbiaceae:** *Euphorbia agraria* M. Bieb., *Euphorbia amygdaloides* L., *Euphorbia cyparissias* L., *Euphorbia esula* L., *Euphorbia falcata* L., *Euphorbia helioscopia* L., *Euphorbia nicaeensis* All., *Euphorbia peplus* L., *Mercurialis perennis* L.; **Fam. Fabaceae:** *Anthyllis montana* L., *Anthyllis vulneraria* L., *Astragalus depressus* L., *Astragalus glycyphylloides* DC., *Astragalus onobrychis* L., *Astragalus pubiflorus* DC., *Astragalus vesicarius* L., *Astragalus wilmottianus* Stoj., *Chamaecytisus austriacus* (L.) Link, *Chamaecytisus jankae* (Velen.) Rothm., *Chamaespartium sagittale* (L.) Gibbs, *Coronilla scorpioides* (L.) C. Koch., *Coronilla varia* L., *Corothamnus rectipilosus* (Adamović) Skalická, *Dorycnium germanicum* (Gremli) Rikli, *Dorycnium herbaceum* Vill., *Genista januensis* Viv., *Genista subcapitata* Pančič, *Gleditsia triacanthos* L., *Hippocrepis comosa* L., *Laburnum anagyroides* Medicus, *Lathyrus aphaca* L., *Lathyrus aureus* (Steven) Brândză, *Lathyrus hirsutus* L., *Lathyrus laxiflorus* (Desf.) Kuntze, *Lathyrus niger* (L.) Bernh., *Lathyrus nissolia* L., *Lathyrus pratensis* L., *Lathyrus setifolius* L., *Lathyrus tuberosus* L., *Lathyrus venetus* (Mill.) Wohlf., *Lathyrus vernus* (L.) Bernh., *Lotus corniculatus* L., *Lotus tenuis* Waldst. & Kit., *Medicago falcata* L., *Medicago lupulina* L., *Medicago minima* (L.) Bartal., *Medicago polymorpha* L., *Medicago sativa* L., *Melilotus alba* Medicus, *Melilotus officinalis* (L.) Pall., *Onobrychis alba* (Waldst. & Kit.) Desv., *Onobrychis arenaria* (Kit.) DC., *Ononis arvensis* L., *Ononis spinosa* L., *Robinia pseudoacacia* L., *Trifolium alpestre* L., *Trifolium arvense* L., *Trifolium aureum* Pollich, *Trifolium campestre* Schreb., *Trifolium dalmaticum* Vis., *Trifolium dubium* Sibth., *Trifolium hybridum* L., *Trifolium incarnatum* L.,

Trifolium medium L., *Trifolium ochroleucon* Huds., *Trifolium pallidum* Waldst. & Kit., *Trifolium pannonicum* Jacq., *Trifolium pratense* L., *Trifolium repens* L., *Trigonella monspeliaca* L., *Vicia cracca* L., *Vicia dumetorum* L., *Vicia grandiflora* Scop., *Vicia pannonica* Crantz, *Vicia sativa* L., *Vicia tetrasperma* (L.) Schreb.; **Fam. Fagaceae:** *Fagus sylvatica* L., *Quercus cerris* L., *Quercus dalechampii* Ten., *Quercus frainetto* Ten., *Quercus pubescens* Willd.; **Fam. Gentianaceae:** *Centaurium pulchellum* (Sw.) Druce, *Gentiana cruciata* L.; **Fam. Geraniaceae:** *Erodium cicutarium* (L.) ĽHer., *Geranium columbinum* L., *Geranium dissectum* L., *Geranium macrorrhizum* L., *Geranium phaeum* L., *Geranium pyrenaicum* Burm. f., *Geranium robertianum* L., *Geranium sanguineum* L.; **Fam. Hypericaceae:** *Hypericum perforatum* L., *Hypericum rochelii* Griseb. & Schenk, *Hypericum rumeliacum* Boiss., *Hypericum tetrapterum* Fr.; **Fam. Juglandaceae:** *Juglans regia* L.; **Fam. Lamiaceae:** *Acinos alpinus* (L.) Moench, *Acinos arvensis* (Lam.) Dandy, *Ajuga chamaepitys* (L.) Schreb., *Ajuga genevensis* L., *Ajuga laxmanii* (L.) Benth., *Ajuga piramidalis* L., *Ajuga reptans* L., *Ballota nigra* L., *Betonica officinalis* L., *Calamintha nepeta* (L.) Savi, *Calamintha sylvatica* Bromf., *Clinopodium vulgare* L., *Galeopsis bifida* Boenn., *Glechoma hederacea* L., *Glechoma hirsuta* Waldst. & Kit., *Hyssopus officinalis* L., *Lamium amplexicaule* L., *Lamium galeobdolon* (L.) L., *Lamium garganicum* L., *Lamium maculatum* L., *Lamium purpureum* L., *Leonurus cardiaca* L., *Lycopus europaeus* L., *Marrubium peregrinum* L., *Mentha aquatica* L., *Mentha pulegium* L., *Mentha spicata* L., *Nepeta nuda* L., *Nepeta cataria* L., *Origanum vulgare* L., *Prunella laciniata* (L.) L., *Prunella vulgaris* L., *Salvia aethiops* L., *Salvia nemorosa* L., *Salvia nutans* L., *Salvia sclarea* L., *Salvia virgata* Jacq., *Satureja montana* L., *Sideritis montana* L., *Stachys annua* L., *Stachys cretica* L., *Stachys germanica* L., *Stachys recta* L., *Stachys sylvatica* L., *Teucrium chamaedrys* L., *Teucrium montanum* L., *Teucrium polium* L., *Thymus callieri* Borbás ex Velen., *Thymus glabrescens* Willd., *Thymus jankae* Čelak., *Thymus longicaulis* C. Presl, *Thymus moesiacus* Velen., *Thymus pannonicus* All., *Thymus pulegioides* L., *Thymus striatus* Vahl; **Fam. Linaceae:** *Linum austriacum* L., *Linum catharticum* L., *Linum tenuifolium* L.; **Fam. Lythraceae:** *Lythrum salicaria* L.; **Fam. Malvaceae:** *Alcea pallida* (Waldst. & Kit. ex Willd.) Waldst. & Kit., *Lavatera thuringiaca* L., *Malva sylvestris* L., *Tilia cordata* Mill., *Tilia tomentosa* Moench; **Fam. Oleaceae:** *Fraxinus ornus* L., *Ligustrum vulgare* L., *Syringa vulgaris* L.; **Fam. Onagraceae:** *Epilobium angustifolium* L., *Epilobium hirsutum* L., *Epilobium montanum* L., *Epilobium parviflorum* Schreb., *Epilobium tetragonum* L.; **Fam. Orobanchaceae:** *Orobanche cumana* Wallr., *Orobanche serbica* Beck & Petrovič, *Orobanche teucrii* Holandre; **Fam. Paeoniaceae:** *Paeonia peregrina* Mill. **Fam. Papaveraceae:** *Corydalis marschalliana* (Pall.) Pers., *Corydalis solida* (L.) Schwarz, *Papaver rhoeas* L.; **Fam. Plantaginaceae:** *Globularia aphyllanthes* Crantz, *Plantago lanceolata* L., *Plantago major* L., *Plantago media* L., *Plantago subulata* L.; **Fam. Plumbaginaceae:** *Goniolimon tataricum* (L.) Boiss.; **Fam. Polygalaceae:** *Polygala anatolica* Boiss. & Heldr., *Polygala comosa* Schkuhr, *Polygala hospita* Heuff., *Polygala major* Jacq., *Polygala supina* Schreb., *Polygala vulgaris* L.; **Fam. Polygonaceae:** *Bilderdykia convolvulus* (L.) Dumort., *Bilderdykia dumetorum* (L.) Dumort., *Persicaria hydropiper* (L.) Opiz, *Polygonum patulum* M. Bieb., *Polygonum pulchellum* Loisel., *Polygonum rurivagum* Jord. ex Boreau, *Rumex acetosa* L., *Rumex acetosella* L., *Rumex crispus* L., *Rumex pulcher* L., *Rumex sanguineus* L.; **Fam. Portulacaceae:** *Portulaca oleracea* L.; **Fam. Primulaceae:** *Anagallis arvensis* L., *Androsace maxima* L., *Lysimachia nummularia* L., *Lysimachia vulgaris* L., *Primula veris* L.; **Fam. Ranunculaceae:** *Adonis flammea* Jacq., *Adonis vernalis* L., *Anemone ranunculoides* L., *Anemone sylvestris* L., *Clematis vitalba* L., *Consolida regalis* Gray, *Delphinium fissum* Waldst. & Kit., *Helleborus odorus* Waldst. & Kit., *Hepatica nobilis* Mill., *Isopyrum thalictroides* L., *Nigella arvensis* L., *Pulsatilla montana* (Hoppe) Reichenb. ssp. *bulgarica*, *Ranunculus acris* L., *Ranunculus bulbosus* L., *Ranunculus ficaria* L., *Ranunculus illyricus* L., *Ranunculus millefoliatus* Vahl, *Ranunculus polyanthemos* L., *Ranunculus repens* L., *Ranunculus sartorianus* Boiss. & Heldr., *Thalictrum aquilegifolium* L., *Thalictrum minus* L.; **Fam. Resedaceae:** *Reseda lutea* L.; **Fam. Rhamnaceae:** *Rhamnus saxatilis* Jacq.; **Fam. Rosaceae:** *Agrimonia eupatoria* L., *Amelanchier ovalis* Medicus, *Amygdalus nana* L., *Aremonia agrimonoides* (L.) DC., *Cotoneaster integerrimus* Medicus, *Cotoneaster niger* (Thunb.) Fries, *Crataegus monogyna* Jacq., *Crataegus pentagyna* Waldst. & Kit., *Filipendula ulmaria* (L.) Maxim., *Filipendula vulgaris* Moench, *Fragaria moschata* Duchesne, *Fragaria vesca* L., *Fragaria viridis* Duchesne, *Geum urbanum* L., *Malus dasyphylla* Borkh., *Malus praecox* (Pall.) Borkh., *Malus sylvestris* Mill., *Potentilla argentea* L., *Potentilla cinerea* Chaix. ex Vill., *Potentilla micrantha* Ramond ex DC., *Potentilla neglecta* Baumg., *Potentilla patula* Waldst. & Kit., *Potentilla pedata* Willd., *Potentilla reptans* L., *Potentilla rupestris* L., *Potentilla ternata* C. Koch, *Prunus avium* L., *Prunus cerasifera* Ehrh., *Prunus mahaleb* L., *Prunus spinosa* L., *Pyrus nivalis* Jacq., *Pyrus pyraster* Burgsd., *Rosa canina* L., *Rosa gallica* L., *Rosa micrantha* Borrer ex Sm., *Rosa myriacantha* DC., *Rosa obtusifolia* Desv., *Rosa tomentosa* Sm., *Rubus caesius* L., *Rubus thyrsanthus* Focke, *Sanguisorba minor* Scop., *Sorbus torminalis* (L.) Crantz, *Sorbus umbellata* (Desf.) Fritsch, *Waldsteinia geoides* Willd.; **Fam. Rubiaceae:** *Asperula cynanchica* L., *Asperula purpurea* (L.) Ehrend., *Asperula taurina* L., *Crucianella graeca* Boiss., *Cruciata glabra* (L.) Ehrend., *Cruciata laevipes* Opiz, *Cruciata pedemontana* (Bellardi) Ehrend., *Galium album* Mill., *Galium aparine* L., *Galium debile* Desv., *Galium heldreichii* Halácsy, *Galium odoratum* (L.) Scop., *Galium*

pseudoaristatum Schur, *Galium spurium* L., *Galium verum* L., *Sherardia arvensis* L.; **Fam. Rutaceae:** *Dictamnus albus* L., *Haplophyllum suaveolens* (DC.) G. Don.; **Fam. Salicaceae:** *Populus nigra* L., *Populus tremula* L., *Salix alba* L., *Salix fragilis* L., *Salix triandra* L.; **Fam. Santalaceae:** *Thesium arvense* Horv., *Thesium divaricatum* Jan ex Mert. & Koch; **Fam. Sapindaceae:** *Acer campestre* L., *Acer pseudoplatanus* L.; **Fam. Saxifragaceae:** *Saxifraga rotundifolia* L.; **Fam. Scrophulariaceae:** *Digitalis ferruginea* L., *Digitalis grandiflora* Mill., *Digitalis lanata* Ehrh., *Euphrasia pectinata* Ten., *Euphrasia stricta* D. Wolff., *Kickxia spuria* (L.) Dumort., *Lathraea squamaria* L., *Linaria dalmatica* (L.) Mill., *Linaria genistifolia* (L.) Mill., *Linaria rubioides* Vis. & Pančić, *Linaria vulgaris* Mill., *Melampyrum arvense* L., *Odontites lutea* (L.) Clairv., *Odontites serotina* (Lam.) Dumort., *Pedicularis petiolaris* Ten., *Rhinanthus minor* L., *Rhinanthus rumelicus* Velen., *Scrophularia canina* L., *Verbascum banaticum* Schrad., *Verbascum chaixii* Vill., *Verbascum densiflorum* Bertol., *Verbascum eriophorum* Godr., *Verbascum lychnitis* L., *Verbascum phlomoides* L., *Verbascum phoeniceum* L., *Veronica arvensis* L., *Veronica austriaca* L., *Veronica beccabunga* L., *Veronica chamaedrys* L., *Veronica officinalis* L., *Veronica prostrata* L., *Veronica spicata* L. subsp. *orchidea* (Crantz) Hayek, *Veronica triloba* (Opiz) Kern.; **Fam. Simaroubaceae:** *Ailanthus altissima* (Mill.) Swingle; **Fam. Solanaceae:** *Datura stramonium* L., *Solanum dulcamara* L., *Solanum nigrum* L.; **Fam. Tamaricaceae:** *Tamarix tetrandra* Pall. ex M. Bieb.; **Fam. Ulmaceae:** *Ulmus glabra* Huds., *Ulmus minor* Mill.; **Fam. Urticaceae:** *Urtica dioica* L.; **Fam. Verbenaceae:** *Verbena officinalis* L.; **Fam. Violaceae:** *Viola arvensis* Murr., *Viola kitaibeliana* Schult., *Viola odorata* L., *Viola riviniana* Rchb., *Viola suavis* M. Bieb., *Viola tricolor* L.

Class Liliopsida:-

Fam. Alismataceae: *Alisma plantago-aquatica* L.; **Fam. Amaryllidaceae:** *Allium atroviolaceum* Boiss., *Allium cupani* Raf., *Allium flavum* L., *Allium moschatum* L., *Allium paniculatum* L., *Allium saxatile* M. Bieb., *Allium scorodoprasum* L., *Allium vineale* L., *Galanthus elwesii* Hook. f., *Sternbergia colchiciflora* Waldst. & Kit.; **Fam. Araceae:** *Arum maculatum* L., *Lemna minor* L.; **Fam. Asparagaceae:** *Anthericum liliago* L., *Anthericum ramosum* L., *Asparagus officinalis* L., *Asparagus tenuifolius* Lam., *Hyacinthella leucophaea* (Steven ex Kunth) Schur, *Muscari botryoides* (L.) Mill., *Muscari comosum* (L.) Mill., *Muscari neglectum* Ten., *Muscari racemosum* (L). Lam. & DC., *Ornithogalum kochii* Parl., *Ornithogalum narbonense* L., *Ornithogalum sibthorpii* Greuter, *Polygonatum latifolium* (Jacq.) Desf., *Polygonatum odoratum* (Mill.) Druce, *Scilla bifolia* L.; **Fam. Colchicaceae:** *Colchicum autumnale* L.; **Fam. Cyperaceae:** *Carex caryophyllea* Latourr., *Carex divisa* Huds., *Carex flacca* Schreb., *Carex flava* L., *Carex halleriana* Asso, *Carex michelii* Host, *Carex otrubae* Podp., *Carex praecox* Schreb., *Carex tomentosa* L., *Eleocharis palustris* (L.) R. Br., *Schoenoplectus lacustris* (L.) Palla; **Fam. Iridaceae:** *Crocus flavus* Weston, *Iris reichenbachii* Heuff.; **Fam. Juncaceae:** *Juncus articulatus* L., *Juncus compressus* Jacq., *Juncus effusus* L., *Juncus inflexus* L., *Luzula campestris* (L.) Lam. & DC., *Luzula multiflora* (Retz.) Lej.; **Fam. Liliaceae:** *Fritillaria orientalis* Adams, *Lilium martagon* L., *Tulipa urumoffii* Hayek; **Fam. Melanthiaceae:** *Veratrum nigrum* L.; **Fam. Orchidaceae:** *Cephalanthera damasonium* (Mill.) Druce, *Dactylorhiza sambucina* (L.) Sòo, *Epipactis helleborine* (L.) Crantz, *Gymnadenia conopsea* (L.) R. Br., *Himantoglossum caprinum* (M. Bieb.) Spreng., *Neottia nidus-avis* (L.) Rich., *Ophrys cornuta* Steven, *Orchis morio* L., *Orchis purpurea* Huds., *Orchis simia* Lam., *Orchis tridentata* Scop.; **Fam. Poaceae:** *Achnatherum calamagrostis* (L.) P. Beauv., *Agropyron cristatum* (L.) Gaertn., *Agrostis capillaris* L., *Agrostis stolonifera* L., *Aira elegantissima* Schur, *Alopecurus pratensis* L., *Anthoxanthum odoratum* L., *Apera spica-venti* (L.) P. Beauv., *Arrhenatherum elatius* (L.) P. Beauv. ex J. & C. Presl, *Botriochloa ischaemum* (L.) Keng, *Brachypodium pinnatum* (L.) P. Beauv., *Brachypodium sylvaticum* (Huds.) P. Beauv., *Briza media* L., *Bromus arvensis* L., *Bromus erectus* Huds., *Bromus japonicus* Thunb., *Bromus moesiacus* Velen., *Bromus racemosus* L., *Bromus squarrosus* L., *Bromus sterilis* L., *Bromus tectorum* L., *Calamagrostis epigejos* (L.) Roth, *Catabrosa aquatica* (L.) P. Beauv., *Chrysopogon gryllus* (L.) Trin., *Cleistogenes serotina* (L.) Keng, *Cynodon dactylon* (L.) Pers., *Cynosurus cristatus* L., *Cynosurus echinatus* L., *Dactylis glomerata* L., *Dasypyrum villosum* (L.) Cand., *Deschampsia caespitosa* (L.) P. Beauv., *Echinochloa crus-galli* (L.) P. Beauv., *Elymus hispidus* (Opiz) Melderis, *Elymus repens* (L.) Gould., *Eragrostis pilosa* (L.) P. Beauv., *Festuca pratensis* L., *Festuca pseudovina* Hack. ex Wiesb., *Holcus lanatus* L., *Hordelymus europaeus* (L.) Harz, *Hordeum bulbosum* L., *Hordeum hystrix* Roth, *Hordeum leporinum* Link, *Hordeum murinum* L., *Hordeum secalinum* Schreb., *Koeleria macrantha* (Ledeb.) Schult., *Koeleria nitidula* Velen., *Koeleria penzesii* Ujhelyi, *Lolium perenne* L., *Lolium temulentum* L., *Melica ciliata* L., *Melica uniflora* Retz., *Phleum alpinum* L., *Phleum phleoides* (L.) Karst., *Phleum pratense* L., *Poa angustifolia* L., *Poa annua* L., *Poa badensis* Haenke ex Willd., *Poa bulbosa* L., *Poa compressa* L., *Poa nemoralis* L., *Poa pratensis* L., *Poa trivialis* L., *Sesleria latifolia* (Adamovič) Degen, *Sesleria rigida* Heuffel ex Rchb., *Setaria pumila* (Poir.) Schult., *Stipa capillata* L., *Stipa epilosa* Martinovský, *Stipa pulcherrima* Koch, *Stipa tirsa* Steven, *Vulpia myuros* (L.) C. C. Gmel.; **Fam. Typhaceae:** *Sparganium erectum* L., *Typha angustifolia* L., *Typha latifolia* L.; **Fam. Xanthorrhoeaceae:** *Asphodelus albus* Mill.