



## Article

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**Annotated catalogue of seeds and spores (Index Seminum) collected from plants cultivated in the A.G. Henckel Botanical Garden of Perm State National Research University in 2022.**

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**Abstract**

The A.G. Henckel Botanical Garden of Perm State National Research University is a major scientific, educational and cultural center of the Western Urals. Renowned for its traditions, the Botanical Garden possesses rich collections of wild and cultivated plants, many of them ornamental. This collection comprises *ca.* 9500 taxa. Many plants have been cultivated in open ground and in greenhouses bloom profusely and produce seeds. The harvest of 2022 is a special one because it is 100 years ago that the A.G. Henckel Botanical Garden was founded. The *Index Seminum* contains a list of the plants that produce seeds and spores which are available for exchange with other botanical gardens and botanical institutions. These seeds and spores were harvested during the 2020-2022 seasons.

**Keywords:** acclimatization, cultivation, endangered plants, genetic resources, *Index Seminum*, Perm Region

**Introduction**

The Perm Region is in the most eastern part of Europe just to the west of the Central and Northern Urals. Its area is more than 160,000 km<sup>2</sup>, 645 km from North to South, at its maximum, and 417 km from West to East. The climate of the Perm Region is temperate continental (Fig. 1). The winter is long, lasting over 6 months, and the snow cover can be up to 2 m deep. The absolute minimum temperature in winter is –56°C while the maximum temperature in summer is 42°C (Pogodaiklimat, 2022). The topography of the Perm Region was formed at the same time as the Ural Mountains, about 250 million years ago. The western part of the Perm Region (*ca.* 85% of its territory) is low and flat while in the East the terrain is mountainous. There are more than 29,000 rivers with a total length of over 90,000 km. The largest is the River Kama at 1805 km long. The dominant type of vegetation in the Perm Region is forest which covers 71% of the region.

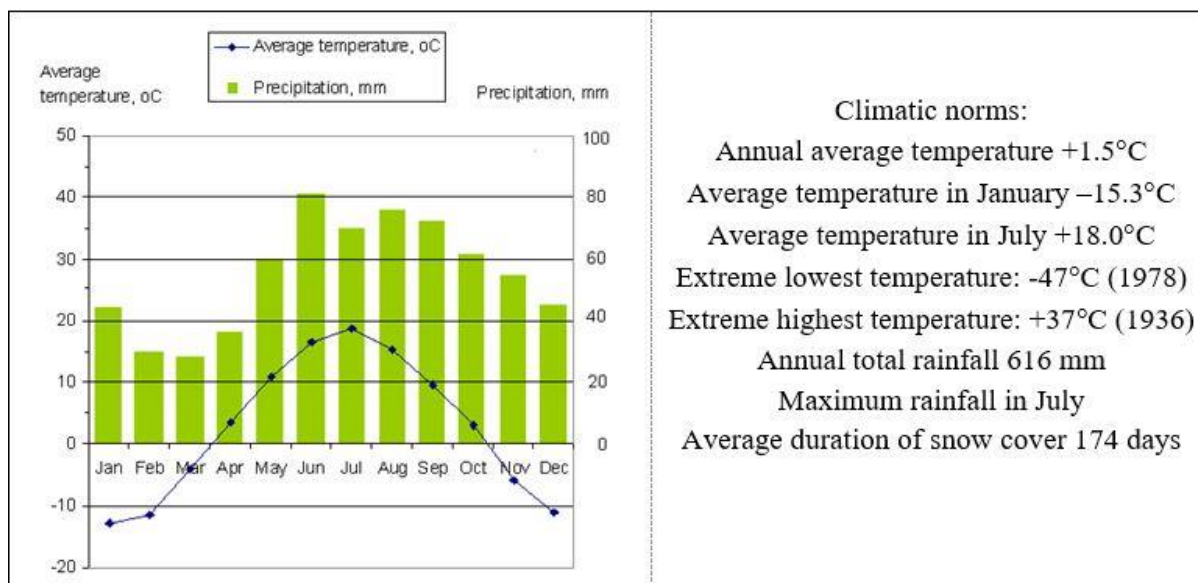


Figure 1. Climatic norms of the Perm region (Pogodaiklimat, 2022)

Perm State University was founded in 1916 and today, more than hundred years later, has the status of a National Research University and is one of the leading universities in Russia. The University is especially proud of its Perm Geological Museum, Herbarium and Botanical Garden. The Herbarium of Perm University was organized in 1918 by Pavel Syuzev in the Department of Morphology and Plant Systematics. In total, there are 90,000 specimens, including type specimens. Its International Code is PERM (Follows Thiers, 2023).

The Botanical Garden of the Perm State University was founded by two people whose names are known to every citizen of Perm. They were N.V. Meshkov, a major industrialist, honorary freeman of Perm and patron of art, and A.G. Henckel, an outstanding scholar and professor of botany (Shumikhin, 2022b). Meshkov was a prosperous capitalist and steamship fleet owner, known among his contemporaries for his progressive mindset and enormous charity work. He built charity establishments in honour of his mother E.I. Meshkova. In front of one of them he planned a large People's Garden (Fig. 2), which was to “serve the citizens of Perm as a pleasant place for walks and recreation in the open air” (Meyer, 1916).

In 1915, Meshkov invited a famous landscape architect from Moscow, E.A. Meyer to design the garden. Main features of the garden, which was planned to cover *ca.* 3,3 ha., was to include regularly shaped lawns and a large pond at the entrance of the garden. The front part of the garden was designed in the classical style while the largest part of the garden was designed in the landscape style. In Meyer's opinion, the natural style was preferable because “it is a complete contrast to the street network and at the same time matches the style of the main building.” In the corners of the garden playgrounds were to be created, in the east part a

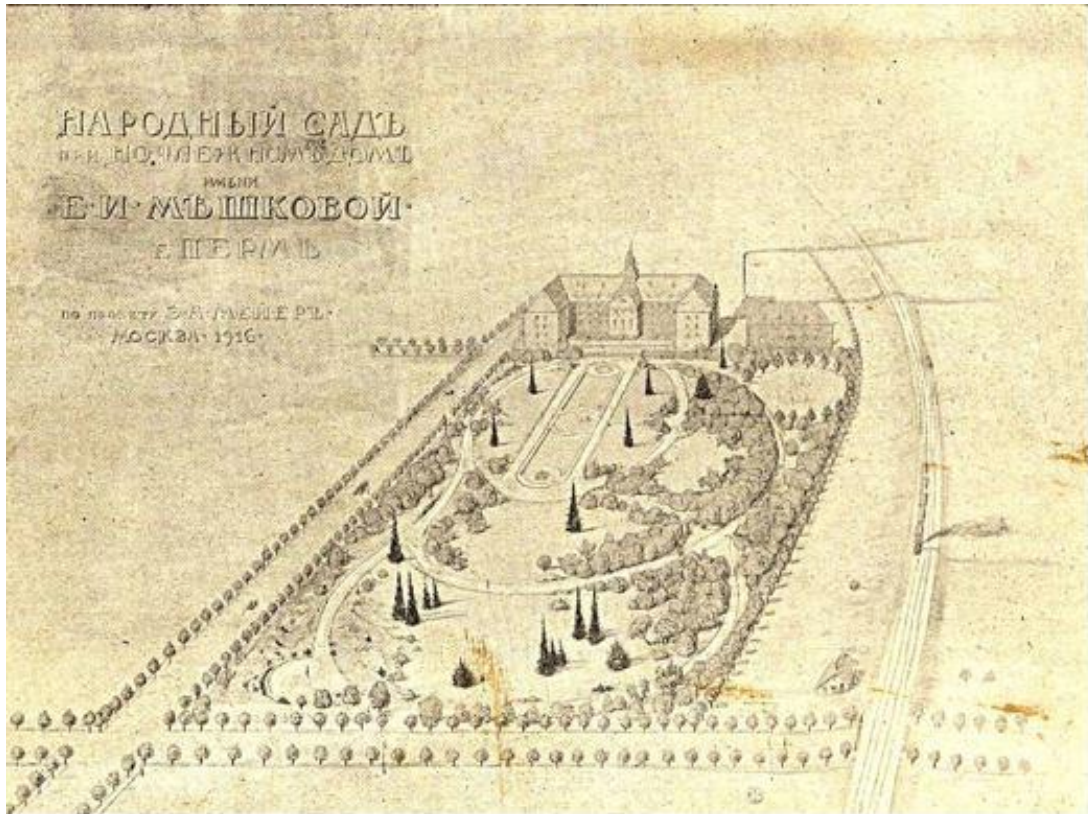


Figure 2. E.A. Meyer's People's Garden (Meyer, 1916)

stony area for growing perennial alpine plants was planned, and behind the main building there would be a glass house, a gardener's house and a kitchen garden.

Meyer gave prominence to the local flora among the plants recommended for the People's Garden. Out of the 104 proposed species of decorative, arboreal and shrub plants, 57 were growing in the Perm Province. All plants in the garden were to be marked with labels giving the botanical names of the plants in Latin and Russian. Meyer's People's Garden (Fig. 2) is an interesting project of plant introduction to the region. With reference to the famous botanists of Perm, P. Syuzyov and P. Krylov, Meyer analyzed the possibilities for growing plants that were not typical for Perm, and those whose northern border of distribution was Perm. For example, this is true for some oaks. The project gave the fundamentals of the theory of introduction, unknown in those times. Meyer (1916) stated: "... here we can only plant those sorts, which come from areas with a climate similar to that of Perm or harsher. The origin of the seeds plays the most important role in acclimatization experiments. The seed of the plant, to be more easily acclimatized is to come from areas where they grow naturally, whose climate is the most similar to the one in question."

Unfortunately, this grand project was not completed. The revolution of 1917 and the subsequent civil war delayed the creation of the garden by 6 years. In 1920-1921, during the

years of food shortages, a part of the area of the future garden was used by the University staff as a kitchen garden.



Figure 3. Professor A.G. Henckel (1872-1927) (Meyer, 1916)

Only in 1922, upon the initiative of the Head of Department of Plant Morphology and Taxonomy, Professor A.G. Henckel (Fig. 3), work was started to create the Botanical Garden of Perm University. A vacant lot of 2 ha. was given for the Botanical Garden, situated in front of the main university building. Under Henckel's direct supervision, a dendrological breeding ground was founded, as well as collection plots and an arboretum. The collection of wild plants and those cultivated in the gardens was organized.

As a result, the first Seeds Index was published in 1923,

offering seeds for exchange by the

Botanical Garden of Perm University (Fig. 4). The Botanical Garden's greenhouse was situated in the attic of a university building. In January 1927, Perm University suffered great losses due to a fire, in which the attic of the hothouse building burned down. The director of the Botanical Garden, Professor Henckel, fought the fire to save property and plants but caught a cold during this two-day effort, when the temperature outside was  $-30^{\circ}\text{C}$ , which provoked an acute attack of his chronic tuberculosis. On 9<sup>th</sup> of April, at the age of 54, A.G. Henckel died. Part of the funds received by the university to restore the attic destroyed by the fire was given to the gardens for building a new greenhouse, which is still in use by the Botanical Garden. Today, the Botanical Garden of Perm State University is a major scientific, educational and cultural centre of the Western Urals (Fig. 5).

Renowned for its traditions, the Botanical Garden possesses rich collections of wild and decorative flora. The Botanical Garden of Perm State University is situated in the center of the city, occupying an area of 2 ha. There are greenhouses, indoor and outdoor collections and production units. Our collection of living plants comprises about 9,500 taxa. The most

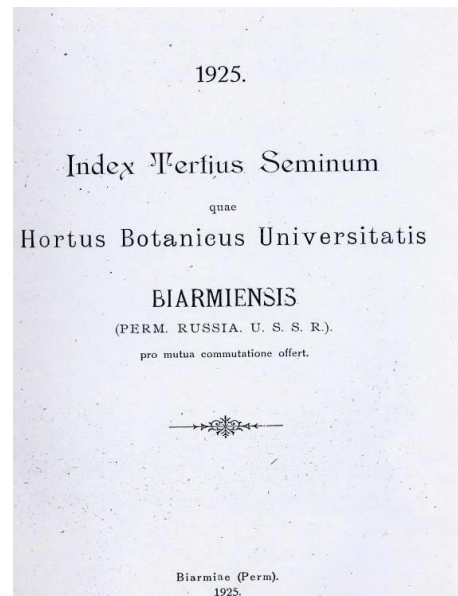


Figure 4. Seeds Index for exchange by the Botanical Garden of Perm University

interesting collection is that of the greenhouses. At present, the Garden greenhouses, covering an area of about 0.2 ha., contain collections of living plants which comprise over 4,500 taxa, many of them brought from, exotic parts of the world (Shumigai *et al.*, 2022; Shumikhin *et al.*, 2022c; Cherkova *et al.*, 2022). The gem among them is the oldest in the Urals, a 125-year-old specimen of the canary date (*Phoenix canariensis* H.Wildpret), planted by the founder of the Garden, Professor Henckel. This palm tree is included in the National Register of Old-Growing Plants in Russia.

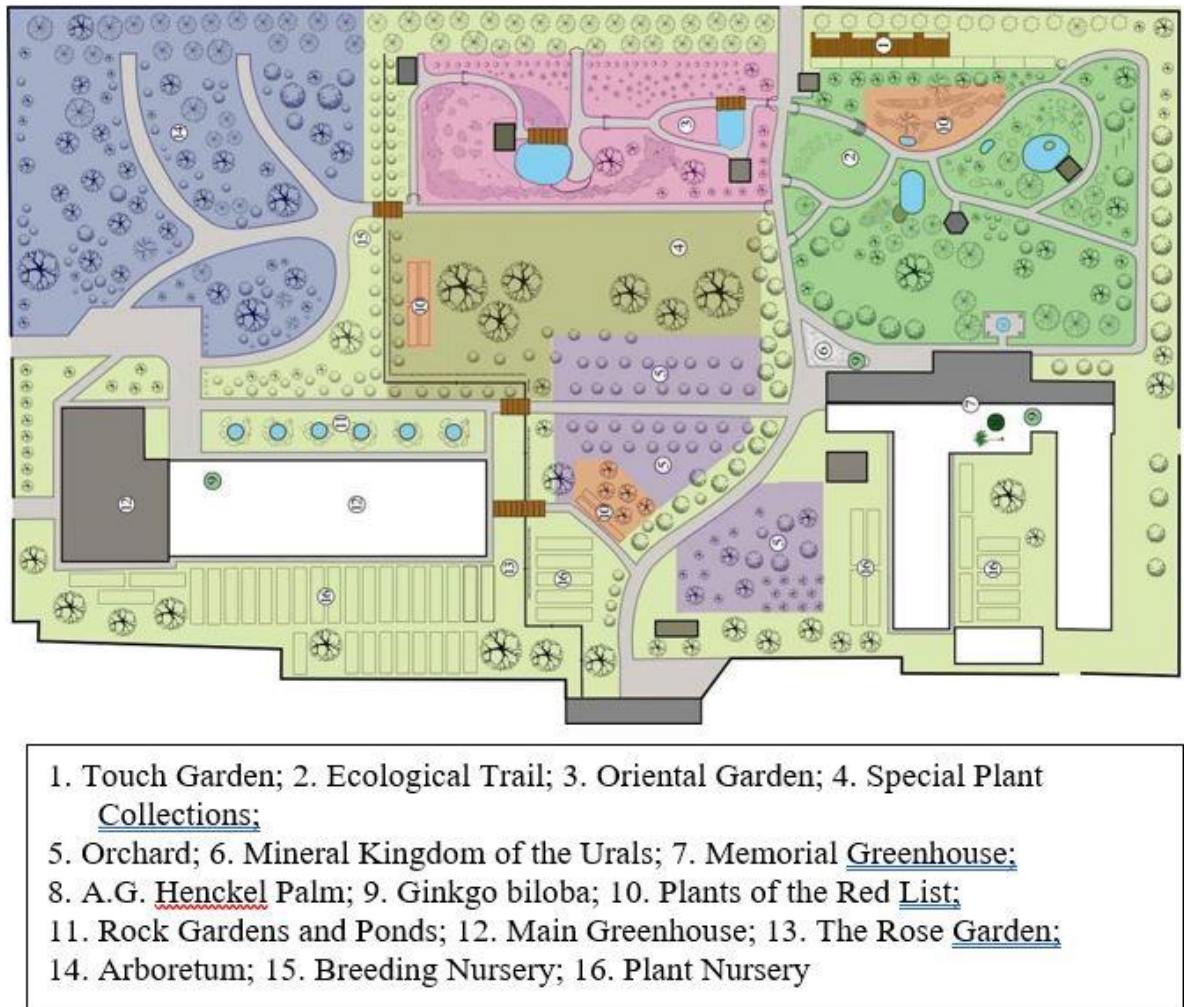


Figure 5. Plan of the A.G. Henckel Botanical Garden of Perm State University

The scientific research work of the Botanical Garden is connected with the introduction and acclimatization of plants, the selection and development of new forms and varieties most resistant and productive in the Ural conditions (Shumikhin *et al.*, 2022c; Shumikhin, 2023; Chertkova, 2022).

All research at the Botanical Garden, in recent years, has been conducted on background research for the development of collections of typical phytocenosis representative of various climate zones. With financial support of the Department for Environment Protection of the Perm Region, in the Botanical Garden, we have created an ecological path with elements of model phytocenosis of the temperate climatic zone, including “Pond,” “Peat Marsh,” “Highland Plants,” “Far Eastern Flora,” “Coniferous Forest” and “Red List plants” (Shumikhin, 2022a; Shumikhin *et al.*, 2022d). For the first time in the Urals, we have planted more than 500 species of plants based on the method of climatic analogues. In the glasshouse we created a second ecological path with the elements of tropical and subtropical flora (Shumigai *et al.*, 2022; Shumikhin *et al.*, 2022c).

We have compiled a list of rare and endangered plant species of the Perm Region and now, the living collection of the Red List plants of the Perm Region totals 72 species from 32 families of vascular plants and 58 species from the Red List of Russia, 12 species from CITES Appendix 1, and 71 species from CITES Appendix 2. The collection of protected plant species will be used as a reserve for replenishing and restoring natural populations. Since 2005, the Botanical Garden has been participating in the International Programme of Botanical Gardens on protection of plants (BGCI Programme). With our unique techniques, more than 100 rare species of plants were introduced and reintroduction programmes for 26 rare species were developed. In the past three years, 19 species of plants from the Red List of the Perm Region were planted in their natural habitats. Now they are being monitored.

Collections of the Botanical Garden annually increase by 400 to 600 species as a result of exchange of plants and seeds. Each year, the Botanical Garden exchanges seeds and live plants with more than 200 other botanical gardens worldwide. Also, the Botanical Garden publishes *Index Seminum at Sporarum* in which the seeds of more than 1500 taxa are offered for exchange on the website of Perm University.

We developed and published the scheme of selection process of ornamental geophytes, e.g., for the following species complexes belonging to the genera of *Gladiolus* Tourn. ex L., *Dahlia* Cav., *Hemerocallis* L., *Iris* Tourn. ex L., *Lilium* Tourn. ex L. and *Syringa* Tourn. ex Adans. Now 175 hybrids of *Gladiolus* × *hybridus* C. Morren are chosen from 46 progenies. In 2019, copyright certificates for 5 cultivars of *Gladiolus* were received. In the future, it is planned to study further and reproduce other species and selected varieties with the purpose of handing them over to the State Sort Testing Service. We studied the autecology of the 4 species of the genus *Dahlia*. Also, the reproductive strategy and seed productivity of the cultivated

*Dahlia*, *Gladiolus*, *Syringa*, *Hemerocallis*, *Iris* and *Lilium* are being researched (Chertkova and Shakina, 2022).

To optimize the methods of cloning decorative herbal, arboreal and shrub plants, the microcloning of several species including *Dahlia*, *Saintpaulia* H.Wendl. was studied. The methods of grafting for arboreal and shrub plants which had difficult rhizogenesis, were modified and a method of vegetative reproduction of lilacs *in vivo* and *in vitro* was optimized.

The social activity of the Botanical Garden is the organization of mass cultural events, as well as educational activities for the conservation of biodiversity. Every year, scientific staff and guides of the Botanical Garden organize various workshops for schoolchildren and students. They also conduct *ca.* 500 excursions around the Garden for visitors. Some topics of excursions arouse the greatest interest and discussion by visitors. For example, “The Red List Collection,” “Around the World in 50 Minutes,” “Useful Plants of the Tropics and Subtropics,” “Evening Tropics” and “Ecological Trail”.

Perm Botanical Garden has professional correspondence and exchanges seeds, spores and plants with more than 200 botanical gardens around the world. In addition, the specialists of Perm Botanical Garden have had international internships in Great Britain (Oxford University, 2007, London, Natural History Museum, 2013), Germany (Alfred Töpfler Conservation Academy, Niedersachsen, 2015), China (Beijing, Institute of Botany Chinese Academy of Sciences, 2017).

In total, for the exchange with other botanical gardens there are 1861 taxa, listed in the following catalogue. The seeds are the results of free pollination.

## **Materials and methods**

The plant names in the catalogue are ordered alphabetically within families, which are also ordered alphabetically. Author abbreviations are given as in nomenclatural database International Plant Names Index (2023). The names of families and placement of the genera follow the taxonomic database *Plant of the World Online* (POWO, 2023). Taxonomic opinions are based on the current literature and POWO (2023). Accepted names are given in bold and commonly used synonyms are in brackets.

All figures mentioned in the list of taxa are included in Appendix 1.

Explanation of signs:

v – vegetative explants

\*\* – seeds collected in 2020

- \* – seeds collected in 2021
- + – Red List taxa of Perm Region
- ++ – Red Book taxa of Russian Federation
- +++ – CITES taxa

**Semina plantarum in horto botanico cultarum 2022**  
**(Seeds collected from plants outdoors in the Botanical Garden)**

**PTERIDOPHYTES**

**Aspleniaceae** Newman

\**Athyrium filix-femina* (L.) Roth

\**Thelypteris limbosperma* (All.) H.P.Fuchs (≡*Oreopteris limbosperma* Holub)

**GYMNOSPERMS**

**Cupressaceae** Gray

*Thuja occidentalis* L.

**Pinaceae** Spreng. ex F.Rudolphi

*Abies koreana* E.N.Wilson

*Larix sibirica* Ledeb.

\*\**Larix sibirica* Ledeb.

*Pinus mugo* Turra

*Pinus mugo* Turra ‘Wintergold’

\**Pinus sibirica* Du Tour

\*\**Pinus sibirica* Du Tour

**ANGIOSPERMS**

**Alismataceae** Vent

*Alisma plantago-aquatica* L.

\**Alisma plantago-aquatica* L.



**Amaryllidaceae** J.St.-Hil.

*Allium altaicum* Pall.

\**Allium altaicum* Pall.

\**Allium altynolicum* N.Friesen

\*\**Allium altynolicum* N.Friesen

\**Allium angulosum* L.

\*\**Allium angulosum* L.

*Allium aroides* Popov & Vved.

\**Allium aroides* Popov & Vved.

*Allium backhousianum* Regel (= *Allium gulczense* B.Fedtsch.)

\**Allium backhousianum* Regel (= *Allium gulczense* B.Fedtsch.)

*Allium barszewskii* Lipsky

\**Allium barszewskii* Lipsky

\*\**Allium carinatum* L.

*Allium carolinianum* Reduté (= *Allium polyphyllum* Kar. & Kir.)

\**Allium carolinianum* Reduté. (= *Allium polyphyllum* Kar. & Kir.)

\**Allium chamaemoly* L.

\*\**Allium chamaemoly* L.

*Allium chinense* G.Don

\**Allium chinense* G.Don

\*\**Allium coloratum* Spreng. (= *Allium pulchellum* Regel ≡ *Allium carinatum* L. subsp.

*pulchellum* (Regel) Bonnier & Layens)

\**Allium coloratum* Spreng. (= *Allium pulchellum* Regel ≡ *Allium carinatum* L. subsp.

*pulchellum* (Regel) Bonnier & Layens)

\*\**Allium condensatum* Turcz.

\*\**Allium cyaneum* Regel

*Allium farreri* Stearn (≡ *Allium cyathophorum* Bureau & Franch. var. *farreri* (Stearn) Stearn)

\**Allium farreri* Stearn (≡ *Allium cyathophorum* Bureau & Franch. var. *farreri* (Stearn) Stearn)

*Allium denudatum* Reduté (= *Allium albidum* Fisch. ex M.Bieb.)

\**Allium denudatum* Reduté (= *Allium albidum* Fisch. ex M.Bieb.)

\**Allium dictyoprasum* C.A.Mey. ex Kunth (= *Allium viride* Grossh.)

\*\**Allium flavum* L.

*Allium giganteum* Regel (Appendix 1, Fig. 6)

\**Allium giganteum* Regel

*Allium gunibicum* Misch. ex Grossh.

\*\**Allium gunibicum* Misch. ex Grossh.

*Allium jesdianum* Boiss. & Buhse cv. Akbulak

\**Allium jesdianum* Boiss. & Buhse 'Akbulak'

\*\**Allium karataviense* Regel (Appendix 1, Fig. 8)

*Allium kermesinum* Rchb.

*Allium kokanicum* Regel

\**Allium kokanicum* Regel

\*\**Allium komarowii* Lipsky

*Allium ledebourianum* Schult. & Schult. f. (Appendix 1, Fig. 9)

\**Allium ledebourianum* Schult. & Schult. f.

*Allium maackii* (Maxim.) Prokh. et Kom.

\**Allium maackii* (Maxim.) Prokh. et Kom.

*Allium macranthum* Baker

\**Allium macranthum* Baker

\**Allium massaessylum* Batt. & Trab.

\*\**Allium massaessylum* Batt. & Trab.

\*\**Allium maximowiczii* Regel = (*Allium maximowiczii* var. *shibutsuense* (Kitam.) Ohwi)

*Allium narcissiflorum* Vill.

\*\**Allium neapolitanum* Cirillo

\*\**Allium nevii* S.Watson

*Allium nutans* L.

\**Allium nutans* L.

*Allium obliquum* L.

\*\**Allium obliquum* L.

\*\**Allium flavum* L. subsp. *tauricum* (Besser ex Rchb.) K.Richt. (= *Allium paczoskianum* Tuzson)

*Allium platyspatum* Schrenk ex Fisch. & C.A.Mey. subsp. *amblyophyllum* (Kar. & Kir.) N.Friesen (= *Allium alataviense* Regel)

\**Allium platyspatum* Schrenk ex Fisch. & C.A.Mey. subsp. *amblyophyllum* (Kar. & Kir.) N.Friesen (= *Allium alataviense* Regel)

\*\**Allium pskemense* B. Fedtsch.

\**Allium ramosum* L. (= *Allium tataricum* L.f.)

\*\**Allium ramosum* L. (= *Allium tataricum* L.f.)

*Allium rubens* Spreng.(= *Allium rubens* Schrad. ex Willd., nom. illeg.) +

\* *Allium rubens* Spreng.(= *Allium rubens* Schrad. ex Willd., nom. illeg.) +

*Allium sativum* L. (= *Allium longicuspis* Regel)

\*\**Allium sativum* L. (= *Allium longicuspis* Regel)

*Allium saxatile* M.Bieb. (= *Allium globosum* Bieb. ex Redouté)

\**Allium saxatile* M.Bieb. (= *Allium globosum* Bieb. ex Redouté)

*Allium schoenoprasum* L.

\*\**Allium schoenoprasum* L.

*Allium semenovii* Regel

\*\**Allium semenovii* Regel

*Allium sikkimense* Baker (= *Allium tibeticum* Rendle)

\**Allium sikkimense* Baker (= *Allium tibeticum* Rendle)

**\*\**Allium strictum*** Schrad. (= *Allium suaveolens* Gaudin)

*Allium suworowii* Regel

\**Allium suworowii* Regel

*Allium turkestanicum* Regel

\**Allium turkestanicum* Regel

*Allium victorialis* L.

\**Allium victorialis* L.

**\*\**Nothoscordum gracile*** (Aiton) Stearn

**Apiaceae** Lindl.

*Astrantia major* L.

\**Astrantia major* L.

*Astrantia major* L. 'Alba'

**\*\**Bupleurum longeradiatum*** Turcz.

*Eryngium caeruleum* M.Bieb. (= *Eryngium caucasicum* Trautv.)

**\*\**Eryngium caeruleum*** M.Bieb. (= *Eryngium caucasicum* Trautv.)

**\*\**Eryngium giganteum*** M.Bieb.

*Eryngium planum* L.

*Mutellina purpurea* (Poir.) Reduron, Charpin & Pimenov (= *Ligusticum mutellina* (L.)  
Crantz)

\**Mutellina purpurea* (Poir.) Reduron, Charpin & Pimenov (= *Ligusticum mutellina* (L.)  
Crantz)

**\*\**Meum athamanticum*** Jacq.

**Apocynaceae** Juss.

*Asclepias incarnata* L. 'Krasnyĭ'

*Asclepias syriaca* L.

*Asclepias speciosa* Torr.

**\*\**Asclepias speciosa*** Torr.

***Vincetoxicum hirundinaria*** Medik.

**\**Vincetoxicum hirundinaria*** Medik.

**Araceae** Juss.

***Sauromatum venosum*** (Dryand. ex Aiton) Kunth

**Araliaceae** Juss.

***Aralia continentalis*** Kitag.

**\**Aralia continentalis*** Kitag.

***Aralia cordata*** Thunb. ++

**\**Aralia cordata*** Thunb. ++

***Eleutherococcus sessiliflorus*** (Rupr. & Maxim.) S.Y.Hu (≡ *Acanthopanax sessiliflorus*  
(Rupr. & Maxim.) Seem.)

**Asparagaceae** Juss.

**\**Asparagus dauricus*** Fisch. ex Link

***Convallaria majalis*** L. ‘Flore Roseo’

**\**Convallaria majalis*** L. ‘Flore Roseo’

***Hosta capitata*** (Koidz.) Nakai

**\**Hosta capitata*** (Koidz.) Nakai

***Hosta clausa*** Nakai (= *Hosta clausa* Nakai var. *normalis* F.Maek.)

**\**Hosta clausa*** Nakai (= *Hosta clausa* Nakai var. *normalis* F.Maek.)

***Hosta longipes*** (Franch. & Sav.) Matsum. var. ***longipes*** (F.Msek.) N.Fujuta (≡ *Hosta*  
*gracillima* F.Maek.)

**\*\**Hosta hybrida*** hort. ‘Antion’

**\*\**Hosta hybrida*** hort. ‘Blue Cadet’

**\*\**Hosta hybrida*** hort. ‘Bressingham Blue’

**\*\**Hosta hybrida*** hort. ‘Elegantissima’

**\*\**Hosta hybrida*** hort. ‘Frances Williams’

***Hosta kikutii*** F.Maek.

\**Hosta kikutii* F.Maek.

*Hosta kiyosumiensis* F.Maek.

\**Hosta kiyosumiensis* F.Maek.

*Hosta lancifolia* (Thunb.) Engl.

\*\**Hosta lancifolia* (Thunb.) Engl.

\*\**Hosta minor* (Baker) Nakai

*Hosta sieboldiana* (Hook.) Engl.

\*\**Hosta sieboldiana* (Hook.) Engl. (= *Hosta fortunei* (Baker) Bailey) = *Hosta montana*

F.Maek. ≡ *Hosta sieboldiana* var. *montana* (F.Maek.) Zonn.)

\**Hosta sieboldiana* (Hook.) Engl. (= *Hosta fortunei* (Baker) Bailey) ‘Elegant’

\*\**Hosta sieboldiana* (Hook.) Engl. (= *Hosta fortunei* (Baker) Bailey) ‘Elegant’

*Hosta sieboldii* (Paxton) J.W.Ingram (= *Hosta lancifolia* var. *albomarginata* Voss. = *Hosta decorata* Bailey)

\*\**Hosta sieboldii* (Paxton) J.W.Ingram (= *Hosta lancifolia* var. *albomarginata* Voss. = *Hosta decorata* Bailey)

*Hosta* × *tardiva* Nakai

\**Hosta* × *tardiva* Nakai

*Hosta ventricosa* Stearn.

\**Hosta ventricosa* Stearn.

*Hosta yingeri* S.B.Jones

*Muscari armeniacum* H.J.Veitch ‘Pink Sunrise’

*Muscari aucheri* (Boiss.) Baker

*Muscarimia macrocarpa* (Sweet) Garbari (≡ *Muscari macrocarpum* Sweet) ‘Golden  
Fragrance’

Asphodelaceae Juss.

\**Hemerocallis dumortieri* C.Morren

\**Hemerocallis esculenta* Koidz.

\*\**Hemerocallis esculenta* Koidz.

\**Hemerocallis middendorffii* Trautv. & C.A.Mey.

\*\**Hemerocallis middendorffii* Trautv. & C.A.Mey.

## **Berberidaceae** Juss.

*Berberis amurensis* Rupr.

\*\**Berberis amurensis* Rupr.

*Berberis brachypoda* Maxim. (Appendix 1, Fig. 7)

\**Berberis brachypoda* Maxim.

*Berberis chinensis* Poir.

\**Berberis chinensis* Poir.

\*\**Berberis francisci-ferdinandi* C.K.Schneid.

*Berberis japonica* (Thunb.) Spreng.

\**Berberis japonica* (Thunb.) Spreng.

*Berberis koreana* Palib.

\**Berberis koreana* Palib.

*Berberis* × *notabilis* C.K.Schneid.

*Berberis nummularia* Bunge

*Berberis oblonga* (Regel) C.K.Schneid.

\*\**Berberis oblonga* (Regel) C.K.Schneid.

*Berberis thunbergii* DC.

\*\**Berberis thunbergii* DC.

*Berberis thunbergii* DC. ‘Aurea’

\**Berberis thunbergii* DC. ‘Aurea’

*Berberis thunbergii* DC. ‘Carmen’

\**Berberis thunbergii* DC. ‘Carmen’

*Berberis thunbergii* DC. ‘Cobold’

*Berberis thunbergii* DC. ‘Minor Variegata’

\**Berberis thunbergii* DC. ‘Minor Variegata’

\* *Berberis thunbergii* DC. ‘Red Chif’

\*\**Berberis thunbergii* DC. ‘Red Chif’

*Berberis thunbergii* DC. ‘Variegata’

\**Berberis thunbergii* DC. ‘Variegata’

*Berberis vulgaris* L. ‘Violacea’

\* *Podophyllum aurantiocaulis* Hand.-Mazz. (≡ *Dysosma aurantiocaulis* (Hand.-Mazz.) Hu)

\**Podophyllum peltatum* L.

\*\**Podophyllum peltatum* L.

*Podophyllum hexandrum* Royle (≡ *Sinopodophyllum hexandrum* (Royle) T.S.Ying) +++

\**Podophyllum hexandrum* Royle (≡ *Sinopodophyllum hexandrum* (Royle) T.S.Ying) +++

## **Betulaceae** Gray

*Alnus glutinosa* (L.) Gaertn.

\*\**Alnus glutinosa* (L.) Gaertn.

*Betula pubescens* Ehrh.

\*\**Betula pubescens* Ehrh.

*Corylus avellana* L.

## **Bignoniaceae** Juss.

\**Catalpa speciosa* Teas

## **Boraginaceae** Juss.

\*\**Lithospermum officinale* L.

*Onosma alborosea* Fisch. & C.A.Mey.



**Brassicaceae** Burnett

\*\**Alliaria petiolata* (M.Bieb.) Cavara & Grande +

*Alyssum lenense* Adams (= *Alyssum altaicum* C.A.Mey.)

\*\**Alyssum lenense* Adams (= *Alyssum altaicum* C.A.Mey.)

\*\**Alyssum wulfenianum* Benth. ex Willd.

*Arabis blepharophylla* Hook. & Arn.

\**Arabis blepharophylla* Hook. & Arn.

*Arabis caucasica* Willd. (≡ *Arabis alpina* L. subsp. *caucasica* (Willd.) Briq.)

\**Arabis caucasica* Willd. (≡ *Arabis alpina* L. subsp. *caucasica* (Willd.) Briq.)

*Arabis oregana* Rollins

*Arabis planisiliqua* (Pers.) Rchb.

\**Arabis planisiliqua* (Pers.) Rchb.

*Arabis pumila* Jacq.

\**Arabis pumila* Jacq.

*Crambe cordifolia* Steven ++

\**Crambe cordifolia* Steven ++

\*\**Crambe maritima* L.

\*\**Crambe steveniana* Rupr.

*Draba aizoides* L.

\*\**Draba aizoides* L.

*Draba alpina* L.

*Draba arabisans* Michx.

\*\**Draba arabisans* Michx.

*Draba aurea* Vahl ex Hornem.

\*\**Draba aurea* Vahl ex Hornem.

\*\**Draba aizoides* L. subsp. *aizoides* (= *Draba cuspidata* Bertol.)

*Draba daurica* DC. (= *Draba dovrensis* Fr.)

\*\**Draba daurica* DC. (= *Draba dovrensis* Fr.)

*Draba dubia* Suter

\*\**Draba dubia* Suter

*Draba fladnizensis* Wulfen

\*\**Draba glacialis* Adams

\*\**Draba hyperborea* (L). Desv. (= *Schivereckia podolica* (Besser) Andrz. ex DC.)

*Draba incana* L.

\*\**Draba incana* L.

\*\**Draba hoppeana* Rchb.

*Draba kitadakensis* Koidz. (= *Draba igarashii* S.Watan.

\*\**Draba kitadakensis* Koidz. (= *Draba igarashii* S.Watan.

*Draba muralis* L.

\*\**Draba muralis* L.

\*\**Draba nivalis* Lilj.

*Draba sachalinensis* (F.Schmidt) Trautv.

\**Draba sachalinensis* (F.Schmidt) Trautv.

*Draba sibirica* (Pall.) Thell. (Appendix 1, Fig. 10)

*Draba siliquosa* M.Bieb. (= *Draba carinthiaca* Hoppe)

\*\**Draba siliquosa* M.Bieb. (= *Draba carinthiaca* Hoppe)

*Draba stellata* Jacq.

*Draba streptocarpa* A.Gray

\**Draba streptocarpa* A.Gray

*Draba tomentosa* Clairv.

*Iberis carnosa* Willd. (= *Iberis pruitii* Tineo = *Iberis jordanii* Boiss, nom. superfl.)

\*\**Iberis carnosa* Willd. (= *Iberis pruitii* Tineo = *Iberis jordanii* Boiss, nom. superfl.)

*Iberis sempervirens* L.

**\*\**Iberis sempervirens* L.**

*Iberis sempervirens* L. 'Climar'

**\**Iberis sempervirens* L. 'Climar'**

*Iberis sempervirens* L. 'Snowflake'

*Hesperis matronalis* L.

**\**Hesperis matronalis* L.**

*Hesperis sylvestris* Crantz

*Turritis glabra* L. (≡ *Arabis glabra* (L.) Bernh.)

**\**Turritis glabra* L. (≡ *Arabis glabra* (L.) Bernh.)**

**Calceolariaceae** Raf. ex Olmstead

*Calceolaria corymbosa* Ruiz & Pav.

*Calceolaria tomentosa* Ruiz & Pav.

**Campanulaceae** Juss.

*Adenophora nikoensis* Franch. & Sav.

**\**Adenophora nikoensis* Franch. & Sav.**

*Adenophora pereskiiifolia* (Fisch. ex Schult. G.Don (= *Adenophora koreana* Kitam.)

**\**Adenophora pereskiiifolia* (Fisch. ex Schult. G.Don (= *Adenophora koreana* Kitam.)**

*Adenophora potaninii* Korsh.

*Campanula alliariifolia* Willd. (= *Campanula ochroleuca* (Kem.-Nath.) Kem.-Nath.

*Campanula autraniana* Albov. ++

**\**Campanula autraniana* Albov. ++**

*Campanula baumgartenii* Becker

**\*\**Campanula baumgartenii* Becker**

*Campanula cespitosa* Scop.

**\**Campanula cespitosa* Scop.**

*Campanula glomerata* L. 'Nana'

*Campanula grandis* Fisch. & C.A.Mey. subsp. *grandis* (= *Campanula latiloba* A.DC.)

\*\**Campanula grossekii* Heuff.

\**Campanula hofmannii* (Pantan.) Greuter & Burdet

\**Campanula komarovii* Maleev ++

\*\**Campanula komarovii* Maleev ++

*Campanula lanata* Friv.

\*\**Campanula mirabilis* Albov

\**Campanula petrophila* Rupr.

*Campanula raddeana* Trautv. (= *Campanula kemulariae* Fomin)

\**Campanula raddeana* Trautv. (= *Campanula kemulariae* Fomin)

*Campanula raineri* Perp.

*Campanula raineri* Perp.

\**Campanula rapunculoides* L. (= *Campanula rhomboidalis* L. =

*Campanula rhomboidea* L.)

\*\**Campanula rapunculoides* L. (= *Campanula rhomboidalis* L. =

*Campanula rhomboidea* L.)

*Campanula reiseri* Halácsy

*Campanula scheuchzeri* Vill.

\*\**Campanula scheuchzeri* Vill.

\*\**Campanula tatrae* Borbás

\*\**Codonopsis clematidea* (Schrenk) C.B. Clarke

\**Codonopsis lanceolata* (Siebold & Zucc.) Benth. & Hook.f. ex Trautv.

*Codonopsis ovata* Benth.

\*\**Codonopsis ovata* Benth.

\**Codonopsis pilosula* (Franch.) Nannf.

*Phyteuma scheuchzeri* All.

*Platycodon grandiflorus* (Jacq.) A.DC. (= *Platycodon autumnalis* Decne.)

\* *Platycodon grandiflorus* (Jacq.) A.DC. (= *Platycodon autumnalis* Decne.)

### Caprifoliaceae Juss.

*Cephalaria uralensis* (Murray) Roem. & Schult.

\**Cephalaria uralensis* (Murray) Roem. & Schult.

*Diervilla rivularis* Gatt.

\*\**Diervilla rivularis* Gatt.

\**Diervilla rivularis* Gatt. 'Variegata'

*Diervilla sessilifolia* Buckley

\**Diervilla sessilifolia* Buckley

*Knautia macedonica* Griseb.

\*\**Knautia tatarica* (L.) Szabó

*Lonicera caucasica* subsp. *orientalis* (Lam.) D.F.Chamb. & D.G.Long (≡ *Lonicera orientalis* Lam.)

\**Lonicera involucrata* (Richardson) Banks ex Spreng.

*Lonicera involucrata* (Richardson) Banks ex Spreng. var. *ledebourii* (Eschsch.) Jeps.

\*\**Lonicera involucrata* (Richardson) Banks ex Spreng. var. *ledebourii* (Eschsch.) Jeps.

*Lonicera korolkowii* Stapf

\**Lonicera korolkowii* Stapf

\**Lonicera tatarica* L.

\*\**Sambucus nigra* L.

\**Scabiosa japonica* Miq.

\*\**Scabiosa japonica* Miq.

\*\**Scabiosa japonica* Miq. var. *alpina* Takeda

*Scabiosa lucida* Vill.

\**Scabiosa lucida* Vill.

*Symphoricarpos albus* (L.) Blake

\**Symphoricarpos albus* (L.) Blake

*Symphoricarpos albus* (L.) Blake var. *laevigatus* (Fernald) S.F.Blake (= *Symphoricarpos rivularis* Suksd.)

\**Symphoricarpos albus* (L.) Blake var. *laevigatus* (Fernald) S.F.Blake (= *Symphoricarpos rivularis* Suksd.)

*Symphoricarpos orbiculatus* Moench

\**Symphoricarpos orbiculatus* Moench

*Symphoricarpos* × *doorenbosii* Krüssm. ‘Mother of Pearl’

\**Symphoricarpos* × *doorenbosii* Krüssm. ‘Mother of Pearl’

*Viburnum lantana* L.

\**Viburnum lantana* L.

\**Viburnum opulus* L.

*Viburnum sargentii* Koehne (= *Viburnum opulus* subsp. *calvescens* (Rehder) Sugim. = *Viburnum sargentii* var. *puberulum* (Kom.) Kitag.)

\**Viburnum sargentii* Koehne (= *Viburnum opulus* subsp. *calvescens* (Rehder) Sugim. = *Viburnum sargentii* var. *puberulum* (Kom.) Kitag.)

\*\**Viburnum sargentii* Koehne

*Viburnum trilobum* Marshall

\**Viburnum trilobum* Marshall

*Weigela coraeensis* Thunb.

*Weigela florida* (Bunge) A.DC. (= *Weigela praecox* (Lemoine) Bailey)

\*\**Weigela florida* (Bunge) A.DC. (= *Weigela praecox* (Lemoine) Bailey)

*Weigela subsessilis* (Nakai) L.H.Bailey

## Caryophyllaceae Juss.

\*\**Atocion compactum* (Fisch. ex Hornem) Tzvelev (≡ *Silene compacta* Fisch.)

\*\**Cerastium biebersteinii* DC. (Appendix 1, Fig. 11)

\*\**Cerastium brachypetalum* Desp. ex Pers.

*Cherleria langii* (G.Reuss) A.J.Moore & Dillenb. (≡ *Minuartia langii* (G.Reuss) Holub)

\*\**Cherleria langii* (G.Reuss) A.J.Moore & Dillenb. (≡ *Minuartia langii* (G.Reuss) Holub)

*Dianthus acicularis* Fisch. ex Ledeb. (Appendix 1, Fig. 12)

\*\**Dianthus acicularis* Fisch. ex Ledeb.

*Dianthus angrenicus* Vved.

*Dianthus arenarius* L.

*Dianthus barbatus* var. *compactus* (Kit.) Heuff. (≡ *Dianthus compactus* Kit.)

*Dianthus borbassii* Vandas

\**Dianthus borbassii* Vandas

*Dianthus callizonus* Schott & Kotschy

\**Dianthus caucaseus* Sims

\**Dianthus chinensis* L. (= *Dianthus fischeri* Spreng = *Dianthus versicolor* Fisch. ex Link)

\*\**Dianthus chinensis* L. (= *Dianthus fischeri* Spreng = *Dianthus versicolor* Fisch. ex Link)

\*\**Dianthus cruentus* Griseb. (= *Dianthus cruentus* subsp. *turcicus* (Velen.) Stoj. & Acht.)

*Dianthus deltoides* L. 'Brilliancy'

\*\**Dianthus deltoides* L. 'Brilliancy'

*Dianthus ferrugineus* Mill. (Appendix 1, Fig. 13)

*Dianthus freynii* Vandas

\*\**Dianthus furcatus* Balb.

*Dianthus giganteiformis* (Borbás) Heinr.Braun

\**Dianthus giganteiformis* (Borbás) Heinr.Braun

*Dianthus giganteiformis* (Borbás) Heinr.Braun subsp. *pontederae* (A.Kern.) Soó

\**Dianthus giganteiformis* subsp. *pontederae* (A.Kern.) Soó

*Dianthus graniticus* Jord.

\**Dianthus graniticus* Jord.

*Dianthus myrtinervius* Griseb.

\**Dianthus myrtinervius* Griseb.

*Dianthus myrtinervius* Griseb.subsp. *caespitosus* Strid & Papan. (= *Dianthus oxylepis*

(Boiss.) Kümmerle & Jáv.)

\*\**Dianthus myrtinervius* Griseb.subsp. *caespitosus* Strid & Papan. (= *Dianthus oxylepis*

(Boiss.) Kümmerle & Jáv.)

\*\**Dianthus pinifolius* Sm.

*Dianthus praecox* Willd. ex Spreng. subsp. *lumnitzeri* (Wiesb.) Kmet'ová (≡ *Dianthus*

*lumnitzeri* Wiesb. ≡ *Dianthus plumarius* L. subsp. *lumnitzeri* (Wiesb.) Domin

*Dianthus pygmaeus* Hayata

\**Dianthus pygmaeus* Hayata

**\*\**Dianthus superbis*** L. subsp. ***alpestris*** (Uecht.) Kablík. ex Čelak.  
*Eudianthe coeli-rosa* (L.) Endl. (≡ *Silene coeli-rosa* (L.) Godr.)  
**\*\**Gypsophila acutifolia*** Steven ex Spreng.  
*Gypsophila briquetiana* Schischk.  
*Gypsophila oldhamiana* Miq.  
**\**Gypsophila oldhamiana*** Miq.  
**\*\**Gypsophila paniculata*** L. (Appendix 1, Fig. 14)  
*Gypsophila patrinii* Ser.  
*Heliosperma alpestre* (Jacq.) Rchb. (≡ *Silene alpestris* Jacq.)  
**\*\**Heliosperma alpestre*** (Jacq.) Rchb. (≡ *Silene alpestris* Jacq.)  
*Heliosperma pusillum* (Waldst. & Kit.) Rchb. (= *Silene pusilla* Waldst. & Kit.) (Appendix 1, Fig. 15)  
**\**Heliosperma pusillum*** (Waldst. & Kit.) Rchb. (= *Silene pusilla* Waldst. & Kit.)  
*Mcneilia gramnifolia* (Ard.) Dillenb. & Kateder. (≡ *Minuartia graminifolia* Jáv.)  
**\**Mcneilia gramnifolia*** (Ard.) Dillenb. & Kateder. (≡ *Minuartia graminifolia* Jáv.)  
**\*\**Minuartia krascheninnikovii*** Schischk.  
*Saponaria officinalis* L.  
**\**Saponaria officinalis*** L.  
*Saponaria officinalis* L. ‘Albiflora’  
**\**Saponaria officinalis*** L. ‘Albiflora’  
**\**Silene baccifera*** (L.) Durande (≡ *Cucubalus baccifer* L.)  
**\*\**Silene baccifera*** (L.) Durande (≡ *Cucubalus baccifer* L.)  
*Silene banksia* (Meerb.) Mabb. (= *Lychnis fulgens* Fisch. ex Spreng.)  
**\**Silene chalcedonica*** (L.) E.H.L.Krause (≡ *Lychnis chalcedonica* L.)  
*Silene chalcedonica* (L.) E.H.L.Krause (≡ *Lychnis chalcedonica* L.) ‘Alba’  
**\**Silene chalcedonica*** (L.) E.H.L.Krause (≡ *Lychnis chalcedonica* L.) ‘Alba’



*Silene chalcedonica* (L.) E.H.L.Krause (≡ *Lychnis chalcedonica* L.) ‘Pink’

\*\**Silene chalcedonica* (L.) E.H.L.Krause (≡ *Lychnis chalcedonica* L.) ‘Pink’

\*\**Silene coronaria* (L.) Clairv. (≡ *Lychnis coronaria* (L.) Desr.)

\**Silene coronaria* (L.) Clairv. (≡ *Lychnis coronaria* (L.) Desr.) ‘Pink’

*Silene elisabethae* Jan

*Silene gallica* L. var. *gallica* (= *Silene pygmaea* Herder)

\*\**Silene gallica* L. var. *gallica* (= *Silene pygmaea* Herder)

\*\**Silene latifolia* Poir.

*Silene repens* Patrin

\**Silene repens* Patrin

*Silene samojedorum* (Sambuk) Oxelman (= *Lychnis yunnanensis* Baker f.)

\**Silene samojedorum* (Sambuk) Oxelman (= *Lychnis yunnanensis* Baker f.)

\*\**Silene vulgaris* (Moench) Garcke (= *Oberna behen* (L.) Ikonn.)

\*\**Silene wilfordii* (Regel) H.Ohashi & H.Nakai (≡ *Lychnis wilfordii* (Regel) Maxim.)

#### Celastraceae R.Br.

*Euonymus europaeus* L. (Appendix 1, Fig. 16)

\**Euonymus europaeus* L.

*Euonymus europaeus* L. ‘Atropurpurea’

\**Euonymus europaeus* L. ‘Atropurpurea’

\**Euonymus macropterus* Rupr.

\*\**Euonymus macropterus* Rupr.

*Euonymus nanus* M.Bieb. ++

\**Euonymus nanus* M.Bieb. ++

#### Cistaceae Juss.

**\*\**Crocanthemum canadense*** (L.) Britton (≡ *Helianthemum canadense* (L.) Michx.)

**\**Helianthemum apenninum*** (L.) Mill. (= *Helianthemum polifolium* Mill.)

***Helianthemum argenteum*** (Hemsl.) Janch. ‘Roseum’

**\**Helianthemum argenteum*** (Hemsl.) Janch. ‘Roseum’

**\*\**Helianthemum ciscaucasicum*** Juz. & Pozdeeva

***Helianthemum nummularium*** (L.) Mill. (= *Helianthemum arcticum* (Grosser) Janch.)

(Appendix 1, Fig. 17)

**\**Helianthemum nummularium*** (L.) Mill. (= *Helianthemum arcticum* (Grosser) Janch.)

**\**Helianthemum nummularium*** (L.) Mill. subsp. ***pyrenaicum*** (Janch.) Schinz & Thell.

***Helianthemum nummularium*** (L.) Mill. ‘Alba’

***Helianthemum nummularium*** (L.) Mill. subsp. ***obscurum*** (Pers.) Holub (= *Helianthemum hirsutum* Mérat = *Helianthemum ovatum* (Viv.) Dunal)

**\**Helianthemum nummularium*** (L.) Mill. subsp. ***obscurum*** (Pers.) Holub (= *Helianthemum hirsutum* Mérat = *Helianthemum ovatum* (Viv.) Dunal)

#### **Compositae Giseke / Asteraceae Bercht. & J.Presl.**

***Achillea clypeolata*** Sm.

**\**Achillea clypeolata*** Sm.

***Achillea pannonica*** Scheele (= *Achillea seidlilii* J.Presl & C.Presl)

**\**Achillea pannonica*** Scheele (= *Achillea seidlilii* J.Presl & C.Presl)

***Achillea tomentosa*** L.

***Ageratina altissima*** (L.) R.M.King & H.Rob. (= *Eupatorium rugosum* Houtt.)

**\**Ageratina altissima*** (L.) R.M.King & H.Rob. (= *Eupatorium rugosum* Houtt.)

***Ageratina aromatica*** (L.) Spach (≡ *Eupatorium aromaticum* L.)

**\*\**Ageratina aromatica*** (L.) Spach (≡ *Eupatorium aromaticum* L.)

***Antennaria carpatica*** (Wahlenb.) Bluff & Fingerh.

\**Antennaria carpatica* (Wahlenb.) Bluff & Fingerh.

*Antennaria chilensis* J.Rémy (= *Antennaria magellanica* Sch.Bip.)

\*\**Antennaria chilensis* J.Rémy (= *Antennaria magellanica* Sch.Bip.)

*Antennaria howellii* Greene

\**Antennaria howellii* Greene

*Antennaria plantaginifolia* (L.)Hook. (= *Antennaria plantaginea* R.Br.)

\**Antennaria plantaginifolia* (L.)Hook. (= *Antennaria plantaginea* R.Br.)

\**Arnica montana* L.

\*\**Arnica montana* L.

*Arnica sachalinensis* (Regel) A.Gray

\**Arnica sachalinensis* (Regel) A.Gray

\**Arnica angustifolia* subsp. *alpina* (L.) I.K.Ferguson (= *Arnica alpina* (L.) Olin)

\*\**Arnica angustifolia* subsp. *alpina* (L.) I.K.Ferguson (= *Arnica alpina* (L.) Olin)

\*\**Aster alpinus* L.

*Aster amellus* L.

\*\**Aster amellus* L.

*Aster diplostephioides* (DC.) Benth. ex C.B.Clarke

\**Aster diplostephioides* (DC.) Benth. ex C.B.Clarke

*Aster incisus* Fisch. (≡ *Kalimeris incisa* (Fisch) DC.)

\**Aster incisus* Fisch. (≡ *Kalimeris incisa* (Fisch) DC.)

*Aster mongolicus* Franch. (≡ *Kalimeris mongolica* (Franch.) Kitam.)

*Aster mongolicus* Franch. (≡ *Kalimeris mongolica* (Franch.) Kitam.)

\**Centaurea jacea* L. subsp. *timbalii* (Martrin-Donos) Braun-Blanq. (= *Centaurea vinyalsii* subsp. *approximata* (Rouy) Dostál)

\*\**Centaurea thuillieri* (Dostál) J.Duvign. & Lambinon (≡ *Centaurea debeauxii* Godr. & Gren. subsp. *thuillieri* Dostál)

*Chamaemelum nobile* (L.) All.

\*\**Coreopsis verticillata* L.

\*\**Echinacea pallida* (Nutt.) Nutt.

\**Echinacea purpurea* (L.) Moench ‘Quills and Thills’

\*\**Echinacea purpurea* (L.) Moench ‘Quills and Thills’

*Echinops ritro* L. subsp. *ruthenicus* (M.Bieb.) Nyman (≡ *Echinops ruthenicus* M.Bieb.)

\**Echinops ritro* L. subsp. *ruthenicus* (M.Bieb.) Nyman (≡ *Echinops ruthenicus* M.Bieb.)

\**Echinops sphaerocephalus* L.

\*\**Echinops sphaerocephalus* L.

\*\**Eupatorium lindleyanum* DC.

\*\**Eutrochium fistulosum* (Barratt) E.E.Lamont (= *Eupatorium fistulosum* Barratt)

*Eutrochium purpureum* (L.) E.E.Lamont (= *Eupatorium purpureum* L.)

\**Eutrochium purpureum* (L.) E.E.Lamont (= *Eupatorium purpureum* L.)

\*\**Helichrysum arenarium* (L.) Moench

\*\**Heliopsis helianthoides* (L.) Sweet

\**Hymenoxys hoopesii* (A.Gray) Bierner (≡ *Helenium hoopesii* A.Gray)

\*\**Hymenoxys hoopesii* (A.Gray) Bierner (≡ *Helenium hoopesii* A.Gray)

\*\**Kemulariella caucasica* (Willd.) Tamamsch. (= *Aster caucasicus* Willd.)

\**Leontopodium kamtschaticum* Kom.

*Leontopodium nivale* subsp. *alpinum* (Cass.) Greuter

\**Leontopodium nivale* subsp. *alpinum* (Cass.) Greuter

*Leontopodium palibinianum* Beauverd

\*\**Ligularia alatipes* Hand.-Mazz.

*Ligularia fischeri* var. *fischeri* (= *Ligularia speciosa* (Schrad. ex Link) Fisch. C.A.Mey.)

\**Ligularia fischeri* var. *fischeri* (= *Ligularia speciosa* (Schrad. ex Link) Fisch. C.A.Mey.)

\**Ligularia dentata* (A.) H.Hara

**\*\**Ligularia dentata*** (A.) H.Hara

*Ligularia dentata* (A.) H.Hara ‘Osiris Cafe Noir’

*Ligularia przewalskii* (Maxim.) Diels

\**Ligularia przewalskii* (Maxim.) Diels

*Ligularia sachalinensis* Nakai

**\*\**Ligularia sachalinensis*** Nakai

*Ligularia sibirica* (L.) Cass.

*Ligularia stenocephala* (Maxim.) Matsum. & Koidz. cv. Little Rocket

**\*\**Ligularia stenocephala*** (Maxim.) Matsum. & Koidz. ‘The Rocket’

*Ligularia vorobievii* Vorosch.

\**Ligularia vorobievii* Vorosch.

*Ligularia wilsoniana* (Hemsl.) Greenm.

\**Ligularia wilsoniana* (Hemsl.) Greenm.

\**Marshallia grandiflora* Beadle & F.E.Boynton

*Parasenecio hastatus* (L.) H.Koyama var. *hastatus* (= *Cacalia tschonoskii* Koidz.)

\**Parasenecio hastatus* (L.) H.Koyama var. *hastatus* (= *Cacalia tschonoskii* Koidz.)

*Pentanema britannica* (L.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico & M.M.Mart.Ort.  
(≡ *Inula britannica* L.)

\**Pentanema britannica* (L.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico & M.M.Mart.Ort.  
(≡ *Inula britannica* L.)

*Pentanema ensifolium* (L.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico & M.M.Mart.Ort.  
(≡ *Inula ensifolia* L.) ‘Compacta’

\**Pentanema ensifolium* (L.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico & M.M.Mart.Ort.  
(≡ *Inula ensifolia* L.) ‘Compacta’

**\*\**Pentanema oculus-christi*** (L.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico & M.M.Mart.Ort. (≡ *Inula oculus-christi* L.)

*Pentanema orientale* (Lam.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico & M.M.Mart.Ort.

(≡ *Inula orientalis* Lam.)

\*\* *Pentanema orientale* (Lam.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico &

M.M.Mart.Ort. (≡ *Inula orientalis* Lam.)

\*\**Psephellus sibiricus* (L.) Wagenitz. (= *Centaurea sibirica* L.)

*Rhaponticoides ruthenica* (Lam.) M.V.Agab. & Greuter (≡ *Centaurea ruthenica* Lam.)

*Rhaponticum carthamoides* (Willd.) Iljin

*Saussurea nipponica* Miq.

\**Saussurea nipponica* Miq.

*Serratula coronata* L. subsp. *coronata* (= *Serratula manshurica* Ktag.)

\* *Serratula coronata* L. subsp. *coronata* (= *Serratula manshurica* Ktag.)

\**Solidago canadensis* L. ‘Nana’

*Solidago* × *hybrida* hort. ‘Dzintra’

\**Solidago* × *hybrida* hort. ‘Dzintra’

*Solidago* × *hybrida* hort. ‘Perkeo’

\**Solidago* × *hybrida* hort. ‘Perkeo’

*Solidago virgaurea* L. subsp. *lapponica* (With.) Tzvelev(= *Solidago lapponica* With.)

\**Solidago virgaurea* L. subsp. *lapponica* (With.) Tzvelev(= *Solidago lapponica* With.)

*Solidago virgaurea* L. ssp. *minuta* (L.) Arcang.

\**Solidago virgaurea* L. ssp. *minuta* (L.) Arcang.

\**Tanacetum niveum* (Lag.) Sch.Bip.

\**Tanacetum vulgare* L. subsp. *vulgare* (= *Tanacetum vulgare* L. var. *crispum* DC.)

× *Solidaster luteus* (Everett) M.L.Green ex Dress ‘Lemore’

\*\*× *Solidaster luteus* (Everett) M.L.Green ex Dress ‘Lemore’

*Vickifunkia thyrsoidea* (Ledeb.) C.Ren, L.Wang, I.D.Illar. & Q.E.Yang (≡ *Ligularia thyrsoidea* (Ledeb.) DC.)

\**Vickifunkia thyrsoides* (Ledeb.) C.Ren, L.Wang, I.D.Illar. & Q.E.Yang (≡ *Ligularia thyrsoides* (Ledeb.) DC.)

**Cornaceae** Bercht. & J.Presl

*Cornus alba* L.

\**Cornus alba* L.

*Cornus alba* L. ‘Argenteomarginata’

\**Cornus alba* L. ‘Argenteomarginata’

*Cornus alba* L. ‘Aurea’

\**Cornus alba* L. ‘Aurea’

*Cornus alba* L. ‘Elegantissima’

\**Cornus alba* L. ‘Elegantissima’

*Cornus alba* L. ‘Kesselringii’

\**Cornus obliqua* Raf. (≡ *Swida obliqua* (Raf.) Moldenke ≡ *Cornus amomum* Mill. subsp. *obliqua* (Raf.) J.S.Wilson

\**Cornus sericea* L. (= *Cornus baileyi* J.M.Coult. & W.H.Evans)

\*\**Cornus sericea* L. (= *Cornus baileyi* J.M.Coult. & W.H.Evans)

**Crassulaceae** J.St.-Hil.

*Hylotelephium maximum* (L.) Holub subsp. *ruprechtii* (Jalas) Dostál (= *Sedum caucasicum* (Grossh.) Boriss.)

\**Hylotelephium maximum* (L.) Holub subsp. *ruprechtii* (Jalas) Dostál (= *Sedum caucasicum* (Grossh.) Boriss.)

*Hylotelephium erwersii* (Ledeb.) H.Ohba (≡ *Sedum erwersii* Ledeb.)

\**Hylotelephium erwersii* (Ledeb.) H.Ohba (≡ *Sedum erwersii* Ledeb.)

*Hylotelephium erwersii* (Ledeb.) H.Ohba (≡ *Sedum erwersii* Ledeb.) ‘Homophyllum’

*Hylotelephium maximum* (L.) Holub (≡ *Sedum maximum* (L.) Hoffm.)

\**Hylotelephium maximum* (L.) Holub (≡ *Sedum maximum* Suter)

*Hylotelephium maximum* (L.) Holub subsp. *ruprechtii* (Jalas) Dostál (≡ *Sedum maximum* (L.) Holub subsp. *ruprechtii* (Jalas) Soó)

\**Hylotelephium maximum* (L.) Holub subsp. *ruprechtii* (Jalas) Dostál (≡ *Sedum maximum*

(L.) Holub subsp. *ruprechtii* (Jalas) Soó)

*Hylotelephium spectabile* (Boreau) H.Ohba (≡ *Sedum spectabile* Boreau)

\**Hylotelephium spectabile* (Boreau) H.Ohba (≡ *Sedum spectabile* Boreau)

*Hylotelephium spectabile* (Boreau) H.Ohba ‘Orange Xenox’

*Hylotelephium telephium* (L.) H.Ohba (≡ *Sedum telephium* L. = *Sedum purpureum* (L.)

Schult. = *Hylotelephium triphyllum* (Haw.) Holub)

\**Hylotelephium telephium* (L.) H.Ohba (≡ *Sedum telephium* L. = *Sedum purpureum* (L.)

Schult. = *Hylotelephium triphyllum* (Haw.) Holub)

*Hylotelephium telephium* (L.) H.Ohba ‘Red Cauli’

*Hylotelephium telephium* (L.) H.Ohba ‘Dark Magic’

*Hylotelephium ussuriense* (Kom.) H.Ohba (≡ *Sedum ussuriense* Kom.)

\**Hylotelephium ussuriense* (Kom.) H.Ohba (≡ *Sedum ussuriense* Kom.)

*Hylotelephium verticillatum* (L.) H.Ohba (≡ *Sedum verticillatum* L.)

\**Hylotelephium verticillatum* (L.) H.Ohba (≡ *Sedum verticillatum* L.)

*Petrosedum forsterianum* (Sm.) Grulich (= *Sedum reflexum* L. subsp. *aureum* (Wirtg. ex

F.W.Schultz) Berner)

\*\**Petrosedum forsterianum* (Sm.) Grulich (= *Sedum reflexum* L. subsp. *aureum* (Wirtg. ex

F.W.Schultz) Berner ≡ *Sedum reflexum* L. var. *aureum* (Wirtg. ex F.W.Schultz) H.Jacobsen)

\**Petrosedum montanum* (Sondeon & E.P.Perrier) Grulich (≡ *Sedum montanum* Sondeon &

E.P.Perrier)

\*\**Petrosedum montanum* (Sondeon & E.P.Perrier) Grulich (≡ *Sedum montanum* Sondeon &

E.P.Perrier)

*Petrosedum ochroleucum* (Chaix) Niederle (≡ *Sedum ochroleucum* Chaix = *Sedum*

*anopetalum* DC.)

\*\**Petrosedum ochroleucum* (Chaix) Niederle (≡ *Sedum ochroleucum* Chaix = *Sedum*



*anopetalum* DC.)

***Petrosedum rupestre*** (L.) P.V.Heath (≡ *Sedum rupestre* L. = *Sedum reflexum* L. = *Sedum reflexum* L. var. *glaucum* Lej. & Courtois – *Sedum reflexum* L. var. *viride* Lej. & Courtois, nom. inval.)

\****Petrosedum rupestre*** (L.) P.V.Heath (≡ *Sedum rupestre* L. = *Sedum reflexum* L. = *Sedum reflexum* L. var. *glaucum* Lej. & Courtois – *Sedum reflexum* L. var. *viride* Lej. & Courtois, nom. inval.)

\*\****Petrosedum rupestre*** (L.) P.V.Heath (≡ *Sedum rupestre* L. = *Sedum reflexum* L. = *Sedum reflexum* L. var. *glaucum* Lej. & Courtois – *Sedum reflexum* L. var. *viride* Lej. & Courtois, nom. inval.)

***Petrosedum rupestre*** (L.) P.V.Heath ‘Angelina’

\****Petrosedum rupestre*** (L.) P.V.Heath ‘Angelina’

***Phedimus ellacombeanus*** (Praeger) ‘t Hart (≡ *Sedum kamchaticum* Fisch. subsp. *ellacombianum* (Praeger) R.T.Clausen)

\****Phedimus ellacombeanus*** (Praeger) ‘t Hart (≡ *Sedum kamchaticum* Fisch. subsp. *ellacombianum* (Praeger) R.T.Clausen)

***Phedimus hybridus*** (L.) ‘t Hart (= *Sedum hybridum* L.) ‘Bertram Anderson’

***Phedimus kamtschaticus*** (Fisch.) ‘t Hart (≡ *Sedum kamchaticum* Fisch. = *Sedum floriferum* Praeger = *Sedum takesimense* Nakai ≡ *Phedimus takesimensis* (Nakai) ‘t Hart)

\****Phedimus kamtschaticus*** (Fisch.) ‘t Hart (≡ *Sedum kamchaticum* Fisch. = *Sedum floriferum* Praeger = *Sedum takesimense* Nakai ≡ *Phedimus takesimensis* (Nakai) ‘t Hart)

\*\****Phedimus kamtschaticus*** (Fisch.) ‘t Hart (≡ *Sedum kamchaticum* Fisch. = *Sedum floriferum* Praeger = *Sedum takesimense* Nakai ≡ *Phedimus takesimensis* (Nakai) ‘t Hart)  
‘Variegata’

\****Phedimus kamtschaticus*** (Fisch.) ‘t Hart ‘Variegata’

\*\****Phedimus middendorffianus*** (Maxim.) ‘t Hart (≡ *Sedum middendorffianum* Maxim.)

*Phedimus selskianus* (Regel & Maack) 't Hart (≡ *Sedum selskianum* Regel et Maack)

*Phedimus spurius* (M.Bieb.) 't Hart (≡ *Sedum spurium* M.Bieb. = *Sedum involucratum* M.Bieb.)

\**Phedimus spurius* (M.Bieb.) 't Hart (≡ *Sedum spurium* M.Bieb. = *Sedum involucratum* M.Bieb.)

*Phedimus stolonifer* (S.G.Gmel.) 't Hart (≡ *Sedum stoloniferum* S.G.Gmel.)

\**Phedimus stolonifer* (S.G.Gmel.) 't Hart (≡ *Sedum stoloniferum* S.G.Gmel.)

*Rhodiola bupleuroides* (Wall. ex Hook.f. & Thomson) S.H.Fu (≡ *Sedum bupleuroides* Wall. ex Hook.f. & Thomson)

*Rhodiola bupleuroides* (Wall. ex Hook.f. & Thomson) S.H.Fu (≡ *Sedum bupleuroides* Wall. ex Hook.f. & Thomson)

\**Rhodiola heterodonta* (Hook.f. & Thomson) Boriss.

\*\**Rhodiola heterodonta* (Hook.f. & Thomson) Boriss.

\*\**Rhodiola himalensis* (D.Don) S.H.Fu (≡ *Sedum himalense* D.Don)

*Rhodiola ishidae* Hara (≡ *Sedum ishidae* Miyabe & Kudô)

\**Rhodiola ishidae* Hara (≡ *Sedum ishidae* Miyabe & Kudô)

\*\**Rhodiola ishidae* Hara (≡ *Sedum ishidae* Miyabe & Kudô)

*Rhodiola kirilowii* (Regel) Maxim.

\**Rhodiola kirilowii* (Regel) Maxim. (= *Rhodiola linearifolia* Boriss.)

\**Rhodiola recticaulis* Boriss.

*Rhodiola rhodantha* (A.Gray) H.Jacobsen

\**Rhodiola rhodantha* (A.Gray) H.Jacobsen

*Rhodiola rosea* L. (≡ *Sedum rosea* (L.) Scop. = *Sedum elongatum* Ledeb. = *Rhodiola arctica* Boriss.)

\**Rhodiola rosea* L. (≡ *Sedum rosea* (L.) Scop. = *Sedum elongatum* Ledeb. = *Rhodiola arctica* Boriss.)

*Rhodiola semenovii* (Regel & Herder) Boriss.  
 \**Rhodiola semenovii* (Regel & Herder) Boriss.  
*Rhodiola stephani* (Cham.) Trautv. & C.A. Mey.  
 \**Rhodiola stephani* (Cham.) Trautv. & C.A. Mey.  
 \*\**Sedum alpestre* Vill.  
 \*\**Sedum cepaea* L.  
*Sedum divergens* S.Watson  
 \*\**Sedum divergens* S.Watson  
*Sedum erythrostictum* Miq.  
 \**Sedum erythrostictum* Miq.  
 \*\**Sedum gracile* C.A.Mey.  
 \*\**Sedum gypsicola* Boiss. & Reut.  
*Sedum oreganum* Nutt.  
 \*\**Sedum oreganum* Nutt.  
*Sedum sarmentosum* Bunge  
*Sedum sexangulare* L.  
 \*\**Sedum sexangulare* L.  
 \*\**Sedum stenopetalum* Pursh  
*Sedum tenellum* M. Bieb.  
 \**Sedum tenellum* M. Bieb.  
*Sedum urvillei* DC.  
 \*\**Sempervivum calcareum* Jord.  
*Sempervivum caucasicum* Rupr. ex Boiss.  
 \**Sempervivum caucasicum* Rupr. ex Boiss.  
 \*\**Sempervivum globiferum* subsp. *arenarium* (W.D.J.Koch) 't Hart & Bleij (≡ *Jovibarba arenaria* (W.D.J.Koch) Opiz)

\**Sempervivum globiferum* L. subsp. *allionii* (Jord. & Fourr.) 't Hart & Blej (≡ *Sempervivum allionii* Nyman)

\*\**Sempervivum marmoreum* Griseb. (= *Sempervivum marmoreum* subsp. *ballsii* (Wale) Zonn.)

*Sempervivum montanum* L. (≡ *Sedum montanum* (L.) E.H.L.Krause)

### **Cyperaceae** Juss.

\*\**Carex binervis* Sm.

*Carex caucasica* Steven

\**Carex caucasica* Steven

*Carex flacca* Schreb.

\*\**Carex flacca* Schreb.

*Carex grayi* J.Carey

\**Carex grayi* J.Carey

*Carex muskingumensis* Schwein.

\**Carex muskingumensis* Schwein.

*Carex pendula* Huds. 'Majken'

\*\**Carex pendula* Huds. 'Majken'

### **Dioscoreaceae** R.Br.

*Dioscorea japonica* Thunb.

*Dioscorea nipponica* Makino

### **Caprifoliaceae** Juss.

\**Scabiosa japonica* Miq.

\*\**Scabiosa japonica* Miq.

\*\**Scabiosa japonica* Miq. var. *alpina* Takeda

*Scabiosa lucida* Vill.

\**Scabiosa lucida* Vill.

**Ericaceae** Durande

*Rhododendron brachycarpum* subsp. *fauriei* (Franch.) D.F.Chamb.(= *Rhododendron fauriei* Franch.) ++

*Rhododendron canadense* (L.) Torr. (= *Rhododendron canadense* (L.) Torr. f. *album* Voss.)  
(Appendix 1, Fig. 18)

\**Rhododendron canadense* (L.) Torr. (= *Rhododendron canadense* (L.) Torr. f. *album* Voss.)

*Rhododendron catawbiense* Michx.

\**Rhododendron catawbiense* Michx.

*Rhododendron dauricum* L. (= *Rhododendron ledebourii* Pojark.) (Appendix 1, Fig. 20)

\**Rhododendron dauricum* L. (= *Rhododendron ledebourii* Pojark.)

\**Rhododendron dauricum* L.

*Rhododendron japonicum* (A.Gray) Suringar (Appendix 1, Fig. 19)

\**Rhododendron japonicum* (A.Gray) Suring.

*Rhododendron* × *hybrida* ‘Haaga’

\**Rhododendron* × *hybrida* ‘PJM Elite’

\*\**Rhododendron luteum* Sweet

\**Rhododendron sichotense* Pojark.

\*\**Rhododendron sichotense* Pojark.

**Fagaceae** Dumort.

*Quercus robur* L.

\**Quercus robur* L.

\**Quercus robur* L. ‘Laciniata’

**Gentianaceae** Juss.

*Gentiana affinis* Griseb. (= *Gentiana bigelovii* A.Gray)

\**Gentiana affinis* Griseb. (= *Gentiana bigelovii* A.Gray)

*Gentiana alba* Muhl. ex J.McNab.

*Gentiana asclepiadea* L. ‘Alba’

\**Gentiana asclepiadea* L. ‘Alba’

*Gentiana cachemirica* Decne. (= *Gentiana loderi* Hook.f.)

\**Gentiana cachemirica* Decne. (= *Gentiana loderi* Hook.f.)

*Gentiana capitata* Buch.-Ham. ex D.Don

*Gentiana dahurica* Fisch. (= *Gentiana gracilipes* Turrill)

\**Gentiana dahurica* Fisch. (= *Gentiana gracilipes* Turrill)

\**Gentiana dendrologi* C.Marquand

*Gentiana frigida* Haenke

\*\**Gentiana frigida* Haenke

*Gentiana kirilowii* Turcz.

\**Gentiana kirilowii* Turcz.

*Gentiana kurroo* Royle

\**Gentiana kurroo* Royle

*Gentiana lutea* L.

\*\**Gentiana lutea* L.

\*\**Gentiana macrophylla* Pall.

*Gentiana macrophylla* subsp. *fetisowii* (Regel & C.Winkl.) Halda (≡ *Gentiana fetisowii*

Regel & C.Winkl. = *Gentiana wutaiensis* C.Marquand)

\**Gentiana macrophylla* subsp. *fetisowii* (Regel & C.Winkl.) Halda (≡ *Gentiana fetisowii*

Regel & C.Winkl. = *Gentiana wutaiensis* C.Marquand)

*Gentiana olgae* Regel ex Schmalh.

\**Gentiana olgae* Regel ex Schmalh.

*Gentiana siphonantha* Maxim. ex Kusn.

\**Gentiana siphonantha* Maxim. ex Kusn.

*Gentiana straminea* Maxim.

\**Gentiana straminea* Maxim.

\**Gentiana tibetica* King ex Hook.f.

\*\**Gentiana tibetica* King ex Hook.f.

*Gentiana tianschanica* Rupr. ex Kusn.

\*\**Gentiana tianschanica* Rupr. ex Kusn.

*Gentiana walujewii* Regel & Schmalh.

\**Gentiana walujewii* Regel & Schmalh.

*Gentiana zekuensis* T.N.Ho & S.W.Liu

\**Gentiana zekuensis* T.N.Ho & S.W.Liu

**Geraniaceae** Juss.

\**Geranium pratense* L. ‘Hocus-Pocus’

\**Geranium pratense* L. ‘Mrs Kendall Clark’

\**Geranium pratense* L. ‘Splish-splash’

\*\**Geranium pratense* L. ‘Splish-splash’

\**Geranium ruprechtii* (Woronow) Grossh.

\*\**Geranium ruprechtii* (Woronow) Grossh.

*Geranium sanguineum* L. + (Appendix 1, Fig. 21)

\*\**Geranium sanguineum* L. +

*Geranium shikokianum* Matsum.

*Geranium thunbergii* Siebold & Zucc. ex Lindl. & Paxt.

*Geranium yoshinoi* Makino ex Nakai

**Hydrangeaceae** Dumort.

*Hydrangea bretschneideri* Dippel

\**Hydrangea bretschneideri* Dippel

*Hydrangea paniculata* Siebold ‘Tardiva’

\* *Hydrangea paniculata* Siebold ‘Tardiva’

\**Hydrangea radiata* Walter (= *Hydrangea arborescens* subsp. *radiata* (Walter) E.M.McClint.)

\*\**Hydrangea radiata* Walter (= *Hydrangea arborescens* subsp. *radiata* (Walter)

E.M.McClint.)

\**Hydrangea xanthoneura* Diels

\*\**Hydrangea xanthoneura* Diels

*Philadelphus coronarius* L. (= *Philadelphus caucasicus* Koehne)

\**Philadelphus coronarius* L. (= *Philadelphus caucasicus* Koehne)

*Philadelphus coronarius* L. ‘Aureus’

\**Philadelphus coronarius* L. ‘Aureus’



*Philadelphus coronarius* L. ‘Komsomoletz’

\**Philadelphus coronarius* L. ‘Komsomoletz’

*Philadelphus* × *lemoinei* Lemoine ‘Erectus’

\**Philadelphus* × *lemoinei* Lemoine ‘Erectus’

*Philadelphus* × *monstruosus* Schelle ex Rehder

*Philadelphus* × *rafinosquianus* hort.

\**Philadelphus* × *rafinosquianus* hort.

*Philadelphus pubescens* Loisel. (= *Philadelphus latifolius* Schrad.)

*Philadelphus satsumi* Siebold ex Lindl. & Paxton (*Philadelphus satsumanus* Miq.

= *Philadelphus chinensis* K.Koch)

\**Philadelphus satsumi* Siebold ex Lindl. & Paxton (*Philadelphus satsumanus* Miq. =

*Philadelphus chinensis* K.Koch)

\*\**Philadelphus satsumi* Siebold ex Lindl. & Paxton (*Philadelphus satsumanus* Miq. =

*Philadelphus chinensis* K.Koch)

*Philadelphus subcanus* var. *magdalenae* (Koehne) S.Y.Hu

\**Philadelphus subcanus* var. *magdalenae* (Koehne) S.Y. Hu

*Philadelphus tenuifolius* Rupr.

## Hypericaceae Juss.

\*\**Hypericum androsaemum* L.

\**Hypericum ascyron* L.

\*\**Hypericum ascyron* L.

\*\**Hypericum ascyron* L. subsp. *gebleri* (Ledeb.) N.Robson (≡ *Hypericum gebleri* Ledeb.)

\*\**Hypericum forrestii* (Chitt.) N.Robson

\**Hypericum hookerianum* Wight & Arn.

*Hypericum kamschaticum* Ledeb.

\**Hypericum kamschaticum* Ledeb.

*Hypericum montanum* L.

\*\**Hypericum montanum* L.

*Hypericum nummularium* L.

*Hypericum olympicum* L.

\**Hypericum olympicum* L.

\*\**Hypericum orientale* L. (= *Hypericum ptarmicifolium* Spach)

\*\**Hypericum przewalskii* Maxim.

*Hypericum rumeliacum* Boiss.

*Hypericum tomentosum* L.

\*\**Hypericum tomentosum* L.

#### **Iridaceae** Juss.

\*\**Gladiolus communis* L.

\**Gladiolus dalenii* Van Geel subsp. *dalenii*

\*\**Gladiolus illyricus* W.D.J.Koch

\*\**Gladiolus imbricatus* L.

*Gladiolus murielae* Kelway v

\**Gladiolus murielae* Kelway v

\*\**Gladiolus palustris* Gaudin ++

\*\**Gladiolus palustris* Gaudin 'Malmeson'

\*\**Gladiolus tenuis* Bieb.

\*\**Gladiolus* × *hybridus* hort. 'Cinnamon Toast 496' v

\**Gladiolus* × *hybridus* hort. 'Climax 465' v

- \*\**Gladiolus* × *hybridus* hort.** ‘Golden Years 516’ v
- \**Gladiolus* × *hybridus* hort.** ‘Heritage 416’ v
- \**Gladiolus* × *hybridus* hort.** ‘Jana Combinacija 315’ v
- \**Gladiolus* × *hybridus* hort.** ‘Prof. Parolek 427’ v
- \**Gladiolus* × *hybridus* hort.** ‘Promenade 414’ v
- \*\**Gladiolus* × *hybridus* hort.** ‘Silent Night 482’ v
- \*\**Gladiolus* × *hybridus* hort.** ‘Апельсиновый Мираж 425’ v
- \*\**Gladiolus* × *hybridus* hort.** ‘Балтика 400’ v
- \**Gladiolus* × *hybridus* hort.** ‘Бахромчатый 57’3 v
- \**Gladiolus* × *hybridus* hort.** ‘Брызги водопада 472’ v
- \*\**Gladiolus* × *hybridus* hort.** ‘Владимир Мономах 554’ v
- \**Gladiolus* × *hybridus* hort.** ‘Грация 463’ v
- \**Gladiolus* × *hybridus* hort.** ‘Дон Жуан 456’ v
- \*\**Gladiolus* × *hybridus* hort.** ‘Золотая Премьера 545’ v
- \*\**Gladiolus* × *hybridus* hort.** ‘Конго 558’v
- \**Gladiolus* × *hybridus* hort.** ‘Контесса 443’ v
- \*\**Gladiolus* × *hybridus* hort.** ‘Контраст 417’ v
- \**Gladiolus* × *hybridus* hort.** ‘Любите Русь 545’ v
- \*\**Gladiolus* × *hybridus* hort.** ‘Малика 545’v
- \*\**Gladiolus* × *hybridus* hort.** ‘Майя Плисецкая 420’ v
- \**Gladiolus* × *hybridus* hort.** ‘Пермский Сувенир 365’ v (Appendix 1, Fig. 1)
- \**Gladiolus* × *hybridus* hort.** ‘Профессор Александр Генкель 465’ v (Appendix 1, Fig. 5)
- \*\**Gladiolus* × *hybridus* hort.** ‘Пурпурная Стрела 578’ v

\**Gladiolus* × *hybridus* hort. ‘Розовый Олимпус 542’ v

\**Gladiolus* × *hybridus* hort. ‘Россия 565’ v

\**Gladiolus* × *hybridus* hort. ‘Седой Урал 301’ v (Appendix 1, Fig. 4)

\**Gladiolus* × *hybridus* hort. ‘Селенит 413’ v (Appendix 1, Fig. 3)

\**Gladiolus* × *hybridus* hort. ‘Уралочка 241’ v (Appendix 1, Fig. 2)

\*\**Gladiolus* × *hybridus* hort. ‘Эсмеральда 454’ v

*Iris alberti* Regel

\**Iris alberti* Regel

\*\**Iris aphylla* L. ++

\*\**Iris brevicaulis* Raf.

\**Iris bulleyana* Dykes

\*\**Iris caucasica* M.Bieb.

\*\**Iris delavayi* Micheli

\**Iris dichotoma* Pall. (≡ *Pardanthopsis dichotoma* (Pall.) Ledeb.)

\*\* *Iris dichotoma* Pall. (≡ *Pardanthopsis dichotoma* (Pall.) Ledeb.)

*Iris domestica* (L.) Goldblatt & Mabb. (= *Belamcanda chinensis* (L.) Redouté)

\*\**Iris gracilipes* A.Gray

*Iris graminea* L.

\**Iris graminea* L.

*Iris halophila* Pall.

\**Iris halophila* Pall.

\**Iris humilis* Georgi (Appendix 1, Fig. 22)

\**Iris lactea* Pall.

**\*\**Iris lactea*** Pall.

*Iris laevigata* Fisch.

\**Iris laevigata* Fisch.

\**Iris missouriensis* Nutt. (= *Iris montana* Nutt.) ex Dykes

*Iris notha* M.Bieb. ++

\**Iris notha* M.Bieb. ++

*Iris orientalis* Mill. (= *Iris gigantea* Carriere)

*Iris pallasii* Fisch. ex Trevir.

**\*\**Iris pallasii*** Fisch. ex Trevir.

*Iris prismatica* Pursh

\**Iris prismatica* Pursh

\**Iris pseudacorus* L. ‘Japanese Alba’

*Iris pseudacorus* L. ‘Variegata’

\**Iris pseudacorus* L. ‘Variegata’

\**Iris pseudacorus* L. ‘Воспоминание’

\**Iris pumila* L. ++

**\*\**Iris pumila*** L. ++

\**Iris sanguinea* Hornem.

*Iris setosa* Pall. ex Link (= *Iris arctica* Eastw.) (Appendix 1, Fig. 23)

\**Iris setosa* Pall. ex Link (= *Iris arctica* Eastw.)

**\*\**Iris setosa*** Pall. ex Link ‘Labrador’

*Iris sibirica* L. +

*Iris sibirica* L. ‘Alba’

\* *Iris sibirica* L. ‘Alba’

*Iris sibirica* L. ‘Snow Princess’

*Iris sibirica* L. ‘Фиалковый’ (Appendix 1, Fig. 24)

*Iris sintenisii* subsp. *brandzae* (Prodan) D.A.Webb & Chater (≡ *Iris brandzae* Prodan)

*Iris spuria* L. subsp. *carthalinae* (Fomin) B.Mathew (≡ *Iris carthalinae* Fomin = *Iris klattii* Kem.-Nath.)

\**Iris spuria* L. subsp. *carthalinae* (Fomin) B.Mathew (≡ *Iris carthalinae* Fomin = *Iris klattii* Kem.-Nath.)

\**Iris spuria* L. subsp. *demetrii* (Achv. & Mirzoeva) B.Mathew (= *Iris prilipkoana* Kem.-Nath.)

*Iris spuria* L. ‘Фригия’

\**Iris spuria* L. ‘Фригия’

*Iris versicolor* L.

\**Iris versicolor* L.

*Iris* × *sikkimensis* Dykes

\**Iris* × *sikkimensis* Dykes

\**Sisyrinchium albidum* Raf.

\*\**Sisyrinchium albidum* Raf.

*Sisyrinchium idahoense* E.P.Bicknell

\*\**Sisyrinchium idahoense* E.P.Bicknell

*Sisyrinchium montanum* Greene

\**Sisyrinchium montanum* Greene

*Sisyrinchium septentrionale* E.P.Bicknell

\**Sisyrinchium septentrionale* E.P.Bicknell

*Sisyrinchium striatum* Sm.

\**Sisyrinchium striatum* Sm.

**Juglandaceae** DC. ex Perleb

*Juglans cinerea* L.

\*\**Juglans cinerea* L.

*Juglans mandshurica* Maxim.

\*\**Juglans mandshurica* Maxim.

*Pterocarya fraxinifolia* (Poir.) Spach (= *Pterocarya pterocarpa* (Michx.) Delchev.)

**Juncaceae** Juss.

*Luzula alpinopilosa* (Chaix) Breistr.

\**Luzula alpinopilosa* (Chaix) Breistr.

*Luzula desvauxii* Kunth

\**Luzula desvauxii* Kunth

*Luzula luzuloides* (Lam.) Dandy & Wilmott

\*\**Luzula luzuloides* (Lam.) Dandy & Wilmott

*Luzula nivea* (L.) DC. (Appendix 1, Fig. 25)

\**Luzula nivea* (L.) DC.

*Luzula nivea* (L.) DC. 'Lucius'

\**Luzula nivea* (L.) DC. 'Lucius'

*Luzula pedemontana* Boiss. & Reut.

\**Luzula pedemontana* Boiss. & Reut.

*Luzula sudetica* (Willd.) Schult.

\**Luzula sudetica* (Willd.) Schult.

### Lamiaceae Martinov

*Betonica macrantha* K.Koch.

\**Betonica macrantha* K.Koch.

\**Dracocephalum imberbe* Bunge

\*\**Dracocephalum renati* Emb.

\**Dracocephalum ruyschiana* L.

\*\**Dracocephalum ruyschiana* L.

*Hyssopus officinalis* L. 'Roseus'

*Hyssopus officinalis* L. subsp. *montanus* (Jord. & Fourr.) Briq. (= *Hyssopus cretaceus* Dubj.)

\**Hyssopus officinalis* L. subsp. *montanus* (Jord. & Fourr.) Briq. (= *Hyssopus cretaceus* Dubj.)

\*\**Monarda clinopodia* L.

*Monarda didyma* L. 'Nana'

*Monarda fistulosa* L.

\*\**Monarda fistulosa* L.

*Monarda fistulosa* var. *menthifolia* (Graham) Fernald (≡ *Monarda menthifolia* Graham)

\**Monarda fistulosa* var. *menthifolia* (Graham) Fernald (≡ *Monarda menthifolia* Graham)

*Monarda russeliana* Nutt. ex Sims

\**Monarda russeliana* Nutt. ex Sims

*Nepeta cyanea* Steven

\**Nepeta cyanea* Steven

*Nepeta* × *faassenii* Bergmans ex Stearn 'Cats Meow'

*Nepeta granatensis* Boiss.

\*\**Nepeta granatensis* Boiss.



*Nepeta grandiflora* M.Bieb.

\**Nepeta grandiflora* M.Bieb.

*Nepeta kokanica* Regel

*Nepeta manchuriensis* S.Moore

\*\**Nepeta manchuriensis* S.Moore

\**Nepeta mussinii* Spreng.

\*\**Nepeta mussinii* Spreng.

*Nepeta nervosa* Royle ex Benth. 'Pink Cat'

*Nepeta racemosa* Lam.

\**Nepeta racemosa* Lam.

*Nepeta sibirica* L.

\**Nepeta sibirica* L.

\**Nepeta wilsonii* Duthie

\*\**Nepeta wilsonii* Duthie

\*\**Origanum laevigatum* Boiss.

*Origanum vulgare* L. (= *Origanum vulgare* L. var. *prismaticum* (Gaudin) Benth.)

\**Origanum vulgare* L. (= *Origanum vulgare* L. var. *prismaticum* (Gaudin) Benth.)

\**Origanum vulgare* L. subsp. *hirtum* (Link) A.Terracc.

*Origanum vulgare* L. 'Aureum'

\**Origanum vulgare* L. 'Compactum'

\*\**Origanum vulgare* L. 'Compactum'

\*\**Phlomoides maximowiczii* (Regel) Kamelin & Makhm. (≡ *Phlomis maximowiczii* Regel)

*Physostegia virginiana* (L.) Benth. f. *alba* (J.W.Moore) B.Boivin

\**Physostegia virginiana* (L.) Benth. f. *alba* (J.W.Moore) B.Boivin

*Prunella grandiflora* (L.) Turra

\**Prunella grandiflora* (L.) Turra

*Prunella vulgaris* subsp. *asiatica* (Nakai) H.Hara (= *Prunella japonica* Makino)

\**Prunella vulgaris* subsp. *asiatica* (Nakai) H.Hara (= *Prunella japonica* Makino)

*Prunella webbiana* N.Taylor

\**Prunella webbiana* N.Taylor

\**Salvia dumetorum* Andrz. ex Besser (= *Salvia stepposa* Des.-Shost.)

\*\**Salvia dumetorum* Andrz. ex Besser (= *Salvia stepposa* Des.-Shost.)

*Salvia nemorosa* L. subsp. *pseudosylvestris* (Stapf) Bornm. (= *Salvia tesquicola* Klokov & Pobed.)

*Salvia nemorosa* L. ‘Blauhügel’

*Salvia nemorosa* L. subsp. *pseudosylvestris* (Stapf) Bornm.

*Salvia przewalskii* Maxim.

*Scutellaria albida* L. subsp. *colchica* (Rech.f.) J.R.Edm. (= *Scutellaria woronowii* Juz.)

\* *Scutellaria albida* L. subsp. *colchica* (Rech.f.) J.R.Edm. (= *Scutellaria woronowii* Juz.)

*Scutellaria alpina* L.

\**Scutellaria alpina* L.

*Scutellaria altissima* L.

\**Scutellaria altissima* L.

\*\**Scutellaria galericulata* L.

*Scutellaria przewalskii* Juz.

\*\**Scutellaria przewalskii* Juz.

*Scutellaria rubicunda* Willd.

\**Scutellaria rubicunda* Willd.

*Stachys byzantina* K.Koch (= *Stachys lanata* Jacq.)

\*\**Stachys byzantina* K.Koch (= *Stachys lanata* Jacq.)

\**Teucrium chamaedrys* L.

\*\**Thymus comosus* Heuff. ex Griseb. & Schenk

*Thymus kosteleckyanus* Opiz

\**Thymus kosteleckyanus* Opiz

*Thymus praecox* Opiz subsp. *britannicus* (Ronniger) Holub (= *Thymus praecox* Opiz subsp. *arcticus* (Durand) Jalas)

*Thymus praecox* Opiz subsp. *polytrichus* (A.Kern. ex Borbás) Jalas (≡ *Thymus polytrichus* A.Kern. ex Borbás)

\* *Thymus praecox* Opiz subsp. *polytrichus* (A.Kern. ex Borbás) Jalas (≡ *Thymus polytrichus* A.Kern. ex Borbás)

*Thymus pulegioides* L. subsp. *pulegioides* (= *Thymus ovatus* Mill.)

\**Thymus pulegioides* L. subsp. *pulegioides* (= *Thymus ovatus* Mill.)

*Thymus serpyllum* L.

\**Thymus serpyllum* L.

\*\**Thymus sibthorpii* Benth.

*Thymus talijevii* Klokov & Des.-Shost. subsp. *talijevii* (= *Thymus uralensis* Klokov)

\**Thymus talijevii* Klokov & Des.-Shost. subsp. *talijevii* (= *Thymus uralensis* Klokov)

**Leguminosae Juss. = Fabaceae Lindl.**

*Amorpha fruticosa* L.

\**Amorpha fruticosa* L.

*Astragalus cicer* L.

\**Astragalus cicer* L.

\*\**Astragalus falcatus* Lam. +

*Astragalus frigidus* (L.) A.Gray

*Astragalus mongholicus* Bunge

\**Astragalus mongholicus* Bunge

*Astragalus testiculatus* Pall.

\**Astragalus testiculatus* Pall.

\*\* *Caragana arborescens* Lam. (= *Caragana fruticosa* (Pall.) Besser) ‘Grandiflora’

*Chamaecytisus rochelii* (Wierzb. ex Gries. & Schenk.) Rothm. (= *Cytisus austriacus* var. *rochelii* (Wierzb.) Cristof. ≡ *Chamaecytisus rochelii* Wierzb.)

*Chamaecytisus hirsutus* (L.) Link (≡ *Cytisus hirsutus* L.)

\*\* *Chamaecytisus supinus* (L.) Link (≡ *Cytisus supinus* L.)

\**Desmodium canadense* (L.) DC.

*Genista florida* L.

*Genista tinctoria* L. subsp. *tinctoria* (= *Genista tanaitica* P.A.Smirn.) ++

\**Genista tinctoria* L. subsp. *tinctoria* (= *Genista tanaitica* P.A.Smirn.) ++

*Genista pilosa* L.

\**Genista pilosa* L.

*Glycyrrhiza uralensis* Fisch. ex DC.

\**Glycyrrhiza uralensis* Fisch. ex DC.

*Hedysarum alpinum* L.

\**Hedysarum alpinum* L.

*Lathyrus vernus* (L.) Bernh.

\**Lathyrus vernus* (L.) Bernh.

\**Lotus alpinus* (Ser.) Schleich. ex Ramond

*Thermopsis alterniflora* Regel & Schmalh.

\**Thermopsis alterniflora* Regel & Schmalh.

*Thermopsis chinensis* Benth. ex S.Moore

\**Thermopsis chinensis* Benth. ex S.Moore

*Thermopsis montana* Nutt.

\**Thermopsis montana* Nutt.

*Thermopsis villosa* (Walter) Fernald & B.G.Schub.

\**Thermopsis villosa* (Walter) Fernald & B.G.Schub.

#### Liliaceae Juss.

\**Lilium formosanum* A.Wallace

*Tulipa sylvestris* subsp. *australis* (Link) Pamp. (= *Tulipa biebersteiniana* Schult. & Schult.f.)

#### Lythraceae J.St.-Hil.

*Lythrum salicaria* L.

\**Lythrum salicaria* L.

#### Melanthiaceae Batsch ex Borkh.

\*\**Paris quadrifolia* L.

\*\**Veratrum nigrum* L.

#### Montiaceae Raf.

\**Lewisia pygmaea* (A. Gray) B.L.Rob.

#### Oleaceae Hoffmanns. & Link

*Ligustrum vulgare* L.

\*\**Ligustrum vulgare* L.

*Syringa emodi* Wall. ex Royle

\**Syringa emodi* Wall. ex Royle

*Syringa* × *henryi* C.K.Scheid.

\**Syringa* × *henryi* C.K.Scheid.

*Syringa josikaea* J.Jacq. ex Rchb.

\**Syringa josikaea* J.Jacq. ex Rchb.

*Syringa komarowii* C.K.Scheid. (= *Syringa reflexa* C.K.Scheid.)

\**Syringa komarowii* C.K.Scheid. (= *Syringa reflexa* C.K.Scheid.)

*Syringa* × *prestoniae* McKelvey

\**Syringa* × *prestoniae* McKelvey

*Syringa pubescens* Turcz. (= *Syringa meyeri* C.K.Scheid.)

\**Syringa pubescens* Turcz. (= *Syringa meyeri* C.K.Scheid.)

*Syringa pubescens* Turcz. subsp. *microphylla* (Diels) M.C.Chang & X.L.Chen

\**Syringa pubescens* Turcz. subsp. *microphylla* (Diels) M.C.Chang & X.L.Chen

*Syringa pubescens* Turcz. subsp. *patula* (Palib.) M.C.Chang & X.L.Chen (= *Syringa velutina* Kom.)

\* *Syringa pubescens* Turcz. subsp. *patula* (Palib.) M.C.Chang & X.L.Chen (= *Syringa velutina* Kom.)

*Syringa reticulata* (Blume) H.Hara

\**Syringa reticulata* (Blume) H.Hara

\**Syringa reticulata* (Blume) H.Hara subsp. *amurensis* (Rupr.) P.S.Green & M.C.Chang  
(≡ *Syringa amurensis* Rupr.)

\*\**Syringa reticulata* (Blume) H.Hara subsp. *amurensis* (Rupr.) P.S.Green & M.C.Chang  
(≡ *Syringa amurensis* Rupr.)

*Syringa tomentella* Bureau & Franch.

\**Syringa tomentella* Bureau & Franch.

*Syringa tomentella* Bureau & Franch. subsp. *sweginzowii* (Koehne & Lingelsh.) JinY.Chen & D.Y.Hong. (≡ *Syringa sweginzowii* Koehne & Lingelsh.)

\* *Syringa tomentella* Bureau & Franch. subsp. *sweginzowii* (Koehne & Lingelsh.) JinY.Chen & D.Y.Hong. (≡ *Syringa sweginzowii* Koehne & Lingelsh.)

*Syringa villosa* Vahl

\**Syringa villosa* Vahl

*Syringa wolfii* C.K.Schneid.

\**Syringa wolfii* C.K.Schneid.

#### **Onagraceae** Juss.

\*\**Circaea lutetiana* L.

\**Oenothera perennis* L. (= *Oenothera pumila* L.)

\*\**Oenothera perennis* L. (= *Oenothera pumila* L.)

#### **Paeoniaceae** Raf.

*Paeonia anomala* L. (Appendix 1, Fig. 26)

\**Paeonia anomala* L.

*Paeonia daurica* Andrews subsp. *mlokosewitschii* (Lomakin) D.Y.Hong

\**Paeonia lactiflora* Pall. ++

\*\**Paeonia lactiflora* Pall. ++

\**Paeonia lactiflora* Pall. ‘Agida’

\**Paeonia lactiflora* Pall. ‘Akron’

\**Paeonia lactiflora* Pall. ‘Appassionata’

\**Paeonia lactiflora* Pall. ‘Aviateur Bleriot’

*Paeonia lactiflora* Pall. ‘Betty Groff’

\* *Paeonia lactiflora* Pall. ‘Betty Groff’  
*Paeonia lactiflora* Pall. ‘Break o’Day’  
\**Paeonia lactiflora* Pall. ‘Butch’  
*Paeonia lactiflora* Pall. ‘Clara Vivian’  
\**Paeonia lactiflora* Pall. ‘Cora Stubbs’  
\**Paeonia lactiflora* Pall. ‘Germaine Bigot’  
*Paeonia lactiflora* Pall. ‘Gold Standard’  
\* *Paeonia lactiflora* Pall. ‘Gold Standard’  
\**Paeonia lactiflora* Pall. ‘Kansas’  
\**Paeonia lactiflora* Pall. ‘Lady Alexandra Daff’  
\**Paeonia lactiflora* Pall. ‘Laura Dessert’  
*Paeonia lactiflora* Pall. ‘Lois Kelsey’  
\**Paeonia lactiflora* Pall. ‘Lois Kelsey’  
*Paeonia lactiflora* Pall. ‘Miss Dainty’  
\* *Paeonia lactiflora* Pall. ‘Miss Dainty’  
\**Paeonia lactiflora* Pall. ‘Onondaga’  
\**Paeonia lactiflora* Pall. ‘Ray Payton’  
\**Paeonia lactiflora* Pall. ‘Red Sarah Bernhardt’  
\**Paeonia lactiflora* Pall. ‘Ruth Clay’  
*Paeonia lactiflora* Pall. ‘The Bride’  
\**Paeonia lactiflora* Pall. ‘The Bride’  
*Paeonia lactiflora* Pall. ‘Tulagi’  
\**Paeonia lactiflora* Pall. ‘Белый Парус’  
\**Paeonia lactiflora* Pall. ‘Золотое Руно’  
\**Paeonia lactiflora* Pall. ‘Крейсер Аврора’  
\**Paeonia lactiflora* Pall. ‘Урал Батыр’  
*Paeonia mascula* (L.) Mill. subsp. ***mascula*** (= *Paeonia kavachensis* Azn.)



\**Paeonia mascula* (L.) Mill. subsp. *mascula* (= *Paeonia kavachensis* Azn.)

*Paeonia obovata* Maxim. ++

\**Paeonia obovata* Maxim. ++

*Paeonia officinalis* L. subsp. *microcarpa* Nyman

*Paeonia peregrina* Mill.

\**Paeonia tenuifolia* L. ++

### **Papaveraceae** Juss.

*Corydalis nobilis* (L.) Pers.

*Lamprocapnos spectabilis* (L.) Fukuhara (= *Dicentra spectabilis* (L.) Lem.) ‘Alba’

\**Lamprocapnos spectabilis* (L.) Fukuhara (= *Dicentra spectabilis* (L.) Lem.) ‘Valentine’

\*\**Lamprocapnos spectabilis* (L.) Fukuhara (= *Dicentra spectabilis* (L.) Lem.) ‘Valentine’

*Macleaya microcarpa* (Maxim.) Fedde

\**Macleaya microcarpa* (Maxim.) Fedde

\*\* *Oreomecon alpina* (L.) Banfi, Bartolucci, J.-M.Tison & Galasso (≡ *Papaver alpinum* L. =

*Papaver rhaeticum* Leresche)

*Oreomecon nudicaulis* (L.) Banfi, Bartolucci, J.-M.Tison & Galasso (≡ *Papaver nudicaule*  
L.)

\**Oreomecon nudicaulis* (L.) Banfi, Bartolucci, J.-M.Tison & Galasso (≡ *Papaver nudicaule*  
L.)

\*\**Papaver arenarium* M. Bieb.

\*\**Papaver armeniacum* (L.) DC. subsp. *armeniaceum* (= *Papaver fugax* Poir.)

\*\**Papaver bracteatum* Lindl. ++ (Appendix 1, Fig. 27)

*Papaver bracteatum* Lindl. ‘Beauty of Livermere’

\*\**Papaver bracteatum* Lindl. ‘Beauty of Livermere’

*Papaver jacuticum* Peschkova

\*\**Papaver lateritium* K.Koch

\*\**Papaver lisae* N.Busch

*Papaver orientale* L. (= *Papaver paucifoliatum* (Trautv.) Fedde)

\**Papaver orientale* L. (= *Papaver paucifoliatum* (Trautv.) Fedde)

*Papaver orientale* L. 'Splendidissimum'

\**Papaver orientale* L. 'Splendidissimum'

*Papaver pilosum* Sm. subsp. *pilosum* (= *Papaver schinzianum* Fedde)

\**Papaver pilosum* Sm. subsp. *sparsipilosum* (Boiss.) Kadereit (= *Papaver apokrinomenon* Fedde)

\*\**Papaver pilosum* Sm. subsp. *sparsipilosum* (Boiss.) Kadereit (= *Papaver apokrinomenon* Fedde)

\*\**Papaver rubroaurantiacum* (Fisch. ex DC.) C.E.Lundstr.

*Papaver setiferum* Goldblatt (= *Papaver pseudo-orientale* (Fedde) Medw.)

\**Papaver setiferum* Goldblatt (= *Papaver pseudo-orientale* (Fedde) Medw.)

*Papaver pilosum* Sm. subsp. *spicatum* (Boiss. & Balansa) N.Wendt ex Kadereit (≡ *Papaver spicatum* Boiss. & Balansa)

\**Papaver pilosum* Sm. subsp. *spicatum* (Boiss. & Balansa) N.Wendt ex Kadereit (≡ *Papaver spicatum* Boiss. & Balansa)

## Plantaginaceae Juss.

*Digitalis grandiflora* Mill.

\**Digitalis grandiflora* Mill.

\*\**Digitalis lanata* Ehrh.

*Digitalis lutea* L.

\*\**Digitalis lutea* L.

\**Digitalis viridiflora* Lindl.

\*\**Globularia incanescens* Viv.

*Globularia nudicaulis* L.

\*\**Globularia nudicaulis* L.

\**Gratiola officinalis* L.

\*\**Gratiola officinalis* L.

*Linaria altaica* Fisch. (= *Linaria debilis* Kuprian.)

*Linaria genistifolia* (L.) Mill.

*Linaria purpurea* (L.) Mill.

\**Linaria purpurea* (L.) Mill.

*Linaria repens* (L.) Mill.

\*\**Linaria repens* (L.) Mill.

*Penstemon cardwellii* Howell

*Penstemon caespitosus* Nutt. ex A.Gray

\*\**Penstemon caespitosus* Nutt. ex A.Gray

\*\**Penstemon fruticosus* (Pursh) Greene

*Penstemon glaber* Pursh

\*\**Penstemon glaber* Pursh var. *alpinus* (Torr.) A.Gray (≡ *Penstemon alpinus* Torr.)

*Penstemon hirsutus* (L.) Willd. 'Pygmaeus'

\**Penstemon hirsutus* (L.) Willd. 'Pygmaeus'

\*\**Penstemon lyallii* (A.Gray) A.Gray

\*\**Penstemon richardsonii* Douglas ex Lindl.

*Penstemon rydbergii* A.Nelson

\**Penstemon rydbergii* A.Nelson

*Penstemon serrulatus* Menzies ex Sm.

\*\**Penstemon serrulatus* Menzies ex Sm.

*Penstemon smallii* A.Heller

*Penstemon wilcoxii* Rydb.

\**Penstemon wilcoxii* Rydb.

\*\**Plantago camtschatica* Link

*Plantago lanceolata* L.

\**Plantago lanceolata* L.

\*\**Plantago major* L. subsp. *major* (= *Plantago maxima* Juss. ex Jacq.)

*Plantago major* L. 'Rubra'

\**Plantago major* L. 'Rubra'

*Plantago sempervirens* Crantz

\**Plantago sempervirens* Crantz

*Verbascum phoeniceum* L.

\**Verbascum phoeniceum* L.

*Veronica austriaca* L.

\**Veronica austriaca* L.

*Veronica fruticans* Jacq.

*Veronica gentianoides* Vahl

\**Veronica gentianoides* Vahl

*Veronica incana* L. (≡ *Veronica spicata* subsp. *incana* (L.) Walters)

\**Veronica incana* L. (≡ *Veronica spicata* subsp. *incana* (L.) Walters)

*Veronica longifolia* L. (= *Veronica maritima* L.)

*Veronica longifolia* L. (= *Veronica maritima* L.)

\**Veronica longifolia* L. (= *Veronica maritima* L.)

\**Veronica krylovii* Schischk.

*Veronica orchidea* Crantz (≡ *Veronica spicata* L. subsp. *orchidea* (Crantz) Hayek)

*Veronica ponae* Gouan

\**Veronica ponae* Gouan

*Veronica spicata* L.

\**Veronica spicata* L.

*Veronica urticifolia* Jacq.

\**Veronica urticifolia* Jacq.

\*\* *Veronicastrum virginicum* (L.) Farw. (≡ *Veronica virginica* L.)

\**Veronicastrum virginicum* (L.) Farw. 'Variegata'

*Veronicastrum sibiricum* (L.) Pennel f. *glabratum* (Nakai) H. Ohashi (= *Veronicastrum japonicum* (Nakai) T. Yamaz.)

\**Veronicastrum sibiricum* (L.) Pennel f. *glabratum* (Nakai) H. Ohashi (= *Veronicastrum japonicum* (Nakai) T. Yamaz.)

*Wulfenia baldaccii* Degen

\**Wulfenia baldaccii* Degen

*Wulfenia carintiaca* Jacq. (= *Wulfenia blechicii* Lakušić)

\*\**Wulfenia carintiaca* Jacq. (= *Wulfenia blechicii* Lakušić)

**Plumbaginaceae** Juss.

\*\**Armeria alliacea* (Cav.) Hoffmanns. & Link

*Armeria alpina* (DC.) Willd.

\**Armeria alpina* (DC.) Willd.

*Armeria curvifolia* Bertero

\*\**Armeria denticulata* (Bertol.) DC.

*Armeria gracilis* Ten.

\*\**Armeria maritima* (Mill.) Willd. subsp. *elongata* (Hoffm.) Bonnier

*Armeria maritima* (Mill.) Willd. subsp. *sibirica* (Turcz. ex Boiss.) Nyman (= *Armeria arctica* (Cham.) Wallr.)

\*\**Armeria maritima* (Mill.) Willd. subsp. *sibirica* (Turcz. ex Boiss.) Nyman (= *Armeria scabra* Pall. ex Schult. = *Armeria arctica* (Cham.) Wallr.)

*Armeria pseudarmeria* (Murray) Mansf.

\**Armeria pseudarmeria* (Murray) Mansf.

*Armeria pungens* (Brot.) Hoffmanns. & Link

*Armeria transmontana* (Samp.) G.H.M.Lawr.

\*\**Armeria transmontana* (Samp.) G.H.M.Lawr.

\**Armeria villosa* Girard

\*\**Armeria welwitschii* Boiss. (= *Armeria cinerea* Boiss. & Welw.)

*Limonium gmelini* (Willd.) O.Kuntze

\**Limonium gmelini* (Willd.) O.Kuntze

## Poaceae Barnhart

*Anticlea elegans* (Pursh) Rydb. (≡ *Zigadenus elegans* Pursh)

\*\**Anticlea elegans* (Pursh) Rydb. (≡ *Zigadenus elegans* Pursh)

*Arrhenatherum elatius* (L.) P.Beauv. ex J.Presl & C.Presl subsp. *bulbosum* (Willd.) Schübl.

& G.Martens (≡ *Arrhenatherum bulbosum* (Willd.) C.Presl)

*Beckmannia eruciformis* (L.) Host

\*\**Beckmannia eruciformis* (L.) Host

**\*\**Bromus hordeaceus* L.**

*Bromus japonicus* Thunb. (Appendix 1, Fig. 28)

\**Bromus japonicus* Thunb.

*Calamagrostis* × *acutiflora* (Schrad.) DC. ‘Karl Foerster’

\**Calamagrostis* × *acutiflora* (Schrad.) DC. ‘Karl Foerster’

*Deschampsia cespitosa* (L.) P.Beauv.

*Elymus dahuricus* Turcz. ex Griseb.

\**Elymus dahuricus* Turcz. ex Griseb.

*Festuca airoides* Lam.

\**Festuca airoides* Lam.

*Festuca albensis* M.Toman.

*Festuca alpina* Suter

\**Festuca alpina* Suter

\**Festuca amethystina* L.

**\*\**Festuca amethystina* L.**

*Festuca burgundiana* Auquier & Kerguélen

\**Festuca burgundiana* Auquier & Kerguélen

*Festuca cinerea* Vill. ‘Varna’

*Festuca circummediterranea* Patzke

\**Festuca circummediterranea* Patzke

*Festuca christianii-bernardii* Kerguélen

\**Festuca christianii-bernardii* Kerguélen

*Festuca durissima* (Hack.) Kerguélen (*Festuca yvesii* Sennen & Pau subsp. *yvesii*)

**\*\**Festuca durissima*** (Hack.) Kerguélen (= *Festuca yvesii* Sennen & Pau subsp. *yvesii*)

***Festuca filiformis*** Pourr. (= *Festuca tenuifolia* Sibth.)

**\**Festuca filiformis*** Pourr. (= *Festuca tenuifolia* Sibth.)

***Festuca gautieri*** (Hack.) K.Richt.

**\**Festuca gautieri*** (Hack.) K.Richt.

**\*\**Festuca glauca*** Vill.

**\*\**Festuca glauca*** Vill. cv. Auslese

**\*\**Festuca guestfalica*** Boenn. ex Rchb.

***Festuca koritnicensis*** Hayek & Vetter

**\**Festuca koritnicensis*** Hayek & Vetter

***Festuca lemanii*** T.Bastard

**\**Festuca lemanii*** T.Bastard

***Festuca matthewsii*** (Hack.) Cheeseman

***Festuca novae-zelandiae*** (Hack.) Cockayne

***Festuca ovina*** L. (= *Festuca centroapenninica* (Markgr.-Dann.) Foggi, F.Conti & Pignatti)

**\**Festuca ovina*** L. (= *Festuca centroapenninica* (Markgr.-Dann.) Foggi, F.Conti & Pignatti)

***Festuca pulchra*** Schur (= *Festuca pseudovina* Hack. ex Wiesb.)

**\**Festuca pulchra*** Schur (= *Festuca pseudovina* Hack. ex Wiesb.)

***Festuca rupicola*** Heuff. (= *Festuca sulcata* (Hack.) Beck)

**\**Festuca rupicola*** Heuff. (= *Festuca sulcata* (Hack.) Beck)

**\*\**Festuca sclerophylla*** Boiss. ex Bisch.

**\**Festuca ticinensis*** (Markgr.-Dann.) Markgr.-Dann.

**\**Festuca valesiaca*** Schleich. ex Gaudin



**\*\*Festuca valesiaca** Schleich. ex Gaudin

**\*Festuca vasconensis** (Markgr.-Dann.) Auquier & Kerguélen

**Koeleria glauca** (Spreng.) DC.

**Koeleria macrantha** (Ledeb.) Schult. subsp. **macrantha** (= *Koeleria sclerophylla*  
P.A.Smirn.)

**\*Koeleria macrantha** (Ledeb.) Schult. subsp. **macrantha** (= *Koeleria sclerophylla*  
P.A.Smirn.)

**Koeleria pyramidata** (Lam.) P.Beauv.

**\*Koeleria pyramidata** (Lam.) P.Beauv.

**Koeleria vallesiana** (Honck.) Gaudin

**\*Koeleria vallesiana** (Honck.) Gaudin

**Lolium mairei** (St.-Yves) Banfi, Galasso, Foggi, Kopecký & Argenghi (≡ *Festuca mairei* St.-  
Yves)

**Melica altissima** L. ‘Atropurpurea’

**\*Melica altissima** L. ‘Atropurpurea’

**Melica nutans** L.

**\*Melica nutans** L.

**Melica picta** K.Koch

**Melica transsilvanica** Schur +

**\*Melica transsilvanica** Schur +

**\*\*Miscanthus oligostachyus** Stapf

**\*Miscanthus sinensis** Andersson

**\*\*Molinia caerulea** (L.) Moench

*Molinia caerulea* (L.) Moench ‘Moorhexe’

*Neotrinia splendens* (Trin.) M.Nobis, P.D.Gudkova & A.Novak (= *Stipa splendens* Trin.)

*Poa glauca* Vahl

\**Poa glauca* Vahl

*Stipa barbata* Desf. ‘Federspiel’

\**Stipa barbata* Desf. ‘Federspiel’

*Stipa bungeana* Trin.

\**Stipa bungeana* Trin.

*Achnatherum calamagrostis* (L.) P.Beauv. (≡ *Stipa calamagrostis* (L.) Wahlenb.)

\**Achnatherum calamagrostis* (L.) P.Beauv. (≡ *Stipa calamagrostis* (L.) Wahlenb.)

*Stipa capillata* L.

\**Stipa capillata* L.

*Stipa dasyphylla* (Lindem.) Czern. ex Trautv.

\*\**Stipa dasyphylla* (Lindem.) Czern. ex Trautv.

\**Stipa pennata* L. ++

\*\**Stipa pennata* L. ++

\**Stipa pulcherrima* K.Koch ++

*Stipa tirsia* Steven

\**Stipa tirsia* Steven (= *Stipa stenophylla* (Czern. ex Lindem.) Trautv.)

\*\**Stipa tirsia* Steven (= *Stipa stenophylla* (Czern. ex Lindem.) Trautv.)

\**Stipa turkestanica* Hack.

\*\**Stipa turkestanica* Hack.

**Polemoniaceae** Juss.

*Polemonium boreale* Adams (= *Polemonium richardsonii* Graham)

\*\**Polemonium boreale* Adams (= *Polemonium richardsonii* Graham)

\*\**Polemonium caeruleum* L. 'Variegata'

\*\**Polemonium caucasicum* N.Busch

*Polemonium kiushianum* Kitam.

\**Polemonium kiushianum* Kitam.

**Polygonaceae** Juss.

*Rheum compactum* L.

\*\**Rheum rhabarbarum* L. (= *Rheum undulatum* L.) 'Компотный'

*Rumex sanguineus* L. 'Bluetampfer'

\* *Rumex sanguineus* L. 'Bluetampfer'

**Primulaceae** Batsch ex Borkh.

*Androsace geraniifolia* Watt (= *Primula paxiana* Kuntze)

\*\**Androsace geraniifolia* Watt (= *Primula paxiana* Kuntze)

*Androsace vitaliana* (L.) Lapeyr. subsp. *vitaliana* (≡ *Primula vitaliana* L. = *Vitaliana primuliflora* Bertol.)

\*\**Evotrochis edelbergii* (O.Schwarz) Firat & Lindén (≡ *Primula edelbergii* O.Schwarz)

*Lysimachia lichiangensis* Forrest

\*\**Lysimachia lichiangensis* Forrest

\**Lysimachia minoricensis* J.J.Rodr.

*Lysimachia sikokiana* Miq.

\**Lysimachia sikokiana* Miq.

\*\**Primula algida* Adams

\**Primula aurantiaca* W.W.Sm. & Forrest

\*\**Primula elatior* (L.) Hill subsp. *elatior* (= *Primula poloninensis* Fed.)

*Primula elatior* (L.) Hill subsp. *pallasii* (Lehm.) W.W.Sm. & Forrest (≡ *Primula pallasii*

Lehm. = *Primula saguramica* Gavr.)

\*\**Primula elatior* (L.) Hill subsp. *pallasii* (Lehm.) W.W.Sm. & Forrest (≡ *Primula pallasii*

Lehm. = *Primula saguramica* Gavr.)

*Primula flaccida* N.P.Balacr. (= *Primula nutans* Georgi)

\*\**Primula flaccida* N.P.Balacr. (= *Primula nutans* Georgi)

*Primula glaucescens* Moretti

\**Primula glaucescens* Moretti

\*\**Primula halleri* J.F.Gmel.

\**Primula heucherifolia* Franch.

\*\**Primula heucherifolia* Franch.

\*\**Primula laciniata* Pax & K.Hoffm.

*Primula matthioli* (L.) V.A..Richt. subsp. *matthioli* (= *Primula cortusa* Sander ex A.Richt.)

\**Primula matthioli* (L.) V.A..Richt. subsp. *matthioli* (= *Primula cortusa* Sander ex A.Richt.)

\*\**Primula matthioli* (L.) V.A..Richt. subsp. *sachalinensis* (Losinsk.) Kovt. (≡ *Cortusa matthioli* L. var. *sachalinensis* (Losinsk.) T.Yamaz.)

\*\**Primula matthioli* (L.) V.A..Richt. subsp. *sachalinensis* (Losinsk.) Kovt. (≡ *Cortusa matthioli* L. var. *sachalinensis* (Losinsk.) T.Yamaz.)

*Primula polyneura* Franch.

\**Primula polyneura* Franch.

*Primula reticulata* Wall.

\**Primula reticulata* Wall.

*Primula rosea* Royle

\**Primula rosea* Royle

*Primula ruprechtii* Kusn.

\**Primula scandinavica* Bruun

\*\**Primula scandinavica* Bruun

\**Primula sieboldii* É.Morren

\*\**Primula sieboldii* É.Morren

*Primula veris* subsp. *macrocalyx* (Bunge) Lüdi (≡*Primula macrocalyx* Bunge = *Primula uralensis* Fisch. ex Rchb.)

\*\**Primula veris* subsp. *macrocalyx* (Bunge) Lüdi (≡*Primula macrocalyx* Bunge = *Primula uralensis* Fisch. ex Rchb.)

*Primula warshenewskiana* B.Fedtsch.

\**Primula warshenewskiana* B.Fedtsch.

## **Ranunculaceae** Juss.

\*\**Aconitum carmichaelii* Debeaux 'Pink Sensation'

*Actaea racemosa* L. var. *racemosa* (≡ *Cimicifuga racemosa* (L.) Nutt. = *Cimicifuga americana* Muhl.)

\**Actaea racemosa* L. var. *racemosa* (≡ *Cimicifuga racemosa* (L.) Nutt. = *Cimicifuga americana* Muhl.)

*Actaea spicata* L.

\**Actaea spicata* L.

*Anemonastrum baicalense* (Turcz.) Mosyakin (≡ *Anemone baicalensis* Turcz.) ++

\**Anemonastrum baicalense* (Turcz.) Mosyakin (≡ *Anemone baicalensis* Turcz.) ++

*Anemonastrum dichotomum* (L.) Mosyakin (≡ *Anemone dichotoma* L.)

\**Anemonastrum dichotomum* (L.) Mosyakin (≡ *Anemone dichotoma* L.)

*Anemonastrum falciculatum* (L.) Holub (≡ *Anemone fasciculata* L. ≡ *Anemone narcissiflora* L. subsp. *fasciculata* (L.) Ziman & Fedor.)

\*\**Anemonastrum falciculatum* (L.) Holub (≡ *Anemone fasciculata* L. ≡ *Anemone narcissiflora* L. subsp. *fasciculata* (L.) Ziman & Fedor.)

\*\**Anemone virginiana* L.

*Anemonoides baldensis* (L.) Galasso, Banfi, Soldano (≡ *Anemone baldensis* L.)  
(Appendix 1, Fig. 29)

\**Anemonoides baldensis* (L.) Galasso, Banfi, Soldano (≡ *Anemone baldensis* L.)

*Anemonoides sylvestris* (L.) Galasso, Banfi, Soldano (≡ *Anemone sylvestris* L.)

\*\**Anemonoides sylvestris* (L.) Galasso, Banfi, Soldano (≡ *Anemone sylvestris* L.)

\*\**Aquilegia alpina* L.

*Aquilegia baikalensis* K.C.Davis

\**Aquilegia baikalensis* K.C.Davis

\**Aquilegia barnebyi* Munz

*Aquilegia buergeriana* Siebold & Zucc.

\**Aquilegia colchica* Kem.-Nath.

*Aquilegia einseleana* F.W.Schultz

\**Aquilegia einseleana* F.W.Schultz

\**Aquilegia flabellata* Siebold et Zucc. (= *Aquilegia amurensis* Kom. = *Aquilegia japonica* Nakai & H.Hara)

**\*\**Aquilegia flabellata*** Siebold et Zucc. (= *Aquilegia amurensis* Kom. = *Aquilegia japonica* Nakai & H.Hara)  
**\*\**Aquilegia formosa*** Fisch. ex DC. var. ***formosa*** (= *Aquilegia californica* Hartw.)  
**\**Aquilegia glandulosa*** Fisch. ex Link (Appendix 1, Fig. 31)  
**\*\**Aquilegia glandulosa*** Fisch. ex Link  
*Aquilegia kitaibelii* Schott  
**\**Aquilegia kitaibelii*** Schott  
*Aquilegia rockii* Munz  
**\**Aquilegia rockii*** Munz  
*Aquilegia saximontana* Rydb.  
**\*\**Aquilegia sibirica*** Lam.  
**\**Aquilegia skinneri*** Hook.  
**\*\**Aquilegia skinneri*** Hook.  
*Aquilegia viridiflora* Pall.  
**\*\**Aquilegia viridiflora*** Pall.  
**\*\**Aquilegia vulgaris*** L.  
*Aquilegia vulgaris* L. ‘Black Barlow’  
*Aquilegia vulgaris* L. ‘Nora Barlow’  
**\*\**Aquilegia vulgaris*** L. ‘Nora Barlow’  
*Aquilegia vulgaris* L. ‘Woodside Variegata’  
**\**Aquilegia vulgaris*** L. ‘Woodside Variegata’  
**\*\**Clematis alpina*** (L.) Mill. (≡ *Atragene alpina* L.) ‘Rosy Pagoda’  
**\**Clematis alpina*** (L.) Mill. subsp. ***sibirica*** (L.) Kuntze (≡ *Atragene sibirica* L.)  
*Clematis alpina* (L.) Mill. subsp. ***ochotensis*** (Pall.) Kuntze (≡ *Atragene ochotensis* Pall.)  
**\**Clematis alpina*** (L.) Mill. subsp. ***ochotensis*** (Pall.) Kuntze (≡ *Atragene ochotensis* Pall.)  
*Clematis chinensis* Osbeck

\**Clematis chinensis* Osbeck

\**Clematis fusca* Turcz.

*Clematis hexapetala* Pall.

\*\**Clematis integrifolia* L.

\**Clematis integrifolia* L. ‘Hendersonii’

*Clematis jubata* Bsch. ex Walp.

\**Clematis jubata* Bsch. ex Walp.

\*\**Clematis ligusticifolia* Nutt.

*Clematis macropetala* Ledeb. (≡ *Atragene macropetala* (Ledeb.) Ledeb. ‘White Swann’

\*\**Clematis macropetala* Ledeb. (≡ *Atragene macropetala* (Ledeb.) Ledeb. ‘White Swann’

*Clematis terniflora* DC. var. *mandshurica* (Rupr.) Ohwi (≡ *Clematis mandshurica* Rupr.)

\**Clematis recta* L. ‘Atropurpurea’

*Clematis recta* L. ‘Grandiflora’

\**Clematis recta* L. ‘Grandiflora’

\**Clematis ternifolia* DC. var. *ternifolia* (= *Clematis paniculata* Thunb. = *Clematis maximowicziana* Franch. & Sav.)

\*\**Clematis ternifolia* DC. var. *ternifolia* (= *Clematis paniculata* Thunb. = *Clematis maximowicziana* Franch. & Sav.)

\**Clematis virginiana* L.

*Clematis vitalba* L.

\**Clematis viticella* L.

\**Delphinium albocoeruleum* Maxim. var. *przewalskii* (Huth) W.T.Wang

*Ericapitella tomentosa* (Maxim.) Christenh. & Byng (≡ *Anemone tomentosa* (Maxim.) C.Pei) (Appendix 1, Fig. 30)

\*\**Ericapitella tomentosa* (Maxim.) Christenh. & Byng (≡ *Anemone tomentosa* (Maxim.) C.Pei) (Appendix 1, Fig. 30)



**\*\**Pulsatilla ambigua*** (Turcz. ex Hayek) Zämelis & Paegle (= *Anemone regeliana* Maxim. ≡ *Pulsatilla regeliana* (Maxim.) Pavlov)

***Pulsatilla vulgaris*** Mill. (≡ *Anemone pulsatilla* L.) ++

**\**Pulsatilla vulgaris*** Mill. (≡ *Anemone pulsatilla* L.) ++

***Pulsatilla vulgaris*** Mill. (≡ *Anemone pulsatilla* L.) ‘Violet Blue’

**\**Pulsatilla vulgaris*** Mill. (≡ *Anemone pulsatilla* L.) ‘Violet Blue’

***Thalictrum aquilegifolium*** L.

**\*\**Thalictrum aquilegifolium*** L.

***Thalictrum aquilegifolium*** L. ‘Album’

**\*\**Thalictrum delavayi*** Franch.

**\*\**Thalictrum flavum*** L. subsp. ***flavum*** (= *Thalictrum hybridum* Jord. ex Nyman)

‘Рассеchenнолиственный’

***Thalictrum speciosissimum*** Loefl.

**\**Trollius altaicus*** C.A.Mey.

**\*\**Trollius altaicus*** C.A.Mey.

***Trollius asiaticus*** L.

**\*\**Trollius asiaticus*** L.

***Trollius chinensis*** Bunge

**\**Trollius chinensis*** Bunge

***Trollius* × *cultorum*** Bergmans ‘Alebaster’

**\**Trollius* × *cultorum*** Bergmans ‘Alebaster’

**\**Trollius europaeus*** L.

**\**Trollius ledebourii*** Rchb.

**\*\**Trollius ledebourii*** Rchb.

**\**Trollius ranunculinus*** (Sm.) Stearn

**\*\**Trollius ranunculinus*** (Sm.) Stearn

**\*\**Trollius riederianus*** Fisch. & C.A.Mey.

**Rhamnaceae** Juss.

\**Rhamnus japonica* Maxim.

\*\**Rhamnus japonica* Maxim.

**Rosaceae** Juss.

\*\**Acaena microphylla* Hook.f.

*Alchemilla alpina* L.

\*\**Alchemilla alpina* L.

*Alchemilla erythropoda* Juz.

\**Alchemilla erythropoda* Juz.

*Alchemilla mollis* (Buser) Rothm.

\**Alchemilla mollis* (Buser) Rothm.

*Alchemilla mollis* (Buser) Rothm. ‘Thriller’

\**Alchemilla mollis* (Buser) Rothm. ‘Thriller’

*Aruncus dioicus* (Walter) Fernald // = *Aruncus kamchaticus* (Maxim.) Rydb  
(Appendix 1, Fig. 32)

\**Aruncus dioicus* (Walter) Fernald

*Aruncus sylvester* Kostel. ex Maxim. var. *sylvester* (= *Aruncus aethusifolius*  
(H.Lév.) Nakai ≡ *Aruncus dioicus* var. *aethusifolius* (H.Lév.) H.Hara = *Aruncus*  
*dioicus* var. *camschaticus* (Maxim.) H.Hara)

\**Aruncus sylvester* Kostel. ex Maxim. var. *sylvester* (= *Aruncus aethusifolius*  
(H.Lév.) Nakai ≡ *Aruncus dioicus* var. *aethusifolius* (H.Lév.) H.Hara = *Aruncus*  
*dioicus* var. *camschaticus* (Maxim.) H.Hara)

\*\**Aruncus sylvester* Kostel. ex Maxim. var. *sylvester* (= *Aruncus aethusifolius* (H.Lév.) Nakai ≡ *Aruncus dioicus* var. *aethusifolius* (H.Lév.) H.Hara = *Aruncus dioicus* var. *camschaticus* (Maxim.) H.Hara

*Aruncus sylvester* Kostel. ex Maxim. var. *sylvester* ‘Noble Spirit’

\**Comarum palustre* L.

*Cotoneaster acutifolius* Turcz. (= *Cotoneaster lucidus* Schltld.) ++

\**Cotoneaster acutifolius* Turcz. (= *Cotoneaster lucidus* Schltld.) ++

*Crataegus chlorocarpa* Lenné & K.Koch (= *Crataegus altaica* (Loudon) Lange)

\**Crataegus chlorocarpa* Lenné & K.Koch (= *Crataegus altaica* (Loudon) Lange)

*Crataegus macracantha* (Lindl.) Lodd. ex Loudon

\**Crataegus macracantha* (Lindl.) Lodd. ex Loudon *Crataegus submollis* Sarg.

\**Crataegus submollis* Sarg.

\*\**Dasiphora fruticosa* (L.) Rydb. (≡ *Pentaphylloides fruticosa* (L.) O.Schwarz  
‘Желтый’

\**Drymocallis rupestris* (L.) Soják (≡ *Potentilla rupestris* L. = *Potentilla macrocalyx* A.Huet)

\*\**Drymocallis rupestris* (L.) Soják (≡ *Potentilla rupestris* L. = *Potentilla macrocalyx* A.Huet)

*Filipendula rubra* (Hill) B.L.Rob.

\**Filipendula rubra* (Hill) B.L.Rob.

*Filipendula rubra* (Hill) B.L.Rob. ‘Venusta’

\*\**Filipendula ulmaria* (L.) Maxim. ‘Red Umbrella’

*Filipendula ulmaria* (L.) Maxim. ‘Variegata’

\**Filipendula ulmaria* (L.) Maxim. ‘Variegata’

\*\**Filipendula vulgaris* Moench

*Geum coccineum* Sm. (= *Geum borisii* Kellerer ex Sünd.)

\**Geum magellanicum* Comm. ex Pers

\*\**Geum magellanicum* Comm. ex Pers.

\*\**Geum montanum* L.

*Malus domestica* (Sukov) Borkh. (= *Malus niedzwetzkyana* Dieck)

\**Malus domestica* (Sukov) Borkh. (= *Malus niedzwetzkyana* Dieck)

*Malus halliana* Koehne

\**Malus halliana* Koehne

\**Malus mandshurica* (Maxim.) Kom. ex Skvortov

\*\**Malus mandshurica* (Maxim.) Kom. ex Skvortov

*Malus* × *purpurea* (E.Barbier) Rehder

\**Malus* × *purpurea* (E.Barbier) Rehder

*Physocarpus amurensis* (Maxim.) Maxim.

\**Physocarpus amurensis* (Maxim.) Maxim.

*Physocarpus opulifolius* (L.) Maxim. ‘Diablo’

\*\**Physocarpus opulifolius* (L.) Maxim. ‘Diablo’

*Physocarpus opulifolius* (L.) Maxim. ‘Luteus’

\**Physocarpus opulifolius* (L.) Maxim. ‘Luteus’

*Potentilla dombeyi* Nestl. var. *andicola* (Benth.) Lehm. (≡ *Potentilla andicola* Benth.)

\**Potentilla dombeyi* Nestl. var. *andicola* (Benth.) Lehm. (≡ *Potentilla andicola* Benth.)

*Potentilla atrosanguinea* G.Lodd.

*Potentilla douglasii* Greene var. *parviflora* (Nutt. ex Hook. & Arn.) J.T.Howell (≡ *Horkelia fusca* subsp. *parviflora* (Nutt. ex Hook. & Arn.) D.D.Keck)

\**Potentilla douglasii* Greene var. *parviflora* (Nutt. ex Hook. & Arn.) J.T.Howell (≡ *Horkelia fusca* Lindl. subsp. *parviflora* (Nutt. ex Hook. & Arn.) D.D.Keck)

\**Potentilla fragarioides* L.

\*\**Potentilla fragarioides* L. (= *Potentilla japonica* Blume)

*Potentilla grandiflora* L.

\**Potentilla grandiflora* L.

\**Potentilla* × *hybrida* hort. ‘Pink Panda’

*Potentilla* × *hybrida* hort. ‘White Beauty’

\**Potentilla* × *hybrida* hort. ‘White Beauty’

*Potentilla incana* P.Gaertn., B.Mey. & Scherb. (= *Potentilla arenaria* Borkh.)

\**Potentilla incana* P.Gaertn., B.Mey. & Scherb. (= *Potentilla arenaria* Borkh.)

*Potentilla kurdica* Boiss. & Hohen.

\**Potentilla kurdica* Boiss. & Hohen.

*Potentilla leucopolitana* P.J.Müll.

\*\**Potentilla leucopolitana* P.J.Müll.

\*\**Potentilla nicicii* Adamović

*Potentilla norvegica* L.

\*\**Potentilla norvegica* L.

\*\**Potentilla pamirica* Th.Wolf

\**Potentilla pamiroalaica* Juz.

\*\**Potentilla pamiroalaica* Juz.

\*\**Potentilla porphyrantha* Juz.

\*\**Potentilla recta* L. +

*Potentilla supina* L.

\*\**Potentilla supina* L.

*Prunus americana* Marshall

\**Prunus americana* Marshall

*Prunus cerasifera* Ehrh.

\**Prunus cerasifera* Ehrh.

\*\**Prunus cerasifera* Ehrh. (= *Prunus divaricata* Ledeb.)

*Prunus cerasifera* Ehrh. ‘Atropurpurea’

\*\**Prunus pumila* Lumn. var. *besseyi* (L.H.Bailey) Waugh (≡ *Prunus besseyi* L.H.Bailey)

*Rosa glauca* Pourr.

\*\**Rosa glauca* Pourr.

*Rosa jacutica* Juz.

\**Rosa jacutica* Juz.

\*\**Rosa nitida* Willd.

*Rosa rugosa* Thunb. ‘Schneekoppe’

*Rosa rugosa* Thunb. ‘White Perfection’

*Rosa rugosa* Thunb. ‘Zwerg’

*Rosa sherardii* Davies

\**Rosa sherardii* Davies

*Rosa spinosissima* L. ‘Plena’

*Rosa woodsii* Lindl. subsp. *ultramontana* (S.Watson) R.L.Taylor & MacBryde

\*\**Rosa woodsii* Lindl. subsp. *ultramontana* (S.Watson) R.L.Taylor & MacBryde

*Rosa xanthina* Lindl.

\*\**Rosa xanthina* Lindl. ‘Plena’

*Sanguisorba alpina* Bunge

\**Sanguisorba alpina* Bunge

*Sanguisorba canadensis* L.

\*\**Sanguisorba canadensis* L.

*Sanguisorba dodecandra* Moretti

*Sanguisorba hakusanensis* Makino

\**Sanguisorba hakusanensis* Makino

*Sanguisorba minor* Scop.

\**Sanguisorba obtusa* Maxim.

**\*\*Sanguisorba obtusa** Maxim.

**\*Sanguisorba officinalis** L. (= *Sanguisorba menziesii* Rydb.)

**\*Sanguisorba tenuifolia** Fisch. ex Link var. **tenuifolia** (= *Sanguisorba parviflora* (Maxim.) Takeda)

**\*\*Sanguisorba tenuifolia** Fisch. ex Link var. **tenuifolia** (= *Sanguisorba parviflora* (Maxim.) Takeda)

**\*Sibbaldia procumbens** L.

**\*Sibbaldia tridentata** (Aiton) Paule & Soják (≡ *Potentilla tridentata* Aiton ≡ *Sibbaldiopsis tridentata* (Aiton) Rydb.

**\*\*Sibbaldia tridentata** (Aiton) Paule & Soják (≡ *Potentilla tridentata* Aiton ≡ *Sibbaldiopsis tridentata* (Aiton) Rydb.)

**Sorbaria grandiflora** (Sweet) Maxim. (= *Sorbaria pallasii* Pojark., nom. superfl.)

**\*Sorbaria grandiflora** (Sweet) Maxim. (= *Sorbaria pallasii* Pojark., nom. superfl.)

**Sorbaria kirilowii** (Regel) Maxim.

**\*Sorbaria kirilowii** (Regel) Maxim.

**Sorbaria sorbifolia** (L.) A.Braun

**\*Sorbaria sorbifolia** (L.) A.Braun

**Sorbaria tomentosa** (Lindl.) Rehder (= *Sorbaria lindleyana* (Wall. ex Lindl.) Maxim.)

**\*Sorbaria tomentosa** (Lindl.) Rehder (= *Sorbaria lindleyana* (Wall. ex Lindl.) Maxim.)

**\*\*Sorbus koehneana** C.K.Schneid.

**Sorbus mougeotii** Soy.-Will. & Godr.

**\*Sorbus mougeotii** Soy.-Will. & Godr.

**Spiraea alpina** Pall.

**\*Spiraea alpina** Pall.

**Spiraea betulifolia** Pall.

**\*Spiraea betulifolia** Pall.

**Spiraea betulifolia** Pall. var. **aemiliana** (C.K.Schneid.) Koidz.

\**Spiraea betulifolia* Pall. var. *aemiliana* (C.K.Schneid.) Koidz.

\**Spiraea bumalda* Burv. ‘Anthony Waterer’

*Spiraea bumalda* Burv. ‘Gold Flame’ (Appendix 1, Fig. 33)

\**Spiraea bumalda* Burv. ‘Gold Flame’

*Spiraea crenata* L.

*Spiraea japonica* L.f.

\**Spiraea japonica* L.f.

*Spiraea japonica* L.f. ‘Little Princess’

\**Spiraea japonica* L.f. ‘Little Princess’

*Spiraea japonica* L.f. ‘Shirobana’

\**Spiraea japonica* L.f. ‘Shirobana’

*Spiraea longigemmis* Maxim.

\*\**Spiraea longigemmis* Maxim.

\**Spiraea* × *semoerflorens* Zabel (= *Spiraea* × *syringiflora* K.Koch)

\*\**Spiraea* × *semoerflorens* Zabel (= *Spiraea* × *syringiflora* K.Koch)

*Spiraea tomentosa* L.

\**Spiraea tomentosa* L.

*Spiraea trichocarpa* Nakai

*Spiraea* × *vanhouttei* (Briot) Zabel

\**Spiraea* × *vanhouttei* (Briot) Zabel

*Waldsteinia fragarioides* (Michx.) Tratt.

**Rutaceae** Juss.

*Dictamnus albus* L. (= *Dictamnus gymnostylis* Steven)

\**Dictamnus albus* L. (= *Dictamnus gymnostylis* Steven)

*Phellodendron amurense* Rupr. (= *Phellodendron sachalinense* (F. Schmidt) Sarg.)



\**Phellodendron amurense* Rupr. (= *Phellodendron sachalinense* (F. Schmidt) Sarg.)

*Ptelea trifoliata* L. (= *Ptelea baldwinii* Torr. & A.Gray)

### Salicaceae Mirb.

\**Salix arctica* Pall. subsp. *crassijulis* (Trautv.) A.K.Skvortsov

\* *Salix fuscescens* Andersson (= *Salix aurora* Laest. ex Andersson)

\**Salix lanata* L.

### Sapindaceae Juss.

*Acer barbinerve* Maxim.

\**Acer barbinerve* Maxim.

*Acer campestre* L.

*Acer ukurunduense* Trautv. & C.A.Mey. (≡ *Acer caudatum* Wall. subsp. *ukurunduense* (Trautv. & C.A.Mey.) E.Murray)

*Acer hyrcanum* Fisch. & C.A.Mey.

*Acer glabrum* Torr. var. *douglasii* (Hook.) Dippel

\*\**Acer glabrum* Torr. var. *douglasii* (Hook.) Dippel

*Acer spicatum* Lam.

\**Acer spicatum* Lam.

*Acer tataricum* Lam.

\**Acer tataricum* Lam.

*Acer tataricum* Lam. subsp. *semenovii* (Regel & Herd.) A.E.Murray(= *Acer semenovii* Regel & Herd.)

\**Acer tataricum* Lam. subsp. *semenovii* (Regel & Herd.) A.E.Murray(= *Acer semenovii* Regel & Herd.)

*Acer tataricum* Lam. subsp. *ginnala* (Maxim.) Wesm. (≡ *Acer ginnala* Maxim.)

**\*\**Acer tegmentosum*** Maxim.

*Acer tschonoskii* Maxim.

**Saxifragaceae** Juss.

*Astilbe rubra* Hook.f. & Thomson

\**Astilbe rubra* Hook.f. & Thomson

*Bergenia crassifolia* (L.) Fritsch (= *Bergenia cordifolia* (Haw.)Sternb.)

\**Bergenia crassifolia* (L.) Fritsch (= *Bergenia cordifolia* (Haw.)Sternb.)

*Bergenia crassifolia* var. *pacifica* (Kom.) Kom. ex Negr. (= *Bergenia pacifica* Kom.)

*Bergenia pacumbis* (Buch.-Ham. ex D.Don) C.Y.Wu & J.T.Pan (= *Bergenia himalaica* Boriss.)

**\*\**Bergenia pacumbis*** (Buch.-Ham. ex D.Don) C.Y.Wu & J.T.Pan (= *Bergenia himalaica* Boriss.)

\**Bergenia purpurascens* (Hook.f. & Thomson) Engl. (= *Bergenia delavayi* (Franch.) Engl.)

*Bergenia stracheyi* (Hook.f. & Thomson) Engl. (= *Bergenia gorbunowii* B.Fedtsch.)

\**Bergenia stracheyi* (Hook.f. & Thomson) Engl. (= *Bergenia gorbunowii* B.Fedtsch.)

*Bergenia tianquanensis* J.T.Pan

*Bergenia yunnanensis* hort.

**\*\**Bergenia yunnanensis*** hort.

*Bergenia* × *hybrida* hort. 'Robusta'

\**Heuchera americana* L.

**\*\**Heuchera americana*** L.

*Heuchera americana* L. var. *hirsuticaulis* (Wheelock) Rosend., Butters & Lakela

**\*\**Heuchera americana*** L. var. *hirsuticaulis* (Wheelock) Rosend., Butters & Lakela

*Heuchera curtisii* Torr. & A.Gray ex A.Gray

\**Heuchera curtisii* Torr. & A.Gray ex A.Gray

*Heuchera himalayensis* Decne. ex Jacques

\*\**Heuchera himalayensis* Decne. ex Jacques

*Heuchera pilosissima* Fisch. & C.A.Mey.

\**Heuchera pilosissima* Fisch. & C.A.Mey.

*Heuchera richardsonii* R.Br.

\**Heuchera richardsonii* R.Br.

\*\**Heuchera* × *hybrida* hort. ‘Blackberry Jam’

\**Heuchera* × *hybrida* hort. ‘Cajun Fire’

*Heuchera* × *hybrida* hort. ‘Cappuchino’

\*\**Heuchera* × *hybrida* hort. ‘Cappuchino’

\*\**Heuchera* × *hybrida* hort. ‘Ebony and Ivory’

*Heuchera* × *hybrida* hort. ‘Lime Rickey’

\**Heuchera* × *hybrida* hort. ‘Lime Rickey’

\*\**Heuchera* × *hybrida* hort. ‘Pewter Veil’

*Heuchera* × *hybrida* hort. ‘Saturn’

\**Heuchera* × *hybrida* hort. ‘Saturn’

*Heuchera* × *hybrida* hort. ‘Titanik’

\**Heuchera* × *hybrida* hort. ‘Titanik’

\**Heuchera villosa* Michx.

*Rodgersia aesculifolia* Batalin

\**Rodgersia aesculifolia* Batalin

*Rodgersia aesculifolia* Batal.f. *rubra*

\**Rodgersia aesculifolia* Batal.f. rubra

\**Rodgersia pinnata* Franch. 'Chokolade Wings'

\*\**Rodgersia podophylla* A.Gray

*Saxifraga cespitosa* L. (= *Saxifraga groenlandica* L.)

*Saxifraga decora* Harry Sm.

\**Saxifraga decora* Harry Sm.

\**Saxifraga rotundifolia* L.

*Tellima grandiflora* (Pursh)Douglas ex Lindl.

\**Tellima grandiflora* (Pursh)Douglas ex Lindl.

\*\**Tiarella cordifolia* L.

#### Schisandraceae Blume

*Schisandra chinensis* (Turcz.) Baill.

\*\**Schisandra chinensis* (Turcz.) Baill.

#### Solanaceae Juss.

*Anisodus stramonifolius* (Wall.) G.Don (= *Anisodus luridus* Link ex Spreng. ≡ *Scopolia lurida* (Link ex Spreng.) Dunal)

*Atropa bella-donna* L. (= *Atropa caucasica* Kreyer ≡ *Atropa bella-donna* L. subsp. *caucasica* (Kreyer) Avet.)

\*\**Atropa bella-donna* L. (= *Atropa caucasica* Kreyer ≡ *Atropa bella-donna* L. subsp. *caucasica* (Kreyer) Avet.)

*Datura stramonium* L. (= *Datura stramonium* L. var. *inermis* (Juss. ex Jacq.) C.E.Lundstr.)

*Solanum dulcamara* L. (= *Solanum kitagawae* Schönb.-Tem.)

**Violaceae** Batsch

\**Viola canadensis* L.

\*\**Viola canadensis* L.

\*\**Viola dissecta* Ledeb. (Appendix 1, Fig. 34)

\*\**Viola jooi* Janka

*Viola jordanii* Hanry

\**Viola jordanii* Hanry

*Viola labradorica* Schrank

\**Viola labradorica* Schrank

\*\**Viola montana* L.

*Viola patrinii* Ging.

\**Viola patrinii* Ging.

**Vitaceae** Juss.

\**Parthenocissus inserta* (A.Kern.) Fritsch

**Semina plantarum in calidaris collecta 2022**  
(Seeds collected in the greenhouses of the Botanical Garden)

**PTERIDOPHYTES**

**Aspleniaceae** Newman

*Asplenium bulbiferum* G.Forst.

*Asplenium nidus* L.

*Blechnum gibbum* (Labill.) Mett.

*Blechnum occidentale* L.

**Polypodiaceae** J.Presl & C.Presl

*Cyrtomium falcatum* (L.f.) C.Presl

*Davallia solida* (Forst.) Sw.

*Davallia tyermannii* (T.Moore) H.J.Veitch (= *Humata tyermanni* T.Moore)

*Drynaria descensa* Copel.

*Lecanopteris scandens* (G.Forst.) Perrie & Brownsey (≡ *Phymatosorus scandens* (G.Forst.) Pic.Serm.)

*Microsorium punctatum* (L.) Copel.

*Nephrolepis exaltata* (L.) Schott

*Nephrolepis cordifolia* (L.) C.Presl

*Phlebodium aureum* (L.) J.Sm. ‘Glaucum’

*Platycterium bifurcatum* (Cav.) C.Chr.

*Pyrrosia angustata* (Sw.) Ching

**Pteridaceae** E.D.M.Kirchn.

*Adiantum caudatum* L.

*Adiantum hispidulum* Sw.

*Adiantum raddianum* C.Presl

*Hemionitis rotundifolia* (G.Forst) Christenh. (≡ *Pellaea rotundifolia* (G.Forst) Hook.)

*Hemionitis viridis* (Forssk.) Christenh. (≡ *Pellaea viridis* (Forssk.) Prantl)

*Pteris cretica* L.

*Pteris cretica* L. ‘Albo-lineata’

*Pteris ensiformis* Burm. f. ‘Evergemiensis’

*Pteris vittata* L.

**Schizaeaceae** Kaulf.

*Lygodium japonicum* (Thunb.) Sw.

## **GYMNOSPERMS**

**Cupressaceae** Gray

\**Cryptomeria japonica* (Thunb. ex L.f.) D.Don

\*\**Cryptomeria japonica* (Thunb. ex L.f.) D.Don

## **ANGIOSPERMS**

**Acanthaceae** Juss.

\*\**Barleria prionitis* L.

*Ruellia tuberosa* L.

\*\**Ruellia tuberosa* L.

**Amaranthaceae** Juss.

\*\**Pleuropetalum darwinii* Hook. f.

**Amaryllidaceae** J.St.-Hil.

\*\**Agapanthus africanus* (L.) Hoffmanns.

\**Agapanthus praecox* Willd. (= *Agapanthus praecox* Willd. subsp. *orientalis*  
(F.M.Leight.) F.M.Leight.)

\**Hippeastrum hybridum* hort.

\*\**Hippeastrum hybridum* hort.

**Annonaceae** Juss.

*Polyalthia suberosa* (Roxb.) Thwaites

\**Polyalthia suberosa* (Roxb.) Thwaites

**Apocynaceae** Juss.

*Araujia sericifera* Brot.

*Rauvolfia tetraphylla* L.

\**Rauvolfia tetraphylla* L.

*Rauvolfia vomitoria* Wennberg

\**Rauvolfia vomitoria* Wennberg

**Araceae** Juss.

\*\**Aglaonema commutatum* Schott ‘Maria’

\**Nephtytis afzelii* Schott

\*\**Nephtytis afzelii* Schott

**Areaceae** Bercht. & J.Presl

\*\**Sabal palmetto* (Walter) Lodd. ex Schult. & Schult.f.

**Asparagaceae** Juss.

*Arthropodium candidum* Raoul

\**Arthropodium candidum* Raoul

\**Chlorophytum filipendulum* Baker subsp. *amaniense* (Engl.) Nordal & A.D.Poulsen (≡  
*Chlorophytum amaniense* Engl.)

\*\* *Chlorophytum filipendulum* Baker subsp. *amaniense* (Engl.) Nordal & A.D.Poulsen (≡  
*Chlorophytum amaniense* Engl.)

\*\**Chlorophytum macrophyllum* (A.Rich.) Asch.

\*\**Chlorophytum nepalense* (Lindl.) Baker

\*\**Chlorophytum orchidastrum* Lindl. (= *Chlorophytum mannii* Baker)



*Dracaena surculosa* Lindl.

\* *Dracaena aubriana* Brongn. (= *Dracaena thalioides* Makoy ex Regel)

\*\* *Dracaena aubriana* Brongn. (= *Dracaena thalioides* Makoy ex Regel)

\*\* *Ophiopogon planiscapus* Nakai 'Nigrescens'

\* *Ruscus aculeatus* L.

\*\* *Ruscus aculeatus* L.

**Bromeliaceae** Juss.

\*\* *Guzmania butcheri* Rauh

**Cannaceae** Juss.

\*\* *Canna flaccida* Salisb.

*Canna glauca* L.

*Canna indica* L. (= *Canna coccinea* Mill.)

\*\* *Canna iridiflora* Ruiz & Pav.

*Canna paniculata* Ruiz & Pav.

\*\* *Canna paniculata* Ruiz & Pav.

**Caricaceae** Dumort.

\* *Carica papaya* L. (Appendix 1, Fig. 35)

**Colchicaceae** DC.

*Gloriosa superba* L. (= *Gloriosa verschuurii* Hoog) (Appendix 1, Fig. 36)

\*\* *Gloriosa superba* L. (= *Gloriosa verschuurii* Hoog)

**Costaceae Nakai**

\*\**Costus dubius* (Afzel.) K.Schum.

**Crassulaceae J.St.-Hil.**

\**Kalanchoe rotundifolia* (Haw.) Haw.

**Euphorbiaceae Juss.**

\**Euphorbia leuconeura* Boiss.

\*\**Euphorbia leuconeura* Boiss.

**Fabaceae Lindl.**

\**Caesalpinia pulcherrima* (L.) Sw.

\*\**Caesalpinia pulcherrima* (L.) Sw.

*Clitoria ternatea* L.

\**Clitoria ternatea* L.

**Geraniaceae Juss.**

*Pelargonium ranunculophyllum* (Eckl. & Zeyh.) Baker

\* *Pelargonium ranunculophyllum* (Eckl. & Zeyh.) Baker

**Iridaceae Juss.**

\**Dietes grandiflora* N.E.Br.

\*\**Dietes iridioides* (L.) Sweet & Klatt

**Lamiaceae Martinov**

*Clerodendrum buchananii* (Roxb.) Walp.

**Malvaceae** Juss.

*Hibiscus ludwigii* Eckl. & Zeyh.

\**Hibiscus ludwigii* Eckl. & Zeyh.

\*\**Hibiscus pedunculatus* L.f.

\**Gossypium arboreum* L.

\**Lagunaria patersonia* (Andrews) G.Don

\**Pachira aquatica* Aubl.

\*\**Pavonia hastata* Cav.

*Pavonia missionum* Ekman

\*\**Pavonia missionum* Ekman

\*\**Pavonia spinifex* (L.) Cav.

**Maranthaceae** R.Br.

*Marantochloa leucantha* (K.Schum.) Milne-Redh.

\**Marantochloa leucantha* (K.Schum.) Milne-Redh.

**Melastomataceae** Juss.

*Clidemia hirta* (L.) D.Don

\**Clidemia hirta* (L.) D. Don

\**Macrocentrum cristatum* (DC.) Triana

\*\**Macrocentrum cristatum* (DC.) Triana

**Meliaceae** Juss.

\*\**Melia azedarach* L.

*Turraea thouarsiana* (Baill.) Cavaco & Keraudren (= *Turraea heterophylla* Harms)  
(Appendix 1, Fig. 38)

\* *Turraea thouarsiana* (Baill.) Cavaco & Keraudren (= *Turraea heterophylla* Harms)

**Moraceae** Gaudich.

*Ficus montana* Burm.f. (Appendix 1, Fig. 39)

**Musaceae** Juss.

\*\**Musa mannii* H.Wendl. ex Baker

\**Musa velutina* H.Wendl. & Drude (Appendix 1, Fig. 37)

**Myrtaceae** Juss.

\*\**Myrtus communis* L. 'Boetica'

**Petiveriaceae** C.Agardh

\**Petiveria alliacea* L.

**Poaceae** Barnhart

\*\**Setaria plicata* (Lam.) T.Cooke (≡ *Panicum plicatum* Lam.)

**Rosaceae** Juss.

\*\* *Rhaphiolepis umbellata* (Thunb.) Makino (≡ *Rhaphiolepis indica* (L.) Lindl. var. *umbellata* (Thunb.) H.Ohashi)

**Rubiaceae** Juss.

\*\**Coccocypselum guianense* (Aubl.) K.Schum.

\*\**Coffea arabica* L.

*Coffea mauritiana* Lam.

*Psychotria carthagenensis* Jacq.

*Psychotria erythrocarpa* Schltldl.

\**Psychotria erythrocarpa* Schltldl.

*Psychotria nervosa* Sw.

**Rutaceae** Juss.

*Bergera koenigii* L. (≡ *Murraya koenigii* (L.) Spreng.)

**Sapindaceae** Juss.

*Dodonaea viscosa* (L.) Jacq. f. *rubra*

**Talinaceae** (Fenzl) Doweld

\**Talinum paniculatum* (Jacq.) Gaertn.

\*\**Talinum paniculatum* (Jacq.) Gaertn.

**Verbenaceae** J.St.-Hil.

\*\**Lantana camara* L.

\**Lippia dulcis* Trevir. (= *Phyla scaberrima* (Juss. ex Pers.) Moldenke)

\*\**Lippia dulcis* Trevir. (= *Phyla scaberrima* (Juss. ex Pers.) Moldenke)

\**Stachytarpheta jamaicensis* (L.) Vahl

\*\**Stachytarpheta jamaicensis* (L.) Vahl

**Semina plantarum spontanearum in loco natali**  
**(Seeds collected in the wild)**

**Apiaceae** Lindl.

\**Laser trilobum* (L.) Borkh.

## **Caryophyllaceae** Juss.

\**Gypsophila zhegulensis* Krasnova

## **Rosaceae** Juss.

\**Sibiraea laevigata* (L.) Maxim. (= *Sibiraea altaiensis* (Laxm.) C.K.Schneid.)

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## **Authors' contributions**

Sergey A. Shumikhin (SAS) together with Marina A. Chertkova (MAC) initiated the project, wrote the first draft of the manuscript. SAS coordinated the project.

MAC, Larisa V. Aksenova, Alexander N. Dyadik, Dmitriy G. Shumigay, Matvei A. Plehanov and Elvira T. Karimova collected seeds and prepared information about them. They also participated in discussions concerning the project and preparing the manuscript.

## **References**

- Chertkova, M.A.** 2022. Itogi selekcionnoj raboty s *Gladiolus* × *hybridus* hort. v Uchebnom botanicheskom sadu im. A.G. Henckelya Permskogo gosudarstvennogo nacional'nogo issledovatel'skogo universiteta [Results of *Gladiolus* × *hybridus* hort. breeding work in the A.G. Henckel Botanical Garden of Perm State National Research University]. In: Uchenye zapiski CHelyabinskogo otdeleniya Russkogo botanicheskogo obshchestva. Vyp. 6 [Scientific notes of the Chelyabinsk branch of the Russian Botanical Society. Issue 6]. Chelyabinsk: 142–146.
- Chertkova, M.A., Shumigai, D.G. and Diadik, A.N.** 2022. Izuchenie kachestva pyltsy nekotorykh sortov gippeastruma gibridnogo (*Hippeastrum* × *hybridum* hort.) kollektzii Uchebnogo botanicheskogo sada im. A.G. Henckelya PSU [The study of pollen quality of

some cultivars of *Hippeastrum* × *hybridum* hort. collection in the A.G. Henckel Botanical Garden of PSU]. In: Embriologiya, genetika i biotekhnologiya [Embryology, Genetics and Biotechnology]. Simpheropol: 104–105. (In Russian)

**Chertkova, M.A. and Shakina, T.N.** 2022. Izuchenie morfolobicheskikh osobennostey nekotorykh sortov *Gladiolus* × *hybridus* hort. v usloviyakh Saratovskogo Povolzh'ya i Permskogo kraya [Study of morphobiological features of some cultivars of *Gladiolus* × *hybridus* hort. in the conditions of the Saratov Volga region and the Perm region]. In: Vestnik Permskogo universiteta. Ser. Biologiya. Vyp. 1 [Bulletin of the Perm University. Ser. Biology. Issue. 1]. Perm: 22–34. (In Russian)

**International Plant Names Index (IPNI).** 2022+. <http://www.ipni.org/> (Accessed 10 December 2022).

**Meyer, E.A.** 1916. Proekt ustroystva Narodnogo sada pri nochlezhnom dome imeni E.I. Meshkovoy [Project of establishing People's Gardens at the Meshkova ward]. M.: 16 p. (In Russian)

**Plants of the World Online (POWO).** 2022+. <http://plantsoftheworldonline.org/> (Accessed 10 December 2022).

**Pogodaiklimat.** 2022. <http://www.pogodaiklimat.ru/climate.php?id=28224> (Accessed 16 December 2022).

**Shumigai, D.G., Chertkova, M.A. and Diadik, A.N.** 2022. Taksonomicheskij obzor tropicheskikh i subtropicheskikh rasteniy oranzhery Uchebnogo botanicheskogo sada im. A.G. Henkelya Permskogo universiteta [Taxonomic review of tropical and subtropical plants in the greenhouses of the A.G. Henckel Botanical Garden of Perm University]. In: Issledovaniya v oblasti botaniki, genetiki i mikologii [Research in the field of botany, genetics and mycology]. Perm: 45–47. (In Russian)

**Shumikhin, S.A.** 2022a. Konceptsiya ekspozitsionnykh kompleksov otkrytogo grunta «Ekologicheskaya tropa s fragmentami model'nykh fitocenofov» i «Vostochnyy sad» v Botanicheskom sadu Permskogo universiteta [The concept of open ground exposition complexes «Ecological path with fragments of model phytocenoses» and «Eastern Garden» in the Botanical Garden of Perm University]. In: Uchenye zapiski CHelyabinskogo otdeleniya Russkogo botanicheskogo obshchestva. Vyp. 6 [Scientific notes of the Chelyabinsk branch of the Russian Botanical Society. Issue 6]. Chelyabinsk: 147–156. (In Russian)

**Shumikhin, S.A.** 2022b. Sleduya traditsiyam, ustremlyayas' v budushcheye. K 100-letnemu yubileyu Botanicheskogo sada im. A.G. Genkelya Permskogo gosudarstvennogo universiteta

[Following traditions, rushing to the future. To the 100th anniversary of the A.G. Henckel Botanical Garden Perm State University In: Uchenye zapiski Chelyabinskogo otdeleniya Russkogo botanicheskogo obshchestva. Vyp. 7 [Scientific notes of the Chelyabinsk branch of the Russian Botanical Society. Issue 7]. Chelyabinsk: 131–144. (In Russian)

**Shumikhin, S.A., Chertkova, M.A. and Shumigaj, D.G.** 2022c. Zhivye kollektsii rasteniy Botanicheskogo sada im. A.G. Henckelya PGNIU [Living collections of plants of the A.G. Henckel Botanical Garden of PSU]. Perm State National Research University. 152 p.

**Shumikhin, S.A., Chertkova, M.A., Karimova, E.T., Aksenova, L.V. and Plekhanov, M.A.** 2022d. Struktura i taksonomicheskoe raznoobrazie kollektsiy otkrytogo grunta botanicheskogo sada im. A.G. Henckelya Permskogo universiteta [Structure and taxonomic diversity of the open ground collections of the A.G. Henckel Botanical Garden of Perm University] In: Issledovaniya v oblasti botaniki, genetiki i mikologii [Research in the field of botany, genetics and mycology]. Perm: 40–44. (In Russian)

**Shumikhin, S.A.** 2023. Voploshcheniye kul'turno-istoricheskogo brenda permskogo perioda v rastenii-simvole Permskogo kraja *Ginkgo biloba* L. [The embodiment of the cultural and historical brand of the Permian period in the plant-symbol of the Perm region *Ginkgo biloba* L.]. In: Kul'turno-istoricheskoe nasledie kak faktor ustojchivogo razvitiya territorii [Cultural and historical heritage as a factor in the sustainable development of the territory]. Solikamsk: 29–32. (In Russian)

**Thiers, B. (Ed.)** 2022+. [Continuously updated] Index Herbariorum: A global directory of public herbaria and associated staff. New York Botanical Garden's Virtual Herbarium. Available from: <http://sweetgum.nybg.org/science/ih/> (Accessed 10 December 2022).



## APPENDIX 1

Cultivars of *Gladiolus* × *hybridus* hort. of Perm State University Botanical Garden selection



Figure 1. *Gladiolus* 'Permskij Suvenir' (365-OR-18)  
Chertkova, Shumikhin. Patent №9425



Figure 2. *Gladiolus* 'Uralochka' (241-OR-18)  
Chertkova, Shumikhin. Patent №9426



Figure 3. *Gladiolus* 'Selenit' (413-S-18)  
Chertkova, Shumikhin. Patent №9442.



Figure 4. *Gladiolus* 'Sedoy Ural' (301-S-18)  
Chertkova, Shumikhin. Patent №9427



Figure 5. *Gladiolus* 'Professor Aleksandr Henckel' (465-S-19)  
Chertkova, Shumikhin. Patent № 10090.



Figure 6. *Allium giganteum* Regel, Perm, A.G.Henckel Botanical Garden, 25.05.2021. Photograph by S.A. Shumikhin



Figure 7. *Berberis brachypoda* Maxim., Perm, A.G.Henckel Botanical Garden, 27.08.2022. Photograph by D.G. Shumigay



Figure 8. *Allium karataviense* Regel, Perm, A.G.Henckel Botanical Garden, 25.05.2021. Photograph by S.A. Shumikhin



Figure 9. *Allium ledebourianum* Schult. & Schult. f., Perm, A.G.Henckel Botanical Garden, 17.06.2021. Photograph by S.A. Shumikhin



Figure 10. *Draba sibirica* (Pall.) Thell., Perm, A.G.Henckel Botanical Garden, 10.05.2021. Photograph by S.A. Shumikhin



Figure 11. *Cerastium biebersteinii* DC., Perm, A.G.Henckel Botanical Garden, 08.06.2021. Photograph by S.A. Shumikhin



Figure 12. *Dianthus acicularis* Fisch. ex Ledeb., Perm, A.G.Henckel Botanical Garden, 14.06.2021. Photograph by S.A. Shumikhin



Figure 13. *Dianthus ferrugineus* Mill., Perm, A.G.Henckel Botanical Garden, 27.07.2021.  
Photograph by S.A. Shumikhin



Figure 14. *Gypsophila paniculata* L., Perm, A.G.Henckel Botanical Garden,  
13.07.2021. Photograph by S.A. Shumikhin



Figure 15. *Heliosperma pusillum* (Waldst. & Kit.) Rchb., Perm, A.G.Henckel Botanical Garden, 17.06.2021. Photograph by S.A. Shumikhin



Figure 16. *Euonymus europaeus* L., Perm, A.G.Henckel Botanical Garden, 16.10.2022. Photograph by D.G. Shumigay



Figure 17. *Helianthemum nummularium* (L.) Mill., Perm, A.G.Henckel Botanical Garden, 08.06.2021. Photograph by S.A. Shumikhin



Figure 18. *Rhododendron canadense* (L.) Torr., Perm, A.G.Henckel Botanical Garden, 15.05.2021. Photograph by S.A. Shumikhin



Figure 19. *Rhododendron japonicum* (A.Gray) Suringar, Perm, A.G.Henckel Botanical Garden, 27.05.2021. Photograph by S.A. Shumikhin



Figure 20. *Rhododendron dauricum* L., Perm, A.G.Henckel Botanical Garden, 01.05.2022. Photograph by M.A. Chertkova





Figure 21. *Geranium sanguineum* L., Perm, A.G.Henckel Botanical Garden, 14.06.2021.  
Photograph by S.A. Shumikhin



Figure 22. *Iris humilis* Georgi., Perm, A.G.Henckel Botanical Garden, 14.06.2021.  
Photograph by S.A. Shumikhin



Figure 23. *Iris setosa* Pall. ex Link , Perm, A.G.Henckel Botanical Garden, 17.06.2021.  
Photograph by S.A. Shumikhin



Figure 24. *Iris sibirica* L. 'Фиалковый', Perm, A.G.Henckel Botanical Garden, 08.06.2021.  
Photograph by S.A. Shumikhin



Figure 25. *Luzula nivea* (L.) DC., Perm, A.G.Henckel Botanical Garden, 14.07.2021.  
Photograph by S.A. Shumikhin



Figure 26. *Paeonia anomala* L., Perm, A.G.Henckel Botanical Garden, 17.05.2020. Photograph  
by S.A. Shumikhin



Figure 27. *Papaver bracteatum* Lindl., Perm, A.G.Henckel Botanical Garden, 14.06.2022.  
Photograph by D.G. Shumigay



Figure 28. *Bromus japonicus* Thunb., Perm, A.G.Henckel Botanical Garden, 05.08.2021.  
Photograph by S.A. Shumikhin



Figure 29. *Anemonoides baldensis* (L.) Galasso, Banfi & Soldano, Perm, A.G.Henckel Botanical Garden, 01.06.2021. Photograph by S.A. Shumikhin



Figure 30. *Eriocapitella tomentosa* (Maxim.) Cristenh. & Byng, Perm, A.G.Henckel Botanical Garden, 05.08.2021. Photograph by S.A. Shumikhin



Figure 31. *Aquilegia glandulosa* Fisch. ex Link, Perm, A.G.Henckel Botanical Garden, 29.05.2021. Photograph by S.A. Shumikhin



Figure 32. *Aruncus dioicus* (Walter) Fernald, Perm, A.G.Henckel Botanical Garden, 08.06.2021. Photograph by S.A. Shumikhin



Figure 33. *Spiraea* × *bumalda* Burv. 'Gold Flame', Perm, A.G.Henckel Botanical Garden, 05.09.2021. Photograph by S.A. Shumikhin



Figure 34. *Viola dissecta* Ledeb., Perm, A.G.Henckel Botanical Garden, 18.06.2021. Photograph by S.A. Shumikhin



Figure 35. *Carica papaya* L., Perm, A.G.Henckel Botanical Garden, 12.03.2019. Photograph by D.G. Shumigay



Figure 36. *Gloriosa superba* L., Perm, A.G.Henckel Botanical Garden, 20.04.2022. Photograph by D.G. Shumigay



Figure 37. *Musa velutina* H.Wendl. & Drude, Perm, A.G.Henckel Botanical Garden, 10.03.2022. Photograph by S.A. Shumikhin





Figure 38. *Turraea thouarsiana* (Baill.) Cavaco & Keraudren , Perm, A.G.Henckel Botanical Garden. 05.09.2021. Photograph by S.A. Shumikhin



Figure 39. *Ficus montana* Burm.f., Perm, A.G.Henckel Botanical Garden, 05.10.2021. Photograph by S.A. Shumikhin

## APPENDIX 2

**We support the Convention on Biological Diversity. The seeds offered here are for the use of the common good in the areas of research and development of public gardens and plant collections. They should not be used for commercial profit. If publications result from the use of this material, we expect acknowledgement as the source of the material and an unsolicited reprint of any publication.**

### **Agreement on the supply of plant material by the Botanical Garden of Perm State University**

Since the Convention on Biological Diversity (CBD, Rio de Janeiro 1992) entered into force, it has become necessary for botanic gardens to comply in particular with Article 15 (Access to genetic resources), especially in connection with the exchange of plant material. Accordingly, the Botanical Garden of Perm State University (PSU) only passes on plant material under the condition that the user acts in the spirit of the Convention on Biological Diversity.

The Botanical Garden of PSU is dedicated to the conservation, sustainable use and research of biological diversity. With regard to the acquisition, maintenance and supply of plant material, Botanical Garden of PSU therefore expects its partners to act in a manner that is consistent to the letter and the spirit of the Biodiversity Convention, the Convention on International Trade in Endangered Species (CITES) and in compliance with all relevant conventions and laws relating to the protection of biological diversity. As a consequence, plant material from the collections of Botanical Garden of PSU are supplied only to those persons and institutions who accept the following conditions:

1. On the basis of this agreement, the material is intended to serve the common good, particularly scientific study, education and the interests of environmental protection.
2. The recipient is obliged to document and preserve information relating to the material appropriately.
3. In the event that scientific publications on the plant material provided are produced, the origin of the material is to be cited. In addition, copies of such publications are expected to be sent to the Botanical Garden of PSU without request.
4. Commercial use is not covered by this agreement but is object of a separate agreement with the country of origin. Such agreement underlies the provisions of the CBD, i. e. the user is obliged to share benefits with the country of origin. In this context, the user has to forward all relevant information to the authorities instructed with the implementation of the CBD. On request, the Botanical Garden of PSU will provide such information to these authorities.
5. The recipient is allowed to supply plant material derived from the Botanical Garden of PSU to others only on the basis and under the conditions of this or corresponding agreements.

By ordering plant material from the Botanical Garden of PSU, the recipient accepts the conditions listed above.

**Our address:**

Botanical Garden of Perm

State University

Bukirev str., 15, Perm,

614990 Russia (Россия)

E-mail: botgard@psu.ru


**Your address:**