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RESEARCH ARTICLE

Rare plant species of the Caucasian flora in the herbarium of the M.M. Gryshko National Botanical Garden of the NAS of Ukraine (KWAH): representativeness and chorology

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Abstract

The Caucasus is one of the floristically richest regions of temperate Eurasia, characterized by high endemism and an exceptional diversity of rare and threatened vascular plant species. This study aims to assess the representativeness and geographical structure of rare Caucasian plant taxa preserved in the herbarium of the M.M. Gryshko National Botanical Garden of the National Academy of Sciences of Ukraine (KWAH). The study is based on a comprehensive inventory of Caucasian plant specimens, most of which were collected during the period of intensive botanical exploration of the region by Botanical Garden expeditions led by S.S. Kharkevich in the 1950s–1970s. During the inventory, species nomenclature was critically revised in accordance with modern taxonomic concepts. Protected taxa were identified based on their inclusion in the current Red Books of the Caucasian countries and their administrative regions. Chorological analysis was carried out by assigning taxa to geographical distribution types, with particular attention to endemic elements.

The inventory revealed 534 taxon names represented by herbarium specimens, corresponding to 527 currently accepted species and subspecies from 270 genera and 89 families. These include one species of lycophytes, one species of horsetails, 17 species of ferns, 11 species of gymnosperms, and 497 angiosperm taxa. A total of 210 species and subspecies are protected in the countries of Transcaucasia, including 131 taxa listed in the Red Book of Armenia, 69 in the Red Book of Azerbaijan, and 52 in the Red Book of Georgia. In addition, 403 species and subspecies are protected in the Red Books of the North Caucasus, with the highest numbers recorded in Krasnodar Krai (189 taxa) and Stavropol Krai (161 taxa). The geographical structure of the studied taxa is dominated by Mediterranean, Anatolian–Caucasian–Iranian, and Caucasian distribution types, which together account for 66.6 % of the total. This pattern reflects the biogeographical position of the Caucasus within the Ancient Mediterranean region. Among the recorded taxa, 107 species and subspecies are endemic to the Caucasus. Based on the analysis of herbarium material, two new nomenclatural combinations at the varietal rank are proposed: *Buxus sempervirens* var. *hyrcana* (Pojark.) Shynder & Bahatska (= *B. hyrcana* Pojark.) and *Lilium martagon* var. *caucasicum* (Misch.) Shynder & Bahatska (= *L. martagon* subsp. *caucasicum* Misch.). These combinations allow a more accurate representation of the morphological and geographical differentiation of Caucasian populations of these species, which are currently not recognized as independent taxa. Overall, the study demonstrated that the KWAH herbarium is a key *ex situ* repository for the study of Caucasian plant diversity in Ukraine, particularly for rare and protected taxa.

Keywords: biodiversity, biological collections, endemism, conservation, red book

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Introduction

Comprehensive study and conservation of floristic diversity are of great importance across the entire Eurasian continent and represent a particularly urgent task in the context of ongoing and irreversible global environmental changes (Mosyakin & Tykhonenko, 2006). One of the floristically richest regions of temperate Eurasia is the Caucasus, whose flora currently comprises more than 6,500 vascular plant species, although its inventory has not yet been fully completed (Kamelin, 2006; Takhtajan, 2003–2009; Tatanov & Shvanova, 2013).

The Caucasian flora includes 21 endemic genera (Solomon et al., 2014), and the number of endemic species is estimated at about 1,600, accounting for nearly 25% of the region's total species richness. Most of these taxa are confined to mountainous habitats and are particularly sensitive to adverse climatic changes.

The establishment of botanical gardens, and the collection and preservation of botanical collections represent essential tools for biodiversity conservation and serve as historical evidence of floristic diversity (Kharkevich, 1959; Shiyan, 2011; Zagorodniuk et al., 2014; Smith & Harvey-Brown, 2017; López & Sassone, 2019; Novikov, 2019; Girmay, 2023). Herbarium collections are not only repositories of biodiversity but also an irreplaceable source for retrospective analyses of rare and threatened taxa.

In this context, the present study aimed to compile an inventory of Caucasian plant specimens preserved in the herbarium of the M.M. Gryshko National Botanical Garden of the National Academy of Sciences of Ukraine (KWA) and to identify and analyze its rare and protected specimens.

Material and methods

The study comprises herbarium specimens of vascular plants from the Caucasian region, preserved in the herbarium of the M.M. Gryshko National Botanical Garden of the NAS of Ukraine (KWA). Most of these specimens were collected during the Soviet period (1950s–1970s), and their original identifications therefore reflect the botanical nomenclature of that time, largely based on a monotypic, i.e., narrow, species concept (Grossheim, 1949; Cherepanov, 1995).

The current taxonomic nomenclature is based on the Plants of the World Online (POWO, 2025) database. For a number of specimens, nomenclatural clarification was carried out primarily using the treatments by Takhtajan (2003–2009). Higher taxonomic groups (i.e., lycophytes, horsetails, ferns, gymnosperms, and angiosperms) are presented in their traditional circumscription (Takhtajan, 2003–2009), which corresponds to the historical structure of the KWA herbarium.

The conservation status of plant taxa was verified based on their inclusion in the Red Books of the Caucasian countries: Armenia (Tamanyan et al., 2010), Azerbaijan (Aleksperov, 2013), Georgia (Red List of Georgia, 2014), and the Russian Federation (Bardunov & Novikov, 2008). The Red Book of the Georgian SSR (Kacharava, 1982) was additionally consulted as a historical source that remains scientifically relevant, although it no longer constitutes a legally binding conservation document. The Red Books of the federal subjects of the Russian Federation were also considered (Plantarium, 2022), namely those of the Republic of Adygea, Chechen Republic, Republic of Dagestan, Republic of Ingushetia, Kabardino-Balkarian Republic, Karachay-Cherkess Republic, Krasnodar Krai, North Ossetia–Alania, and Stavropol Krai. The Republic of Kalmykia

and Rostov Oblast were not considered, as they are predominantly located within the Eastern European Plain and only marginally extend into the North Caucasus region (Takhtajan, 2003–2009).

Geographical (chorological) analysis was conducted using botanical-geographical characteristics, assigning each taxon to a specific geographical element based on its natural distribution range (Grossheim, 1928, 1949; Kleopov, 1990; Takhtajan, 2003–2009). Endemic taxa were defined following the concept of Yena (2004), i.e., species restricted to a particular region; in the present study, this refers to the territory of the Caucasus as conventionally recognized in plant biogeography (Takhtajan, 2003–2009; Augustyn, 2025).

The northern boundary of the Caucasus extends from Rostov-on-Don (Russia) through the Kuma-Manych Depression to the Caspian Sea. In contrast, the southern boundary, which is primarily historical and administrative, follows the state borders of Georgia, Armenia, and Azerbaijan, as well as Turkey and Iran. In the southern part of the Caucasus, no distinct geomorphological line clearly demarcates the region; instead, the mountain ranges of the Lesser Caucasus gradually merge into the Armenian Highlands and the Iranian Plateau. Accordingly, the northeastern part of the Pontic Mountains and Mount Ararat (Ağrı Dağı) in Turkey, as well as the Alborz Mountains along the Caspian Sea in Iran, are also included within the Caucasus biodiversity hotspot (Solomon et al., 2014).

Historical information

The M.M. Gryshko National Botanical Garden of the NAS of Ukraine was conceived as a unique collection of living plants intended to represent the flora of various regions of the former Soviet Union. A substantial proportion of plants collected during expeditions to different regions were subjected to herbarium processing and served as the documentary basis for the overall botanical collection. Herbarium collections also documented the flora of the area where plant introduction and cultivation were carried out. Thus, the KWA herbarium became an integral component of the Botanical Garden's comprehensive plant collection, ensuring its scientific value, historical continuity, and completeness

(Gryshko et al., 1959; Kharkevich, 1959, 1972; Melnyk et al., 2008; Shynder & Bahatska, 2020).

One of the largest introduction experiments conducted in the Botanical Garden was the establishment of the phytogeographical plot “Caucasus” in 1949–1951. Its first curator, Sigizmund S. Kharkevich, was also the initiator of the KWA herbarium (Gryshko et al., 1959). During his work at the Botanical Garden, S.S. Kharkevich introduced approximately 1,600 species of vascular plants of Caucasian origin, a significant proportion of which continue to grow in the plantings of the Caucasus plot to this day. Currently, more than 400 plant species are cultivated on this plot, including 147 rare species of the Caucasian flora (Didenko, 2013; Shynder, 2013, 2015; Melnyk et al., 2019). At the same time, this researcher collected extensive herbarium material from various parts of the Caucasus (Kharkevich, 1951, 1953, 1966a, 1966b).

In subsequent years, the KWA herbarium was supplemented with specimens obtained from the Institutes of Botany of the Academies of Sciences of Armenia and Georgia, as well as from individual collectors, thereby forming a large and representative collection of Caucasian flora specimens (Bahatska & Shynder, 2022).

Results and discussion

As a result of the inventory of specimens preserved in the KWA herbarium, the Caucasian flora is currently represented by 2,847 species belonging to 860 genera, 149 families, and six classes of plants (Bahatska & Shynder, 2022), which corresponds to approximately 44% of the total vascular plant flora of the Caucasus. The most prolific collector remains S.S. Kharkevich, who collected over 15,000 specimens in the Caucasus. His collections include several paratypes of species he described, which are endemic to the Caucasus, such as *Aetheopappus fedorovii* Kharkev. (= *Psephellus vvedenskii* Sosn.), *Fritillaria lagodechiana* Kharkev., and *Iberis oschtenica* Kharkev. (= *I. simplex* DC.) (Kharkevich, 1951, 1953, 1966b).

In addition, the herbarium contains specimens collected by several dozen other collectors, including R. Ishchenko, Y. Kosa, N. Busch, R. Hrahovetska, A. Khokhriakova,

P. Lafyshev, M. Okhrimenko, A. Hnatiuk, S. Didenko, D. Zubov, O. Bondareva, S. Banketov, A. Popovych, and V. Tanfiliev.

The geographical coverage of the collections includes virtually all regions of the North Caucasus and Transcaucasia. In particular, serial collections are available from the following regions and territories: Abkhazia, Adjara, South Ossetia, the vicinity of Tbilisi, the Black Sea coast of the Caucasus, and other regions of Georgia; Talysh and other regions of Azerbaijan; Armenia; and the republics of the North Caucasus. The majority of specimens were collected in the 1950s–1970s. In recent years, however, the herbarium collection has been supplemented with specimens representing 31 additional plant species of the Caucasian flora.

The inventory list of the studied specimens, indicating their distribution types and their representation in the Red Books of the administrative territories of the Caucasus, is presented in the [Appendix](#).

Thus, the inventory established that the KWHa herbarium contains specimens representing 534 taxon names with conservation status within the administrative territories of the Caucasus. According to the current taxonomic treatment, this material corresponds to 527 accepted species and subspecies ([POWO, 2025](#)) belonging to 270 genera and 89 families of the Caucasian flora.

Among the taxa represented in the KWHa herbarium, 210 species and subspecies are protected in the countries of Transcaucasia, including 131 taxa in Armenia, 69 in Azerbaijan, and 52 in Georgia. A total of 403 species and subspecies are protected in the Red Books of the North Caucasus, i.e., in the Russian Federation and its federal subjects; in particular, 107 taxa are listed in the Red Book of the Russian Federation, 189 taxa in the Red Book of Krasnodar Krai, 161 taxa in Stavropol Krai, and 97 taxa in the Republic of Dagestan.

Among the studied specimens, several taxa have protected status as independent species in some Red Books; however, their current taxonomic circumscription has been reduced to varieties, or they have been placed under synonymy. Examples include *Galanthus alpinus* Sosn. var. *bortkewitschianus* (Koss) A.P.Davis, *Papaver orientale* L. var. *paucifoliatum* Trautv., and *Ulmus glabra* Huds. f. *elliptica* (Beck) Soó.

During the course of the study, several plants were re-identified, both in the KWHa herbarium and on the phytogeographical plot “Caucasus” of the M.M. Gryshko National Botanical Garden. For instance, according to inventory lists, plants cultivated on the “Caucasus” plot were recorded as *Celtis australis* L. ([Shynder, 2015](#); [Burda & Koniakin, 2019](#)), and the corresponding herbarium specimens had been collected earlier by S.S. Kharkevich. This species is protected in the Red Book of Krasnodar Krai. However, comparative morphological analysis of living plants and herbarium specimens enabled re-identification of them as *Celtis occidentalis* L. Similarly, the species identity of several other rare taxa could not be confirmed. Therefore, the herbarium specimens of the Caucasian flora studied here serve as documentary evidence of the history of plant introduction at the M.M. Gryshko National Botanical Garden.

For two taxa listed below that are currently not recognized as independent species or subspecies ([POWO, 2025](#)), we propose new nomenclatural combinations at the rank of varieties, as this taxonomic level allows their distinctiveness to be adequately reflected.

***Buxus sempervirens* L. var. *hyrcana* (Pojark.) Shynder & Bahatska, comb. & stat. nov.**

Basionym: *Buxus hyrcana* Pojark., 1947, Ref. Nauchno-Issl. Rabot, Otdel. Biol. Nauk 1945: 7.

The Hyrcanian population of *Buxus sempervirens* s.l. represents only one, the easternmost, of several isolated fragments of the strongly disjunct Mediterranean range of this species. These plants are very close to other Caucasian populations that were previously described as *B. colchica* Pojark. ([Pojarkova, 1947, 1949](#); [Artyushenko, 1958](#)) and are currently not recognized as an independent taxon. The reported differences include slightly larger dimensions of some vegetative and generative organs and a somewhat higher degree of leaf pubescence. Later, A.L. Takhtajan reduced the rank of the Hyrcanian plants to a subspecies, *B. sempervirens* L. subsp. *hyrcana* (Pojark.) Takht. ([Takhtajan & Gokhtuni, 1972](#); [Takhtajan, 2003–2009](#)). However, the available morphological and geographical evidence (Yosefzadeh et al., 2009; Alipour & Walas, 2023) more adequately supports recognition of this taxon at the rank of variety.

Lilium martagon L. var. *caucasicum* (Misch.) Shynder & Bahatska, comb. & stat. nov.

Basionym: *Lilium martagon* subsp. *caucasicum* Misch., 1928, Flora Kavkaza 1: 218.

Plants from the Caucasian exclave of the range of *Lilium martagon* are characterized by minor morphological differences, in particular by broader leaves with shortly acuminate apices. However, similar traits are also observed in plants from Turkey, where both morphotypes occur; therefore, Davis & Henderson (1984) did not recognize this species as distinct, although Takhtajan (2003–2009) treated it as a subspecies. In the M.M. Gryshko National Botanical Garden, plants of *L. martagon* originated from the Caucasus are still cultivated (Shynder, 2015; Melnyk et al., 2019) and retain slight but stable differences from local populations of the species. Consequently, recognition at the rank of variety appears appropriate for distinguishing the Caucasian population of *L. martagon*. It should be noted that P. Misczenko initially also regarded these plants as a variety, but his author combination was never validly published (Takhtajan, 2003–2009).

In the geographical structure of the studied taxa (Table 1), species with Mediterranean and various Caucasian distribution types clearly prevail, together accounting for 66.6% of the total. This pattern reflects the affiliation of the Caucasus with the territories of the Ancient Mediterranean region, together with certain areas of Western Asia. The high proportion of such taxa in the KWA herbarium is associated with their collection in mountainous and sub-Mediterranean habitats of the Caucasus, primarily during the botanical expeditions conducted by the M.M. Gryshko National Botanical Garden.

Among the plants studied, 107 species and subspecies are endemic to the Caucasus (varieties not included). At the same time, in some studies, the endemic element of the Caucasian flora is interpreted more broadly to include species that also occur in regions adjacent to the Caucasus and are biogeographically connected with it. For example, Solomon et al. (2014) prepared a comprehensive overview of rare plant species distributed not only within the Caucasus sensu stricto, but also in northeastern Turkey and northern Iran. However, such taxa should more appropriately be treated as subendemics

(Yena, 2004), for instance, Anatolian–Caucasian species such as *Abies nordmanniana* (Steven) Spach and *Picea orientalis* (L.) Peterm. For the same reason, Crimean–Caucasian species are not included here among Caucasian endemics. Another example of a subendemic taxon is *Astragalus calycinus* M.Bieb., which occurs both in the Caucasus and in the steppe regions of the Don River basin.

Formally, Caucasian varieties of species with broader distribution ranges may also be regarded as endemic, for example *Convallaria majalis* L. var. *transcaucasica* (Utkin ex Grossh.) Knorring and *Galanthus alpinus* var. *bortkewitschianus*. However, such infraspecific taxa were not treated separately in the present analysis.

The results indicate that, among Ukrainian herbaria, the KWA herbarium holds the largest collection of specimens of the Caucasian flora, including a substantial number of rare and endemic taxa. This makes the studied collection unique and of considerable importance for documenting, conserving, and studying the taxonomic diversity of the Caucasus. At present, KWA's herbarium holdings are being gradually cataloged, and as the material is processed, individual specimens are re-identified. Consequently, more detailed information on the specimens studied from the Caucasian flora and on the geography of their in situ collections will be presented in future publications.

Conclusions

As a result of the inventory of the largest collection of the Caucasian flora in Ukraine, preserved in the herbarium of the M.M. Gryshko National Botanical Garden of the National Academy of Sciences of Ukraine (KWA), it was established that the collection contains specimens representing 534 taxon names with a conservation status in the Red Books of the countries and their administrative regions of the Caucasus. According to the current taxonomic concept, these correspond to 527 accepted species and subspecies belonging to 270 genera and 89 families. A substantial proportion of these taxa are protected simultaneously in several administrative units, highlighting their high conservation and scientific value.

Table 1. Chorological groups of protected plant species of the Caucasian flora deposited in the KWA herbarium.

Chorological (range) groups	Number of taxa	%
Mediterranean	127	24.1
Mediterranean-Asian	8	1.5
Euxinian	13	2.5
Crimean-Caucasian	8	1.5
Anatolian-Caucasian-Iranian	117	22.2
Anatolian-Caucasian	46	8.7
Caucasian-Iranian	21	4.0
Caucasian	107	20.3
North Caucasian	29	5.5
Transcaucasian	13	2.5
Asian	37	7.0
Western Asian	27	5.1
Southern Asian	7	1.3
Irano-Turanian and Central Asian	3	0.6
Eurasian arid	38	7.2
Eurasian steppe	32	6.1
Eurasian steppe-desert	4	0.8
Eurasian desert	2	0.4
Palearctic	32	6.1
European-Mediterranean	31	5.9
European-Caucasian montane	2	0.4
Holarctic	12	2.3
Eurasian-African	5	0.9
Palearctic-African	2	0.4
Mediterranean-African	3	0.6
European	6	1.1
Boreal	6	1.1
Pontic-Caucasian	3	0.6
European-Siberian	3	0.6
Multiregional	2	0.4
Palaeotropical	1	0.2
Total	527	100

The geographical structure of the protected taxa deposited in the KWA herbarium is dominated by the Mediterranean, Anatolian-Caucasian-Iranian, and Caucasian chorological groups, which together account for 66.6% of the total. Among the taxa represented in the collection, 107 species and subspecies are endemic to the Caucasus.

During the inventory, two new nomenclatural combinations at the rank of variety were proposed, *Buxus sempervirens* var. *hyrcana* and *Lilium martagon* var. *caucasicum*, allowing a more accurate representation of the morphological and geographical differentiation of Caucasian populations of these species.

Due to the prolonged military aggression of the Russian Federation against Ukraine, Ukrainian researchers are currently unable to replenish living plant collections and herbarium holdings with material collected *in situ* in most regions of the Caucasus. Under these circumstances, the specimens preserved in the KWA herbarium have particular scientific importance, as they provide access to a considerable representation of Caucasian plant diversity and enable Ukrainian researchers to continue internationally competitive studies of the Caucasian flora. Overall, the KWA herbarium constitutes a key *ex situ* resource for floristic, taxonomic, chorological, and conservation-oriented studies of the Caucasian flora, particularly its protected components, and also documents important milestones in the introduction of Caucasian plant species into Ukraine.

References

- Alekperov, I.H. (Ed.). (2013). *Red Book of the Republic of Azerbaijan. Flora*. Sharg-Garb, Baku. (In Azerbaijani and Russian)
- Alipour, S., & Walas, Ł. (2023). The influence of climate and population density on *Buxus hyrcana* potential distribution and habitat connectivity. *Journal of Plant Research*, 136, 501–514. <https://doi.org/10.1007/s10265-023-01457-5>
- Artyushenko, Z.T. (1958). *Buxus*. In S.Y. Sokolov (Ed.), *Trees and shrubs of the USSR. Vol. 4* (pp. 290–298). Publishing House of the Academy of Sciences of the USSR, Moscow. (In Russian)
- Augustyn, A. (2025). *Caucasus*. Encyclopedia Britannica. <https://www.britannica.com/place/Caucasus>
- Bahatska, T., & Shynder, O. (2022). Plant collections from the Caucasian region in the herbarium of the M.M. Gryshko National Botanical Garden of the National Academy of Sciences of Ukraine (KWA). *Journal of Native and Alien Plant Studies*, 18, 3–15. <https://doi.org/10.37555/2707-3114.18.2022.269918>
- Bardunov, L.V., & Novikov, V.S. (Eds.). (2008). *Red Book of the Russian Federation: plants and fungi*. KMK Scientific Press, Moscow. (In Russian)
- Burda, R.I., & Koniakin, S.N. (2019). The non-native woody species of the flora of Ukraine: Introduction, naturalization and invasion. *Biosystems Diversity*, 27(3), 276–290. <https://doi.org/10.15421/011937>
- Cherepanov, K.V. (1995). *Vascular plants of Russia and adjacent countries*. Mir i Semya, Moscow. (In Russian)
- Davis, P.H., & Henderson, D.M. (1984). *Lilium*. In P.H. Davis (Ed.), *Flora of Turkey and the East Aegean Islands. Vol. 8* (pp. 279–284). Edinburgh University Press.
- Didenko, S. (2013). State of introductory populations of *Galanthus* L. species (Amaryllidaceae) of the flora of the Caucasus in the conditions of Kyiv. Part 1. Endemic species. *Plant Introduction*, 58, 18–23. <https://doi.org/10.5281/zenodo.1492304>
- Girmay, M. (2023). Roles of botanical gardens for conservation and requirements for their establishment: a review. *Daegu International Journal of Basic and Applied Research*, 5, 182–192. <https://doi.org/10.20372/dijbar.81657>
- Grossheim, A.A. (1928). *Flora of the Caucasus. Vol. 1*. Narodnyj Komissariat Zemledeleniya S.S.R. Armenii, Tbilisi. (In Russian)
- Grossheim, A.A. (1949). *Identification guide to the plants of the Caucasus*. Sovetskaya Nauka, Moscow. (In Russian)
- Gryshko, M.M., Sokolovskiy, O.I., & Kharkevich, S.S. (1959). On the establishment of a reference herbarium of plants cultivated in the botanical gardens of the Ukrainian SSR. *Botanical Garden Bulletin*, 1, 142–143. (In Ukrainian)
- Kacharava, V. (Ed.). (1982). *Red Book of the Georgian SSR: rare and endangered species of animals and plants*. Sabchota Sakartvelo, Tbilisi. (In Russian)
- Kamelin, R.V. (2006). Data for the analysis of the Caucasus flora: some peculiarities of its composition and their significance for understanding the history of the region. *Botanicheskii Zhurnal*, 91(5), 649–673. (In Russian)
- Kharkevich, S.S. (1951). On a new species of the genus *Aetheropappus* from the highland Caucasus. *Botanicheskii Zhurnal*, 36(4), 399–402. (In Russian)
- Kharkevich, S.S. (1953). On a new species of the genus *Iberis* L. from the high mountain Caucasus. *Botanicheskie Materialy Gerbariya Botanicheskogo Instituta Imeni V.L. Komarova Akademii Nauk SSSR*, 15, 78–84. (In Russian)
- Kharkevich, S.S. (1959). Botanical gardens of the Ukrainian SSR and their tasks in nature conservation. *Plant Acclimatization. Proceedings of the Botanical Garden of the Academy of Sciences of the Ukrainian SSR*, 6, 45–54. (In Ukrainian)
- Kharkevich, S.S. (1966a). On some species of the genus *Lilium* from the flora of the Caucasus. *Novosti Sistematiki Vysshikh Rastenii*, 3, 41–47. (In Russian)
- Kharkevich, S.S. (1966b). *Useful plants of the natural flora of the Caucasus and their introduction in Ukraine*. Naukova Dumka, Kyiv. (In Russian)

- Kharkevich, S.S. (Ed.). (1972). *Introduction in Ukraine of useful plants of the natural flora of the USSR*. Naukova Dumka, Kyiv. (In Ukrainian)
- Kleopov, Y.D. (1990). *Analysis of the flora of the broad-leaved forests of the European part of the USSR*. Naukova Dumka. (In Russian)
- López, A., & Sassone, A.B. (2019). The uses of herbaria in botanical research: a review based on evidence from Argentina. *Frontiers in Plant Science*, 10, Article 1363. <https://doi.org/10.3389/fpls.2019.01363>
- Melnyk, V.I., Didenko, S.Y., & Bahatska, T.S. (2008). Herbarium of the M.M. Gryshko National Botanical Garden of the National Academy of Sciences of Ukraine. *Plant Introduction*, 40, 21–28. (In Ukrainian). <https://doi.org/10.5281/zenodo.2561437>
- Melnyk, V.I., Didenko, S.Y., & Shynder, O.I. (2019, May 22–24). Introduction populations of Caucasian flora species in Ukraine and their conservation significance. In *Proceedings of the International Scientific and Practical Conference "Introduction and conservation of plant diversity in botanical gardens of Eastern Europe"* (pp. 120–130). Talkom. (In Ukrainian)
- Mosyakin, S.L., & Tykhonenko, Y.Y. (2006). Resolutions of the XVII International Botanical Congress and the tasks of global and Ukrainian botany (Vienna, Austria, 17–23 July 2005). *Ukrainian Botanical Journal*, 63(1), 118–126. (In Ukrainian)
- Novikov, A. (2019, November 27–29). Digitization of natural collections – the way to immortality. In *Proceedings of the 14th International Young Scientists' Conference "Biology: from a molecule up to the biosphere"* (pp. 12–14). V.N. Karazin Kharkiv National University, Kharkiv. (In Ukrainian)
- Plantarium. (2022). *Red Books*. Online resource. (In Russian)
- Pojarkova, A.I. (1947). *Abstracts of scientific research works for 1945. Department of Biological Sciences of the Academy of Sciences of the USSR. Vol. 7*. Publishing House of the Academy of Sciences of the USSR, Moscow. (In Russian)
- Pojarkova, A.I. (1949). *Buxus*. In B.K. Shishkin & E.G. Bobrov (Eds.), *Flora of the USSR. Vol. 14* (pp. 504–511). Publishing House of the Academy of Sciences of the USSR, Moscow. (In Russian)
- POWO. (2025). Plants of the World Online. <https://powo.science.kew.org>
- Red List of Georgia. (2014). Resolution of the Government of Georgia No. 190 of 20 February 2014 on approval of the Red List of Georgia. Legislative Herald of Georgia. (In Georgian). <https://matsne.gov.ge/ka/document/view/2256983>
- Shiyan, N.M. (Ed.). (2011). *Herbaria of Ukraine. Index Herbariorum Ucrainicum*. (In Ukrainian)
- Shynder, O.I. (2013). Rare species of the Caucasian flora in the National Botanical Garden of the NAS of Ukraine. In *Proceedings of the 4th International Scientific Conference "Conservation and restoration of botanical gardens and arboreta under conditions of sustainable development"* (pp. 64–66). Bila Tserkva. (In Ukrainian)
- Shynder, O.I. (2015). The vegetation cover of the phytogeographical plot "Caucasus" of the M.M. Gryshko National Botanical Garden of the NAS of Ukraine. 1st report. Species diversity. *Plant Introduction*, 65, 30–37. (In Ukrainian). <https://doi.org/10.5281/zenodo.2460013>
- Shynder, O.I., & Bahatska, T.B. (2020). The herbarium of the M.M. Gryshko National Botanical Garden (KWHa) and current floristic research in Ukraine. In *Proceedings of the International Scientific Conference "Fundamental and applied aspects of plant introduction under global environmental change"* (pp. 401–404). Lira-K, Kyiv. (In Ukrainian)
- Smith, P., & Harvey-Brown, Y. (2017). *BGCI technical review: defining the botanic garden, and how to measure performance and success*. Descanso House.
- Solomon, J., Shulкина, T., & Schatz, G. (Eds.). (2014). *Red list of the endemic plants of the Caucasus: Armenia, Azerbaijan, Georgia, Iran, Russia, and Turkey*. Missouri Botanical Garden.
- Takhtajan, A.L. (Ed.). (2003–2009). *Caucasian flora conspectus. Vols. 1–3*. Saint Petersburg University Press – KMK, Saint Petersburg. (In Russian)
- Takhtajan, A.L., & Gokhtuni, N.G. (1972). Late Sarmatian plants from the salt deposits of Nakhichevan. *Botanicheskii Zhurnal*, 57(2), 247–250. (In Russian)
- Tamanyan, K.G., Faivush, G.M., Vardanyan, Z.A., & Danielyan, T.S. (Eds.). (2010). *Red Book of the Republic of Armenia. Plants*. Zandak-97, Yerevan. (In Russian)
- Tatanov, I.V., & Shvanova, V.V. (2013). Synopsis of the flora of the Caucasus: preliminary results of the inventory of the Caucasian flora. In *Proceedings of the Jubilee International Scientific and Practical Conference "The role of botanical gardens in plant diversity conservation". Part 2* (pp. 145–148). Batumi. (In Russian)
- Yena, A.V. (2004). Concept of endemism in plant geography. *Ukrainian Botanical Journal*, 61(4), 7–20. (In Russian)
- Yosefzadeh, H., Tabari, M., Espahbodi, K., Jalali, G.A., Bussotti, F., & Abdi, E. (2009). Inter- and intrapopulation variation of leaf morphology in natural stands of *Buxus hyrcana* (Pojark.) in Caspian forests (Iran). *Polish Journal of Ecology*, 57, 291–301.
- Zagorodniuk, I., Yemeljanov, I., & Chervonenko, O. (2014). Zoological collections and museums as centres of biodiversity research. In I. Zagorodniuk (Ed.), *Zoological collections and museums* (pp. 6–9). National Museum of Natural History of the National Academy of Sciences of Ukraine, Kyiv. (In Ukrainian)

Appendix. Protected plant species of the Caucasian flora are represented in the KWA herbarium.

Abbreviations:

Red Books:

Ar – Armenia, **Az** – Azerbaijan, **Ge** – Georgia ([Ge] indicates that the taxon was included only in the Red Book of the Georgian SSR, i.e., [Kacharava, 1982](#)), **RF** – Russian Federation, followed by its federal subjects: **Ad** – Republic of Adygea, **Ch** – Chechen Republic (temporarily occupied by the Russian Federation), **Da** – Republic of Dagestan, **In** – Republic of Ingushetia, **KB** – Kabardino-Balkarian Republic, **KCh** – Karachay-Cherkess Republic, **Kr** – Krasnodar Krai, **NOA** – North Ossetia–Alania, **St** – Stavropol Krai.

Geographical abbreviations:

Af – African, **Anat** – Anatolian, **As** – Asian, **Bor** – Boreal, **Cauc** – Caucasian, **Cr** – Crimean, **Desert** – Eurasian desert, **Euras** – Eurasian, **Euro** – European, **Eux** – Euxinian, **Hol** – Holarctic, **Ir** – Iranian, **Med** – Mediterranean, **Multi** – multiregional, **NCauc** – North Caucasian, **PArct** – Palaearctic, **Pont** – Pontic, **PTrop** – Palaeotropical, **Sib** – Siberian, **Steppe** – Eurasian steppe, **T** – Turanian, **TCauc** – Transcaucasian, **(dis)** – disjunct, **(arcto-alp)** – arcto-alpine, **(c)** – central, **(e)** – eastern, **(mont)** – montane, **(n)** – northern, **(s)** – southern, **(w)** – western, “/” – taxa below the rank of subspecies.

No	Accepted taxon name	Name on KWA specimens	Range	Protection
Lycophytes				
1	<i>Huperzia selago</i> (L.) Bernh. ex Schrank & Mart.	<i>Huperzia selago</i> (L.) Bernh. ex Schrank	Bor	Ar, In, St
Horsetails				
2	<i>Equisetum hyemale</i> L.	<i>Equisetum hyemale</i> L.	Multi	Kr
Ferns				
3	<i>Asplenium ceterach</i> L.	<i>Ceterach officinarum</i> Willd.	Euro-Med-As(c)	Ad, In, KB, KCh, Kr, St
4	<i>Asplenium scolopendrium</i> L.	<i>Phyllitis scolopendrium</i> (L.) Newman	Hol	Ch, In, KB, KCh, St
5	<i>Botrychium lunaria</i> (L.) Sw.	<i>Botrychium lunaria</i> (L.) Sw.	Hol	Ar, Ch, St
6	<i>Cryptogramma crispa</i> (L.) R.Br.	<i>Cryptogramma crispa</i> (L.) R.Br.	Euras(dis)	Ad, Ch
7	<i>Dryopteris carthusiana</i> (Vill.) H.P.Fuchs	<i>Dryopteris carthusiana</i> (Vill.) H.P.Fuchs	Hol	In, St
8	<i>Dryopteris pallida</i> (Bory) Maire & Petitm. subsp. <i>raddeana</i> (Fomin) E.Nardi	<i>Dryopteris raddeana</i> (Fomin) Fomin	Tcauc-Ir	Az
9	<i>Hemionitis marantae</i> (L.) Christenh.	<i>Notholaena marantae</i> (L.) Desv.	Med-As(s)-Af	Ch, Da, KCh
10	<i>Hymenophyllum tunbrigense</i> (L.) Sm.	<i>Hymenophyllum tunbrigense</i> (L.) Sm.	Euro-Med-Af(dis)	[Ge]
11	<i>Ophioglossum vulgatum</i> L.	<i>Ophioglossum vulgatum</i> L.	PArct	Ar, Ch, Kr, St
12	<i>Polypodium vulgare</i> L.	<i>Polypodium vulgare</i> L.	Multi	St
13	<i>Polystichum aculeatum</i> (L.) Roth	<i>Polystichum aculeatum</i> (L.) Roth	Euro-Med	St
14	<i>Polystichum braunii</i> (Spenn.) Fée	<i>Polystichum braunii</i> (Spenn.) Fée	Hol	Ar, In, St
15	<i>Polystichum lonchitis</i> (L.) Roth	<i>Polystichum lonchitis</i> (L.) Roth	Hol	Ar, KB
16	<i>Polystichum setiferum</i> (Forssk.) T.Moore ex Woynar	<i>Polystichum setiferum</i> (Forssk.) T.Moore ex Woynar	Euro-Med	St
17	<i>Pteridium aquilinum</i> (L.) Kuhn	<i>Pteridium tauricum</i> V.I. Krecz.	Parct-Af(s)	Ar, St
18	<i>Pteris cretica</i> L.	<i>Pteris cretica</i> L.	Parct-Af(s)	Kr
19	<i>Woodsia caucasica</i> (C.A.Mey.) J.Sm.	<i>Woodsia fragilis</i> (Trevis.) T.Moore	Cauc	Ad, Ch, Da, KCh, Kr, NOA, St

Rare plant species of the Caucasian flora in the KWA herbarium

No	Accepted taxon name	Name on KWA specimens	Range	Protection
Gymnosperms				
20	<i>Abies nordmanniana</i> (Steven) Spach	<i>Abies nordmanniana</i> (Steven) Spach	Anat-Cauc	KB, NOA
21	<i>Ephedra distachya</i> L.	<i>Ephedra distachya</i> L.	Steppe-Desert	Ch, KCh, Kr
22	<i>Ephedra procera</i> C.A.Mey.	<i>Ephedra procera</i> C.A.M.	Med(e)	Ch, KCh, NOA
23	<i>Juniperus communis</i> L. var. <i>saxatilis</i> Pall.	<i>Juniperus oblonga</i> M.Bieb.	Hol	Ch
24	<i>Juniperus excelsa</i> M.Bieb.	<i>Juniperus excelsa</i> M.Bieb.	Med(e)	RF, Kr
25	<i>Juniperus foetidissima</i> Willd.	<i>Juniperus foetidissima</i> Willd.	Med	Az, Ge, RF, Da, Kr
26	<i>Juniperus polycarpus</i> K.Koch	<i>Juniperus polycarpus</i> K.Koch	Med(e)	Da
27	<i>Juniperus sabina</i> L.	<i>Juniperus sabina</i> L.	PArct	Ar, Ad, Ch, Kr
28	<i>Picea orientalis</i> (L.) Peterm.	<i>Picea orientalis</i> (L.) Link.	Anat-Cauc	KB, NOA
29	<i>Pinus brutia</i> Ten. var. <i>pityusa</i> (Gordon & Glend.) Silba ex Farjon	<i>Pinus pityusa</i> Steven	Cr-Cauc	Ge, RF, Kr
30	<i>Pinus nigra</i> J.F.Arnold subsp. <i>pallasiana</i> (Lamb.) Holmboe	<i>Pinus pallasiana</i> D.Don	Eux	RF, Kr
31	<i>Taxus baccata</i> L.	<i>Taxus baccata</i> L.	Euro-Med	Ar, Az, Ge, RF, Ad, Ch, Da, In, KB, KCh, Kr, NOA, St
Angiosperms				
32	<i>Acer cappadocicum</i> Gled.	<i>Acer laetum</i> C.A.Mey	As(s)	Ch, Da, St
33	<i>Acer heldreichii</i> Orph. ex Boiss. subsp. <i>trautvetteri</i> (Medw.) A.E.Murray	<i>Acer trautvetteri</i> Medw.	Anat-Cauc	KB
34	<i>Acer hyrcanum</i> Fisch. & C.A.Mey.	<i>Acer hyrcanum</i> Fisch. & C.A.Mey.	Med	Da
35	<i>Acer monspessulanum</i> L. subsp. <i>ibericum</i> (M.Bieb.) Yalt.	<i>Acer ibericum</i> M.Bieb.	Anat-Cauc-Ir	Ge, Da
36	<i>Adonis vernalis</i> L.	<i>Adonis vernalis</i> L.	Steppe	KCh, Kr, NOA, St
37	<i>Adonis vogensis</i> Steven ex DC.	<i>Adonis vogensis</i> Steven ex DC.	Steppe	Ar, Kr
38	<i>Aegilops tauschii</i> Coss.	<i>Aegilops squarrosa</i> Nevski	As(s)	Kr
39	<i>Aeluropus lagopoides</i> (L.) Thwaites	<i>Aeluropus repens</i> (Desf.) Parl.	PTrop	Ar
40	<i>Ajuga laxmannii</i> (L.) Benth.	<i>Ajuga laxmannii</i> (L.) Benth.	Steppe	Kr
41	<i>Akhanian daghestanica</i> (Bunge) Sukhor.	<i>Salsola daghestanica</i> (Bunge) Turcz. ex Trautv.	NCauc	Da
42	<i>Albizia julibrissin</i> Durazz	<i>Albizia julibrissin</i> Durazz	As(s)	Az
43	<i>Alliaria taurica</i> (Adam) V.I.Dorof.	<i>Alliaria brachycarpa</i> M.Bieb.	Cauc	Da
44	<i>Allium akaka</i> S.G.Gmel. ex Schult. & Schult.f.	<i>Allium akaka</i> Gmel.	Ir(n)	Ar
45	<i>Allium nudatum</i> Redouté	<i>Allium albidum</i> Fisch. ex M.Bieb.	Med(e)	Kr
46	<i>Allium paradoxum</i> (M.Bieb.) G.Don	<i>Allium paradoxum</i> (M.Bieb.) G.Don	Cauc-Ir-T	Ch, Da
47	<i>Allium rupestre</i> Steven	<i>Allium rupestre</i> Steven	Eux	Ar
48	<i>Allium saxatile</i> M.Bieb.	<i>Allium saxatile</i> M.Bieb.	Steppe	Kr
49	<i>Allium schoenoprasum</i> L.	<i>Allium schoenoprasum</i> L.	Hol	KB

No	Accepted taxon name	Name on KWA specimens	Range	Protection
50	<i>Allium ursinum</i> L.	<i>Allium ursinum</i> L.	Euro	KB, KCh, St
51	<i>Allium victorialis</i> L.	<i>Allium victorialis</i> L.	Euro-Cauc(mont)	Ch, KB
52	<i>Alnus subcordata</i> C.A.Mey	<i>Alnus subcordata</i> C.A.Mey	TCauc-Ir	Az
53	<i>Alopecurus textilis</i> Boiss.	<i>Alopecurus tiflisiensis</i> (G.Westb.) Grossh.	As(w)	Ad, Kr
54	<i>Alyssoides utriculata</i> (L.) Medik.	<i>Alyssoides utriculata</i> (L.) Medik.	Med	KCh
55	<i>Amberboa sosnovskyi</i> Iljin	<i>Amberboa sosnovskyi</i> Iljin	Cauc-Ir	Ar
56	<i>Anacamptis coriophora</i> (L.) R.M.Bateman, Pridgeon & M.W.Chase	<i>Orchis coriophora</i> L.	Euro-Med	RF, Ad, Ch, Da, KB, KCh, Kr, NOA, St
57	<i>Anacamptis morio</i> (L.) R.M.Bateman, Pridgeon & M.W.Chase subsp. <i>caucasica</i> (K.Koch) H.Kretzschmar, Eccarius & H.Dietr.	<i>Orchis picta</i> Loisel	Med(e)	RF, Ad, Ch, Da, KCh, Kr, St
58	<i>Anacamptis pyramidalis</i> (L.) Rich.	<i>Anacamptis pyramidalis</i> (L.) Rich.	Euro-Med	Ad, Da, KB, KCh, Kr, NOA, St
59	<i>Androsace albana</i> Steven	<i>Androsace albana</i> Steven	Anat-Cauc-Ir	Ad, Kr
60	<i>Anemone blanda</i> Schott et Kotschy	<i>Anemone blanda</i> Schott et Kotschy	Med(e)	RF, Ad, Da, KB, Kr, St
61	<i>Anemone caucasica</i> Willd. ex Rupr.	<i>Anemone caucasica</i> W.	Anat-Cauc-Ir	Da
62	<i>Anemone ranunculoides</i> L.	<i>Anemone ranunculoides</i> L.	Euro	Ar
63	<i>Anemone sylvestris</i> L.	<i>Anemone sylvestris</i> L.	Euras	KB, KCh, Kr, NOA, St
64	<i>Arabis nordmanniana</i> (Rupr.) Rupr.	<i>Arabis nordmanniana</i> Rupr.	Cauc	KCh
65	<i>Arctostaphylos caucasica</i> Lipsch.	<i>Arctostaphylos caucasica</i> Lipsch.	Cauc	Ch, Da, Kr, NOA
66	<i>Aria graeca</i> (Spach) M.Roem.	<i>Sorbus graeca</i> (Spach) Heldr.	Med	Ch, KB, NOA
67	<i>Aria taurica</i> (Zingerl.) Sennikov & Kurtto	<i>Sorbus taurica</i> Zingerl.	Cr-Cauc	Kr
68	<i>Aristolochia iberica</i> Fisch. & C.A.Mey. ex Boiss.	<i>Aristolochia iberica</i> Fisch. & Mey. ex Boiss.	Anat-Cauc	Ar, Kr
69	<i>Aristolochia steupii</i> Woronow	<i>Aristolochia steupii</i> Wor.	Cauc	Ad, Kr
70	<i>Artemisia alpina</i> Pall. ex Willd.	<i>Artemisia caucasica</i> Willd.,	Eux	St
71	<i>Artemisia alpina</i>	<i>Artemisia grossheimii</i> Krasch. ex Poljakov	Eux	St
72	<i>Asarum caucasicum</i> (Duch.) N.Busch	<i>Asarum intermedium</i> (C.A.Mey. ex Ledeb.) Grossh.	Cauc	In, NOA, St
73	<i>Asperula prostrata</i> (Adams) K.Koch	<i>Asperula albobii</i> Manden.	As(w)	Kr
74	<i>Asperula taurina</i> L.	<i>Asperula taurina</i> L.	Med(e)	Ar
75	<i>Asphodeline lutea</i> (L.) Rchb.	<i>Asphodeline lutea</i> (L.) Rchb.	Med	Ar, Kr, St
76	<i>Asphodeline taurica</i> (Pall. ex M.Bieb.) Endl.	<i>Asphodeline taurica</i> (Pall.) Endl.	Med(e)	Ar, [Ge], RF, KCh, Kr, St
77	<i>Astragalus aureus</i> Willd.	<i>Astragalus aureus</i> Willd.	Anat-Cauc-Ir	St
78	<i>Astragalus austriacus</i> Jacq.	<i>Astragalus austriacus</i> Jacq.	Steppe	Kr
79	<i>Astragalus bakuensis</i> Bunge	<i>Astragalus bakuensis</i> Bunge	Cauc	Az
80	<i>Astragalus brachycarpus</i> M.Bieb	<i>Astragalus brachycarpus</i> M.Bieb.	Anat-Cauc-Ir	St

Rare plant species of the Caucasian flora in the KWA herbarium

No	Accepted taxon name	Name on KWA specimens	Range	Protection
81	<i>Astragalus brachylobus</i> DC.	<i>Astragalus brachylobus</i> Fisch. ex DC.	Steppe	Ch, St
82	<i>Astragalus bungeanus</i> Boiss.	<i>Astragalus bungeanus</i> Boiss.	Cauc	St
83	<i>Astragalus calycinus</i> M.Bieb.	<i>Astragalus calycinus</i> M.Bieb.	Pont-Cauc	Kr, St
84	<i>Astragalus circassicus</i> Grossh.	<i>Astragalus circassicus</i> Grossh.	NCauc	Kr
85	<i>Astragalus cornutus</i> Pall.	<i>Astragalus cornutus</i> Pall.	Steppe	Ch, St
86	<i>Astragalus crenatus</i> Schult.	<i>Astragalus corrugatus</i> Bertol.	Med	Ar
87	<i>Astragalus denudatus</i> Steven	<i>Astracantha denudata</i> Steven	Cauc-Ir	Ch
88	<i>Astragalus fabaceus</i> M.Bieb.	<i>Astragalus fabaceus</i> M.Bieb.	Anat-Cauc-Ir	Da
89	<i>Astragalus frickii</i> Bunge	<i>Astragalus frickii</i> Bunge	Anat-Cauc	Kr
90	<i>Astragalus galegiformis</i> L.	<i>Astragalus galegiformis</i> L.	Med(e)	St
91	<i>Astragalus karakugensis</i> Bunge	<i>Astragalus karakugensis</i> Bunge	Steppe(e)	RF, Ch, Da, St
92	<i>Astragalus lasioglottis</i> M.Bieb.	<i>Astragalus lasioglottis</i> Steven ex M.Bieb.	Anat-Cauc	Kr, St
93	<i>Astragalus massalskyi</i> Grossh.	<i>Astragalus massalskyi</i> Grossh. ex Fed.	TCauc	Ar
94	<i>Astragalus paradoxus</i> Bunge	<i>Astragalus paradoxus</i> Bunge	Anat-Tcauc-Ir	Ar, Az
95	<i>Astragalus ponticus</i> Pall.	<i>Astragalus ponticus</i> Pall.	Med(e)	St
96	<i>Astragalus saganlugensis</i> Trautv.	<i>Astragalus saganlugensis</i> Trautv.	Anat-Tcauc-Ir	Ar
97	<i>Astragalus shelkovnikovii</i> Grossh.	<i>Astragalus shelkovnikovii</i> Grossh.	Anat-Tcauc-Ir	Ar
98	<i>Astragalus somcheticus</i> K.Koch	<i>Astragalus demetrii</i> Kharadze	Anat-Cauc	Kr
99	<i>Astragalus wagneri</i> Bartl. ex Bunge	<i>Astragalus karakuschensis</i> Gontsch	Anat-Cauc-Ir	Ar
100	<i>Astragalus xerophilus</i> Ledeb	<i>Astragalus xerophilus</i> Ledeb.	Anat-Tcauc-Ir	Ar
101	<i>Astragalus xiphidium</i> Bunge	<i>Astragalus xiphidium</i> Bunge	Anat-Tcauc-Ir	Ar
102	<i>Atropa bella-donna</i> L.	<i>Atropa caucasica</i> Kreyer	Euro-Med	Ar, Az, RF, Ad, Ch, Da, In, KB, KCh, Kr, NOA, St
103	<i>Bellis perennis</i> L.	<i>Bellis perennis</i> L.	Euro-Med	Ch
104	<i>Berberis iberica</i> (DC.) Sweet	<i>Berberis iberica</i> Steven & Frish ex DC.	Cauc	[Ge]
105	<i>Berberis vulgaris</i> L.	<i>Berberis vulgaris</i> L.	Euro-Med	Ad, Ch
106	<i>Beta macrorhiza</i> Steven	<i>Beta macrorhiza</i> Steven	Anat-Cauc-Ir	Ar, Da
107	<i>Betonica nivea</i> Steven subsp. <i>nivea</i>	<i>Betonica nivea</i> Steven	Cauc	Ad
108	<i>Betonica nivea</i> subsp. <i>abchasica</i> (N.P.Popov ex Grossh.) Krestovsk.	<i>Betonica abchasica</i> (Bornm.) Chinth.	Cauc	Kr
109	<i>Betula raddeana</i> Trautv.	<i>Betula raddeana</i> Trautv.	Cauc	Az, Ge, Ch, Da, In, KB, KCh, NOA
110	<i>Bienertia cycloptera</i> Bunge	<i>Bienertia cycloptera</i> Bunge	Desert	Ar
111	<i>Bongardia chrysogonum</i> (L.) Spach	<i>Bongardia chrysogonum</i> (L.) Spach	Med(e)	[Ge], Da
112	<i>Bupleurum kosopolianskyi</i> Grossh.	<i>Bupleurum koso-polyanskyi</i> Grossh.	TCauc	Ar
113	<i>Buxus sempervirens</i> L.	<i>Buxus colchica</i> Pojark.	Med	Az, Ge, RF, Ad, Kr

No	Accepted taxon name	Name on KWA specimens	Range	Protection
114	<i>Buxus sempervirens</i> var. <i>hyrcana</i> (Pojark.) Shynder & Bahatska	<i>Buxus hyrcana</i> Pojark.	Med/ Tcauc-Ir(n)	Az
115	<i>Calendula arvensis</i> L.	<i>Calendula persica</i> C.A.Mey	Euro-Med	Ar
116	<i>Calligonum polygonoides</i> L.	<i>Calligonum polygonoides</i> L.	As(ws)	Ar, Az
117	<i>Calophaca wolgarica</i> (L.f.) Pall. ex Fisch.	<i>Calophaca wolgarica</i> (L.f.) Fisch. ex DC.	Steppe	RF, Da, Kr, St
118	<i>Campanula coriacea</i> P.H. Davis	<i>Campanula radula</i> Fisch. ex Fenzl.	Anat-TCauc	Az
119	<i>Campanula komarovii</i> Maleev	<i>Campanula komarovii</i> Maleev	NCauc	RF, Kr
120	<i>Campanula ossetica</i> M.Bieb.	<i>Campanula ossetica</i> M.Bieb.	NCauc	RF, Ch, In, NOA
121	<i>Campanula pendula</i> M.Bieb.	<i>Symphyandra pendula</i> M.Bieb.	Cauc	[Ge], Ad, Kr
122	<i>Campanula saxifraga</i> M.Bieb. subsp. <i>saxifraga</i>	<i>Campanula saxifraga</i> M.Bieb.	Cauc	St
123	<i>Campanula saxifraga</i> subsp. <i>argunensis</i> (Rupr.) Ogan.	<i>Campanula argunensis</i> Rupr.	Anat-Cauc	RF, In, NOA
124	<i>Campanula stevenii</i> M.Bieb.	<i>Campanula stevenii</i> M.Bieb.	Euras(c)	KCh
125	<i>Caragana frutex</i> (L.) K.Koch	<i>Caragana frutex</i> (L.) K.Koch	Steppe	KCh, Kr
126	<i>Caragana grandiflora</i> DC.	<i>Caragana grandiflora</i> (M.Bieb.) DC.	As(wc)	Da, In, KB, KCh, St
127	<i>Cardamine bipinnata</i> (C.A.Mey.) O.E.Schulz	<i>Dentaria bipinnata</i> C.A.Mey.	Cauc	Da, In, KB
128	<i>Carex depauperata</i> Curtis ex Woodw.	<i>Carex depauperata</i> Curtis ex Stokes	Euro-Med	Ar, St
129	<i>Carex lasiocarpa</i> Ehrh	<i>Carex lasiocarpa</i> Ehrh	Hol	St
130	<i>Carex panicea</i> L.	<i>Carex panicea</i> L.	Euras(w)	St
131	<i>Carex pendula</i> Huds.	<i>Carex pendula</i> Huds.	Euro-Med	Ar
132	<i>Carpesium cernuum</i> L.	<i>Carpesium cernuum</i> L.	Euras(s)	St
133	<i>Castanea sativa</i> Mill.	<i>Castanea sativa</i> Mill.	Med(e)-As(c)	Ar, Az, Ge, Ad
134	<i>Celtis caucasica</i> Willd.	<i>Celtis caucasica</i> Willd.	As(wc)	[Ge], Da
135	<i>Celtis glabrata</i> Steven ex Planch.	<i>Celtis glabrata</i> Steven ex Planch.	Med(e)	Ge, Ch, St
136	<i>Centaurea daralagoezica</i> (Fomin) Greuter	<i>Tomanthea daralaghezica</i> (Fomin) Takht.	TCauc	Ar
137	<i>Cephalanthera damasonium</i> (Mill.) Druce	<i>Cephalanthera lonchophyllum</i> (Mill.) Druce	Euro-Med	RF, Ad, Ch, Da, In, KCh, Kr, NOA, St
138	<i>Cephalanthera longifolia</i> (L.) Fritsch	<i>Cephalanthera longifolia</i> (L.) Fritsch	PArc	Az, RF, Ad, Ch, Da, KB, KCh, Kr, NOA, St
139	<i>Cephalanthera rubra</i> (L.) Rich.	<i>Cephalanthera rubra</i> (L.) Rich.	Euras	RF, Ad, Ch, Da, In, KB, KCh, Kr, NOA, St
140	<i>Cephalaria coriacea</i> (Willd.) Roem. & Schult.	<i>Cephalaria coriacea</i> (Willd.) Steud	Cr-Cauc	Kr, St
141	<i>Chardinia orientalis</i> (L.) Kuntze (Chardinia macrocarpa K.Koch)	<i>Chardinia orientalis</i> (L.) O.Kuntze	Ir-T	Ar
142	<i>Chiastophyllum oppositifolium</i> (Ledeb. ex Nordm.) A.Berger	<i>Umbilicus oppositifolius</i> (Ledeb. ex Nordm.) Ledeb.	Cauc	KCh
143	<i>Chrysojasminum fruticans</i> (L.) Banfi	<i>Jasminum fruticans</i> L.	Med	Da
144	<i>Chrysopogon gryllus</i> (L.) Trin.	<i>Chrysopogon gryllus</i> (L.) Trin	Med-As(s)	[Ge], KCh

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145	<i>Cichorium glandulosum</i> Boiss. & A.Huet	<i>Cichorium glandulosum</i> Boiss. & Huet	Anat	Ar
146	<i>Cladochaeta candidissima</i> DC.	<i>Cladochaeta candidissima</i> (M.Bieb.) DC.	Cauc	Az, [Ge], Ch, Da, KB, NOA
147	<i>Clematis integrifolia</i> L.	<i>Clematis integrifolia</i> L.	Steppe	Ch, In, KB, KCh, Kr, St
148	<i>Clematis orientalis</i> L.	<i>Clematis orientalis</i> L.	Euras(s)	St
149	<i>Clypeola dichotoma</i> Boiss.	<i>Pseudoanastatica dichotoma</i> (Boiss.) Grossh.	Anat-Tcauc-Ir-As(c)	Ar
150	<i>Colchicum laetum</i> Steven	<i>Colchicum laetum</i> Steven	Pont-Cauc	RF, Ch, Da, In, Kr, NOA, St
151	<i>Colchicum speciosum</i> Steven	<i>Colchicum speciosum</i> Steven	Med(e)	RF, Ad, Ch, Da, KB, KCh, Kr, NOA
152	<i>Colchicum trigynum</i> (Steven ex Adams) Stearn	<i>Merendera candidissima</i> Misch. ex Grossh.	Anat-Cauc-Ir	Az
153	<i>Colchicum trigynum</i>	<i>Merendera eichleri</i> (Regel) Boiss.	Anat-Cauc-Ir	St
154	<i>Colchicum trigynum</i>	<i>Merendera trigyna</i> (Adams) Woronow	Anat-Cauc-Ir	Ch, St
155	<i>Colchicum umbrosum</i> Steven	<i>Colchicum umbrosum</i> Steven	Eux	Ar, RF, Ad, In, Kr, St
156	<i>Convallaria majalis</i> L. var. <i>transcaucasica</i> (Utkin ex Grossh.) Knorring	<i>Convallaria transcaucasica</i> Utkin ex Grossh.	Euras(w)/Cauc	In, St
157	<i>Convolvulus lineatus</i> L.	<i>Convolvulus lineatus</i> L.	Med-As	Kr
158	<i>Corallorhiza trifida</i> Châtel.	<i>Corallorhiza trifida</i> Châtel.	Bor	Ar, Kr
159	<i>Coronilla cretica</i> L.	<i>Coronilla cretica</i> L.	Med	Ar
160	<i>Corydalis angustifolia</i> (M.Bieb.) DC.	<i>Corydalis angustifolia</i> (M.Bieb.) DC.	Anat-Cauc-Ir	St
161	<i>Corydalis cava</i> (L.) Schweigg. & Körte subsp. <i>marschalliana</i> (Willd.) Hayek	<i>Corydalis marschalliana</i> (Willd.) Pers.	Med(e)	Ar
162	<i>Corydalis conorhiza</i> Ledeb.	<i>Corydalis conorhiza</i> Ledeb.	Anat-Cauc	In
163	<i>Corylus colurna</i> L.	<i>Corylus iberica</i> Wittm. ex Kem.-Nath.	Med	Ar, Az, [Ge], RF, Ad, Da, KCh, Kr, NOA
164	<i>Cotinus coggygria</i> Scop.	<i>Cotinus coggygria</i> Scop.	As(s)	Ch
165	<i>Cotoneaster integerrimus</i> Medik.	<i>Cotoneaster integerrimus</i> Medik.	Med	St
166	<i>Cousinia meghrica</i> Takht.	<i>Cousinia meghrica</i> Takht.	TCauc	Ar
167	<i>Crambe cordifolia</i> Steven subsp. <i>cordifolia</i>	<i>Crambe cordifolia</i> Steven	NCauc	RF, NOA, St
168	<i>Crambe koktebelica</i> (Junge) N.Busch	<i>Crambe koktebelica</i> (Junge) N.Busch	Cr-Cauc	RF, Kr, St
169	<i>Crambe pinnatifida</i> W.T.Aiton	<i>Crambe pinnatifida</i> W.T.Aiton	Eux	Kr, St
170	<i>Crambe steveniana</i> Rupr.	<i>Crambe steveniana</i> Rupr.	Cr-Cauc	RF, Kr, St
171	<i>Crambe tatarica</i> Sebeók	<i>Crambe tatarica</i> Sebeók	Steppe	St
172	<i>Crataegus microphylla</i> K.Koch	<i>Crataegus microphylla</i> K.Koch	Med(e)	Ar
173	<i>Crocus adami</i> J.Gay	<i>Crocus adami</i> J.Gay	Cauc	RF
174	<i>Crocus reticulatus</i> Steven ex Adams	<i>Crocus variegatus</i> Hoppe & Hornsch.	Med	Ad, In
175	<i>Crocus speciosus</i> M.Bieb.	<i>Crocus speciosus</i> M.Bieb.	Med	RF, Ad, Da, Kr, St

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176	<i>Crocus vallicola</i> Herb.	<i>Crocus vallicola</i> Herb.	Anat-Cauc	RF, Ad, KCh, Kr
177	<i>Cyclamen coum</i> Mill. subsp. <i>caucasicum</i> (K.Koch) O.Schwarz	<i>Cyclamen verum</i> Sweet	Anat-Cauc	Ar, Ad, Kr
178	<i>Cyclamen elegans</i> Boiss. & Buhse	<i>Cyclamen elegans</i> Boiss. & Buhse	Tcauc-Ir	Az
179	<i>Cynanchica lipskyana</i> (V.I.Krecz.) P.Caputo & Del Guacchio	<i>Asperula lipskiana</i> V.I.Krecz.	Ncauc	Kr
180	<i>Dactylorhiza viridis</i> (L.) R.M.Bateman, Pridgeon & M.W.Chase	<i>Coeloglossum viride</i> (L.) Hartm.	Hol	St
181	<i>Danae racemosa</i> (L.) Moench	<i>Danae racemosa</i> (L.) Moench	Anat-Tcauc-Ir	Az
182	<i>Daphne mezereum</i> L.	<i>Daphne mezereum</i> L.	Euro-Sib	Ch
183	<i>Daphne pontica</i> L.	<i>Daphne pontica</i> L.	Med(e)	KCh
184	<i>Daphne pseudosericea</i> Pobed.	<i>Daphne circassica</i> Woronow ex Pobed.	Cauc	Ad, Kr
185	<i>Daphne transcaucasica</i> Pobed.	<i>Daphne transcaucasica</i> Pobed.	Anat-Tcauc-Ir	Az
186	<i>Delphinium caucasicum</i> C.A.Mey	<i>Delphinium caucasicum</i> C.A.Mey	Cauc	Da, In, KB
187	<i>Delphinium foetidum</i> Lomakin	<i>Delphinium foetidum</i> Lomakin	TCauc	Ar
188	<i>Dianthus bicolor</i> Adams	<i>Dianthus bicolor</i> Adams	Steppe	St
189	<i>Dianthus imereticus</i> (Rupr.) Schischk.	<i>Dianthus imereticus</i> (Rupr.) Schischk.	Cauc	Ch
190	<i>Dianthus kusnezowii</i> Marcow.	<i>Dianthus kusnezowii</i> Marcow.	TCauc	[Ge]
191	<i>Dianthus libanotis</i> Labill.	<i>Dianthus libanotis</i> Labill.	As(w)	Ar
192	<i>Dianthus orientalis</i> Adams	<i>Dianthus orientalis</i> Adams	Med-As(s)	Da
193	<i>Diarrhizon caucasicum</i> (Pobed.) Kit Tan	<i>Stelleropsis caucasica</i> Pobed.	Cauc	Az, RF, KB, KCh, NOA
194	<i>Dictamnus albus</i> L.	<i>Dictamnus gymnostylis</i> (Steven) Sim.	Euro-Med	St
195	<i>Digitalis nervosa</i> Steud. & Hochst. ex Benth.	<i>Digitalis nervosa</i> Steud. & Hochst. ex Benth.	Cauc-Ir	RF
196	<i>Dioscorea caucasica</i> Lipsky	<i>Dioscorea caucasica</i> Lipsky	Cauc	[Ge], RF, Kr
197	<i>Diospyros lotus</i> L.	<i>Diospyros lotus</i> L.	As(s)	Az, [Ge], RF, Da, Kr
198	<i>Diptychocarpus strictus</i> (Fisch. ex M.Bieb.) Trautv.	<i>Diptychocarpus strictus</i> (Fisch. ex M.Bieb.) Trautv.	As(s)	Ar
199	<i>Doronicum caucasicum</i> M.Bieb.	<i>Doronicum orientale</i> Hoffm.	Med	St
200	<i>Draba hispida</i> Willd.	<i>Draba hispida</i> Willd.	Anat-Cauc	Ar
201	<i>Draba longisiliqua</i> Schmalh.	<i>Draba longisiliqua</i> Schmalh.	Cauc	KB
202	<i>Draba ossetica</i> (Rupr.) Sommier & Levier	<i>Draba ossetica</i> (Rupr.) Sommier & Levier	Cauc	Ch, In
203	<i>Draba polytricha</i> Ledeb.	<i>Draba araratica</i> Rupr.	Anat-Cauc	Ar
204	<i>Dracocephalum austriacum</i> L.	<i>Dracocephalum austriacum</i> L.	Euro-Cauc(mont)	Ar
205	<i>Dracocephalum botryoides</i> Steven	<i>Dracocephalum botryoides</i> Steven	Cauc	Ar, Da
206	<i>Dracocephalum ruyschiana</i> L.	<i>Dracocephalum ruyschiana</i> L.	Euras(w)	Ch, Kr
207	<i>Dryas octopetala</i> L.	<i>Dryas caucasica</i> Juz.	Bor	Ch, St
208	<i>Echinops ritro</i> L.	<i>Echinops ritro</i> L.	Steppe	Ar

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209	<i>Epimedium pinnatum</i> Fisch. ex DC. subsp. <i>colchicum</i> (Boiss.) N.Busch	<i>Epimedium colchicum</i> (Boiss.) Trautv.	Anat-Cauc	RF, Kr
210	<i>Epipogium aphyllum</i> Sw.	<i>Epipogium aphyllum</i> Sw.	PArc	Ar, RF, Ad, Da, KCh, Kr, NOA
211	<i>Eremosparton aphyllum</i> (Pall.) Fisch. & C.A.Mey.	<i>Eremosparton aphyllum</i> (Pall.) Fisch. & C.A.Mey.	Steppe	RF, Ch, Da, St
212	<i>Eremurus spectabilis</i> M.Bieb.	<i>Eremurus spectabilis</i> M.Bieb.	Med(e)	RF, Ad, Ch, Da, KB, KCh, Kr, NOA, St
213	<i>Eremurus tauricus</i> Steven	<i>Eremurus tauricus</i> Steven	Cr-Cauc	Kr
214	<i>Eriophorum latifolium</i> Hoppe	<i>Eriophorum latifolium</i> Hoppe	Euras(dis)	Ar
215	<i>Erodium stevenii</i> M.Bieb.	<i>Erodium stevenii</i> M.B.	Cauc	RF, Kr, NOA, St
216	<i>Eryngium giganteum</i> M.Bieb.	<i>Eryngium giganteum</i> M.Bieb.	Anat-Cauc	Kr
217	<i>Erysimum callicarpum</i> Lipsky	<i>Erysimum callicarpum</i> Lipsky	NCauc	Kr
218	<i>Erythronium caucasicum</i> Woronow.	<i>Erythronium caucasicum</i> Woronow	Cauc	[Ge], RF, Ad, Kr, St
219	<i>Euonymus leiophloeus</i> Steven	<i>Euonymus leiophloeus</i> Steven	Anat-TCauc	Ad
220	<i>Euphorbia amygdaloides</i> L.	<i>Euphorbia amygdaloides</i> L.	Euro-Med	Da, Kr
221	<i>Euphorbia glareosa</i> Pall. ex M.Bieb.	<i>Euphorbia glareosa</i> Pall. ex M.Bieb.	Med(e)	St
222	<i>Euphorbia paralias</i> L.	<i>Euphorbia paralias</i> L.	Med	RF, Kr
223	<i>Euphorbia petrophila</i> C.A.Mey.	<i>Euphorbia petrophila</i> C.A.Mey	Med(e)	St
224	<i>Euphorbia szovitsii</i> Fisch. & C.A.Mey	<i>Euphorbia szovitsii</i> Fisch. & C.A.Mey	As(wc)	St
225	<i>Ferula oopoda</i> (Boiss. & Buhse) Boiss.	<i>Ferula oopoda</i> (Boiss. & Buhse) Boiss.	Ir-T	Az
226	<i>Festuca sommieri</i> Litard.	<i>Festuca longearistata</i> (Hack.) Somm.	Anat-Cauc	RF, Ad, KB, KCh, Kr
227	<i>Fibigia clypeata</i> (L.) Medik. var. <i>eriocarpa</i> (DC.) J.Thiébaud	<i>Fibigia eriocarpa</i> (DC.) Boiss.	Med(e)	Kr
228	<i>Ficus carica</i> L.	<i>Ficus hyrcana</i> Grossh.	As(w)	Az, Da, Kr
229	<i>Frankenia hirsuta</i> L.	<i>Frankenia hirsuta</i> L.	Med-As(c)	Kr
230	<i>Fritillaria caucasica</i> Adams	<i>Fritillaria caucasica</i> Adams	Anat-TCauc-Ir	RF, Ad, Da, In, NOA, St
231	<i>Fritillaria collina</i> Adams	<i>Fritillaria lutea</i> Mill.	Anat-Cauc	Ar
232	<i>Fritillaria gibbosa</i> Boiss.	<i>Rhinopetalum gibbosum</i> (Boiss.) Losinsk. & Vved.	As(w)	Ar
233	<i>Fritillaria grandiflora</i> Grossh.	<i>Fritillaria grandiflora</i> Grossh.	TCauc	Az
234	<i>Fritillaria lagodechiana</i> Kharkev	<i>Fritillaria lagodechiana</i> Kharkev.	Cauc	KCh, Kr
235	<i>Fritillaria latifolia</i> Willd	<i>Fritillaria latifolia</i> Willd.	Anat-Cauc	Ch, KB
236	<i>Fritillaria meleagroides</i> Patrin ex Schult. & Schult.f.	<i>Fritillaria meleagroides</i> Patr.	Steppe	Kr, St
237	<i>Fritillaria orientalis</i> Adams	<i>Fritillaria orientalis</i> Adams	Cauc	Ch, In
238	<i>Gagea alexeenkoana</i> Mischz.	<i>Gagea alexeenkoana</i> Mischz.	Anat-Cauc-Ir	St
239	<i>Gagea lutea</i> (L.) Ker Gawl.	<i>Gagea lutea</i> (L.) Ker Gawl.	Euras	Ar
240	<i>Gagea reticulata</i> (Pall.) Schult. & Schult.f.	<i>Gagea tenuifolia</i> (Boiss.) Fomin	Med(e)-Ir-T	St

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241	<i>Galanthus alpinus</i> Sosn. var. <i>alpinus</i>	<i>Galanthus alpinus</i> Sosn.	Anat-Cauc	Ar, RF, Ad, KCh, Kr
242	<i>Galanthus alpinus</i> var. <i>alpinus</i>	<i>Galanthus caucasicus</i> (Baker) Grossh.	Anat-Cauc	Ar, RF, Ch, St
243	<i>Galanthus alpinus</i> var. <i>bortkewitschianus</i> (Koss) A.P.Davis	<i>Galanthus bortkewitschianus</i> Koss	/Ncauc	RF, KB
244	<i>Galanthus angustifolius</i> Koss	<i>Galanthus angustifolius</i> Koss	Ncauc	RF, Ch, Da, In, KB, NOA, St
245	<i>Galanthus lagodechianus</i> Kem.-Nath.	<i>Galanthus lagodechianus</i> Kem.-Nath. (<i>G. cabardensis</i> Kem.-Nath.)	Cauc	RF, Ch, Da, In, KB, NOA
246	<i>Galanthus platyphyllus</i> Traub & Moldenke	<i>Galanthus platyphyllus</i> Traub & Moldenke (<i>G. latifolius</i> Rupr.)	Cauc	RF, Ch, Kr, NOA
247	<i>Galanthus plicatus</i> M.Bieb.	<i>Galanthus plicatus</i> M.Bieb.	Med	RF, Kr
248	<i>Galanthus rizehensis</i> Stern	<i>Galanthus rizehensis</i> Stern	Anat-Cauc	RF, Kr
249	<i>Galanthus woronowii</i> Losinsk.	<i>Galanthus woronowii</i> Losinsk.	Anat-Cauc	RF, Ad, Kr, St
250	<i>Galium valantioides</i> M.Bieb.	<i>Galium valantioides</i> M.Bieb.	TCauc	Ar
251	<i>Genista angustifolia</i> Schischk.	<i>Genista angustifolia</i> Schischk.	Ncauc	Kr, St
252	<i>Gentiana aquatica</i> L.	<i>Gentiana aquatica</i> L.	Euras(e)	Ad
253	<i>Gentiana lagodechiana</i> (Kusn.) Grossh.	<i>Gentiana lagodechiana</i> (Kusn.) Grossh.	Ncauc	Az, RF, Da
254	<i>Gentiana olivieri</i> Griseb.	<i>Gentiana olivieri</i> Griseb.	As(wc)	Ar
255	<i>Gentiana paradoxa</i> Albov	<i>Gentiana paradoxa</i> Albov	Cauc	RF, Kr
256	<i>Gentiana septemfida</i> Pall. subsp. <i>grossheimii</i> (Doluch.) Halda	<i>Gentiana grossheimii</i> Doluch.	Cauc	Ch, Da, In
257	<i>Gentiana verna</i> L. subsp. <i>oschtenica</i> (Kusn.) Halda	<i>Gentiana oschtenica</i> (Kusn.) Kusn.	Cauc	Ad, St
258	<i>Geranium albanum</i> M.Bieb.	<i>Geranium albanum</i> M.Bieb.	Cauc-Ir	Ar
259	<i>Gladiolus tenuis</i> M.Bieb.	<i>Gladiolus tenuis</i> M.Bieb.	Pont-Cauc	Ad, Ch, Kr, St
260	<i>Glaucium flavum</i> Crantz	<i>Glaucium flavum</i> Crantz	Euro-Med	RF, Kr
261	<i>Globularia trichosantha</i> Fisch. & C.A.Mey.	<i>Globularia trichosantha</i> Fisch. & C.A.Mey.	Med(e)	Az, [Ge], RF, Ad, Kr
262	<i>Goodyera repens</i> (L.) R.Br.	<i>Goodyera repens</i> (L.) R.Br.	Hol	Ad, In, KB, Kr
263	<i>Gundelia tournefortii</i> L.	<i>Gundelia tournefortii</i> L.	As(w)	Az
264	<i>Gymnadenia conopsea</i> (L.) R.Br.	<i>Gymnadenia conopsea</i> (L.) R.Br.	Euras	In, KB, St
265	<i>Gypsophila acutifolia</i> Steven ex Spreng.	<i>Gypsophila acutifolia</i> Fisch. ex Spreng.	Eux	St
266	<i>Gypsophila aretioides</i> Boiss.	<i>Gypsophila aretioides</i> Boiss.	Cauc-Ir	Ar
267	<i>Gypsophila glomerata</i> Pall. ex Adams	<i>Gypsophila globulosa</i> Steven ex Boiss.	Steppe	KCh, St
268	<i>Hablitzia tamnoides</i> M.Bieb.	<i>Hablitzia tamnoides</i> M.Bieb.	Anat-Cauc-Ir	Ch, St
269	<i>Halocnemum strobilaceum</i> (Pall.) M.Bieb.	<i>Halocnemum strobilaceum</i> (Pall.) M.Bieb.	Desert	Ar
270	<i>Haplophyllum villosum</i> (M.Bieb.) G.Don	<i>Haplophyllum villosum</i> (Boiss.) G.Don	Anat-Cauc-Ir	Ch, St
271	<i>Hedera colchica</i> (K.Koch.) K. Koch.	<i>Hedera colchica</i> (K.Koch.) K.Koch.	Anat-Cauc	NOA
272	<i>Hedera pastuchovii</i> Woronow	<i>Hedera pastuchovii</i> Woronow	Cauc-Ir	Az, [Ge], RF, Ch, Da
273	<i>Hedlundia armeniaca</i> (Hedl.) Mezhenkyj	<i>Sorbus caucasica</i> Zinserl.	Anat-Cauc	Ar, Da, NOA

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274	<i>Helichrysum arenarium</i> (L.) Moench	<i>Helichrysum arenarium</i> (L.) Moench	Euras(w)	Ch, Kr
275	<i>Heliotropium sibiricum</i> (L.) J.I.M.Melo	<i>Argusia sibirica</i> (L.) Dandy	Euras	Kr
276	<i>Helleborus orientalis</i> Lam.	<i>Helleborus caucasicus</i> A.Braun	Med(e)	Ch, Da, KB, KCh, Kr, St
277	<i>Herminium monorchis</i> (L.) R.Br.	<i>Herminium monorchis</i> (L.) R.Br.	Euras	In, KB, St
278	<i>Hippophae rhamnoides</i> L.	<i>Hippophae rhamnoides</i> L.	Euras(s)	[Ge], Ch
279	<i>Hohenackeria exscapa</i> (Steven) Grande	<i>Hohenackeria exscapa</i> (Steven) Koso-Pol.	Med	Ar
280	<i>Hypericum androsaemum</i> L.	<i>Hypericum androsaemum</i> L.	Med	Kr
281	<i>Hypericum lydiu</i> m Boiss.	<i>Hypericum lydiu</i> m Boiss.	Med(e)	Kr
282	<i>Hypericum montbretii</i> Spach	<i>Hypericum montbretii</i> Spach	Med(e)	RF, Kr
283	<i>Iberis simplex</i> DC.	<i>Iberis taurica</i> DC.	Eux	KB, Kr, St
284	<i>Ilex colchica</i> Pojark.	<i>Ilex colchica</i> Pojark.	Eux	Ad, KCh, NOA
285	<i>Ilex spinigera</i> (Loes.) Loes.	<i>Ilex hyrcana</i> Pojark.	Cauc-Ir	Az, RF, Da
286	<i>Ilex stenocarpa</i> Pojark.	<i>Ilex stenocarpa</i> Pojark.	NCAuc	NOA
287	<i>Imperata cylindrica</i> (L.) Raeusch.	<i>Imperata cylindrica</i> (L.) Raeusch.	Med-Af	Da, St
288	<i>Iris acutiloba</i> C.A.Mey subsp. <i>acutiloba</i>	<i>Iris acutiloba</i> C.A.Mey	Anat-Cauc-Ir	Az, RF, Da
289	<i>Iris acutiloba</i> subsp. <i>lineolata</i> (Trautv.) B.Mathew & Wendelbo	<i>Iris lineolata</i> (Trautv.) Grossh.	Anat-Tcauc-Ir-As(c)	Ar
290	<i>Iris aphylla</i> L.	<i>Iris aphylla</i> L.	Euro	RF, Ad, In, KCh
291	<i>Iris caucasica</i> M.Bieb.	<i>Iris caucasica</i> Hoffm.	As(w)	RF
292	<i>Iris colchica</i> Kem.-Nath.	<i>Iris colchica</i> Kem.-Nath.	Cauc	Kr, St
293	<i>Iris furcata</i> M.Bieb.	<i>Iris furcata</i> M.Bieb.	Anat-Cauc	Da, Kr, St
294	<i>Iris halophila</i> Pall.	<i>Iris halophila</i> Pall.	Steppe	KB, Kr, St
295	<i>Iris iberica</i> Steven	<i>Iris iberica</i> Hoffm.	Anat-Cauc-Ir	Ar, Az, [Ge]
296	<i>Iris iberica</i>	<i>Iris elegantissima</i> Sosn.	Anat-Cauc-Ir	Ar, Az
297	<i>Iris lycotis</i> Woronow	<i>Iris lycotis</i> Woronow	Anat-Tcauc-Ir	Ar, Az
298	<i>Iris paradoxa</i> Steven	<i>Iris paradoxa</i> Steven	Anat-Tcauc-Ir	Az
299	<i>Iris pseudacorus</i> L.	<i>Iris pseudacorus</i> L.	Euro-Med	Ch, Da, NOA, St
300	<i>Iris pseudocaucasica</i> Grossh.	<i>Iris pseudocaucasica</i> Grossh.	Anat-Tcauc-Ir	Ar
301	<i>Iris pumila</i> L.	<i>Iris pumila</i> L. (<i>I. taurica</i> Lodd.)	Steppe	Da, In, KB, KCh, Kr, NOA, St
302	<i>Iris reticulata</i> M.Bieb.	<i>Iridodictyum reticulatum</i> (M.Bieb.) Rodion	As(w)	Az, RF, Da
303	<i>Iris spuria</i> L. subsp. <i>musulmanica</i> (Fomin) Takht.	<i>Iris musulmanica</i> Fomin	Anat-Tcauc-Ir	Ar
304	<i>Iris timofejewii</i> Woronow	<i>Iris timofejewii</i> Woronow	NCAuc	RF, Da
305	<i>Isatis glastifolia</i> (Fisch. & C.A.Mey.) Al-Shehbaz, Moazzeni & Mumm.	<i>Sameraria glastifolia</i> Boiss.	Anat-Tcauc-Ir	Ar

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306	<i>Isatis takhtajanii</i> Avet.	<i>Isatis takhtajanii</i> Avet.	Anat-Tcauc-Ir	Ar
307	<i>Jurinea alata</i> Cass.	<i>Jurinea alata</i> (Desf) Cass	Cauc	St
308	<i>Jurinea blanda</i> (M.Bieb.) C.A.Mey.	<i>Jurinea blanda</i> (M.Bieb.) C.A.Mey.	Anat-Cauc	Kr
309	<i>Jurinea coronopifolia</i> Sommier & Levier	<i>Jurinea coronopifolia</i> Sommier & Levier	NCauc	KB
310	<i>Jurinea elegans</i> (Steven) DC.	<i>Jurinea elegans</i> (Steven) DC.	TCauc	Ar
311	<i>Jurinea ewersmannii</i> Bunge	<i>Jurinea ewersmannii</i> Bunge	Steppe	St
312	<i>Jurinea levieri</i> Albov	<i>Jurinea levieri</i> Albov	Cauc	Ad, Kr
313	<i>Jurinea sosnowskyi</i> Grossh.	<i>Jurinea sosnowskyi</i> Grossh.	NCauc	Kr
314	<i>Klasea radiata</i> (Waldst. & Kit.) Á.Löve & D.Löve	<i>Serratula radiata</i> (Waldst. & Kit.) DC.	Steppe	Kr
315	<i>Lactuca takhtadzhianii</i> Sosn.	<i>Lactuca takhtadzhianii</i> Sosn.	Cauc-Ir	Ar, Az
316	<i>Lathyrus formosus</i> (Steven) Kenicer	<i>Vavilovia formosa</i> (Steven) Fed.	As(w)	Ar, RF, Ch, Da, In, KB, KCh, NOA
317	<i>Lathyrus oleraceus</i> Lam.	<i>Pisum elatius</i> M.Bieb.	Med	Kr
318	<i>Lathyrus sylvestris</i> L.	<i>Lathyrus sylvestris</i> L.	Euro	Ar
319	<i>Leontice armeniaca</i> Boivin	<i>Leontice minor</i> Boiss.	As(w)	Ar
320	<i>Leptopus chinensis</i> (Bunge) Pojark.	<i>Andrachne colchica</i> Pojark.	As(s)	[Ge], RF, Kr
321	<i>Leucojum aestivum</i> L.	<i>Leucojum aestivum</i> L.	Med	RF, Ad, Kr
322	<i>Lilium kesselringianum</i> Misch.	<i>Lilium kesselringianum</i> Misch.	Anat-Cauc	RF, Ad, KCh, Kr
323	<i>Lilium ledebourii</i> (Baker) Boiss.	<i>Lilium ledebourii</i> (Baker) Boiss.	Tcauc-Ir	Az
324	<i>Lilium martagon</i> L.	<i>Lilium caucasicum</i> (Misch.) Grossh.	Euro-Sib/ Anat-Cauc	[Ge], RF, Ad, Kr
325	<i>Lilium monadelphum</i> Adams	<i>Lilium monadelphum</i> M.Bieb.	Cr-Cauc	[Ge], Ch, Da, In, KB, KCh, St
326	<i>Linum flavum</i> L.	<i>Linum flavum</i> L.	Steppe	KCh
327	<i>Lomatogonium carinthiacum</i> (Wulfen) A.Braun	<i>Lomatogonium carinthiacum</i> (Wulfen) A.Braun	PArc	Ar
328	<i>Lomelosia micrantha</i> (Desf.) Greuter & Burdet	<i>Scabiosa micrantha</i> Desf.	Med-As(c)	St
329	<i>Lomelosia olgae</i> (Albov) Soják	<i>Scabiosa olgae</i> Albov	Cauc	[Ge], Kr
330	<i>Matthiola caspica</i> (N.Busch) Grossh.	<i>Matthiola caspica</i> (N.Busch) Grossh.	Cauc	Da, St
331	<i>Matthiola odoratissima</i> (M.Bieb.) W.T.Aiton	<i>Matthiola odoratissima</i> (M.Bieb.) W.T.Aiton	Eux	Kr
332	<i>Medicago arabica</i> (L.) Huds.	<i>Medicago arabica</i> (L.) Huds.	Med	Ar
333	<i>Medicago cancellata</i> M.Bieb.	<i>Medicago cancellata</i> M.Bieb.	Steppe	RF, St
334	<i>Memoremea scorpioides</i> (Haenke) A.Otero, Jim.Mejías, Valcárcel & P.Vargas	<i>Omphalodes scorpioides</i> (Haenke) Schrank	Euro	St
335	<i>Molinia arundinacea</i> Schrank	<i>Molinia litoralis</i> Host	Euro-Med	[Ge]
336	<i>Muscari armeniacum</i> H.J.Veitch	<i>Muscari szovitsianum</i> Baker	Med(e)	Ch, St
337	<i>Muscari coeruleum</i> Losinsk.	<i>Muscari coeruleum</i> Losinsk.	Cauc	RF, Ad, KCh, Kr, NOA
338	<i>Muscari pallens</i> (M.Bieb) Fisch.	<i>Muscari pallens</i> (M.Bieb) Fisch.	Cauc	Ar, Ad, Kr

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339	<i>Myosotis propinqua</i> (Turcz.) Fisch. & C.A.Mey.	<i>Myosotis propinqua</i> (Turcz) DC.	Anat-Tcauc-Ir	Ar
340	<i>Neotinea tridentata</i> (Scop.) R.M.Bateman, Pridgeon & M.W.Chase	<i>Orchis tridentata</i> Scop.	Med	Ar, RF, Ad, Ch, Da, In, KB, KCh, Kr, NOA, St
341	<i>Neotinea ustulata</i> (L.) R.M.Bateman, Pridgeon & M.W.Chase	<i>Orchis ustulata</i> L.	Euro-Med	RF, Ch, Da, KB, KCh, Kr, NOA, St
342	<i>Neottia cordata</i> (L.) Rich.	<i>Listera cordata</i> (L.) R.Br.	Bor	Ad, Da, Kr
343	<i>Neottia nidus-avis</i> (L.) Rich.	<i>Neottia nidus-avis</i> (L.) Rich.	Parct(w)	St
344	<i>Neottia ovata</i> (L.) Hartm.	<i>Listera ovata</i> (L.) R.Br.	PArc	Ar, Ad, Ch, In, KB, Kr, St
345	<i>Nepeta ucranica</i> L. subsp. <i>parviflora</i> (M.Bieb.) M.Masclans	<i>Nepeta parviflora</i> M.Bieb.	Steppe	Kr
346	<i>Noccaea boissieri</i> (Bornm.) D.A.German	<i>Coluteocarpus vesicaria</i> (L.) Holmboe	As(w)	Da
347	<i>Noccaea germanii</i> Al-Shehbaz	<i>Eunomia rotundifolia</i> C.A. Mey.	Cauc	Ar
348	<i>Noccaea umbellata</i> (F.K.Mey.) Al-Shehbaz	<i>Thlaspi umbellatum</i> Steven ex DC.	Cauc-Ir	Ar
349	<i>Nonea rosea</i> (M.Bieb.) Link	<i>Nonea rosea</i> (M.Bieb.) Link	Anat-Cauc-Ir	Ar
350	<i>Odontarrhena obtusifolia</i> (Steven ex DC.) C.A.Mey.	<i>Alyssum obtusifolium</i> Steven ex DC.	Med(e)	St
351	<i>Onobrychis arenaria</i> (Kit.) DC.	<i>Onobrychis tanaitica</i> Spreng.	Euras	Kr
352	<i>Onobrychis hajastana</i> Grossh.	<i>Onobrychis hajastana</i> Grossh.	Anat-Tcauc	Ar
353	<i>Onobrychis hamata</i> Vassilcz.	<i>Onobrychis hamata</i> Vassilcz.	Ncauc	St
354	<i>Onobrychis meschetica</i> Grossh.	<i>Onobrychis meschetica</i> Grossh.	Tcauc	Ar
355	<i>Onobrychis vassilczenkoi</i> Grossh.	<i>Onobrychis vassiltschenkoi</i> Grossh.	Steppe	Kr
356	<i>Ononis pusilla</i> L.	<i>Ononis pusilla</i> L.	Med	Da, St
357	<i>Onosma isaurica</i> Boiss. & Heldr.	<i>Onosma sericea</i> Willd.	Anat-Cauc	Da
358	<i>Ophrys apifera</i> Huds.	<i>Ophrys apifera</i> Huds.	Euro-Med	Ar, RF, Kr
359	<i>Ophrys scolopax</i> Cav. subsp. <i>cornuta</i> (Steven) E.G.Camus	<i>Ophrys oestriifera</i> M.Bieb.	Med	RF, Da, Kr, St
360	<i>Ophrys sphegodes</i> Mill. subsp. <i>taurica</i> (Aggeenko) Soó ex Niketić & Djordjevic	<i>Ophrys caucasica</i> Woronow ex Grossh.	Med(e)	Az, RF, Da, Kr
361	<i>Orchis mascula</i> (L.) L.	<i>Orchis mascula</i> (L.) L.	Euro-Med	RF, Ad, Ch, Da, In, KB, KCh, Kr, NOA, St
362	<i>Orchis militaris</i> L. subsp. <i>militaris</i>	<i>Orchis militaris</i> L.	Euras	RF, Ad, Ch, Da, In, KB, KCh, Kr, NOA, St
363	<i>Orchis militaris</i> subsp. <i>stevenii</i> (Rchb.f.) B.Baumann, H.Baumann, R.Lorenz & Ruedi Peter	<i>Orchis stevenii</i> Rchb.	Med(e)	Ar, RF
364	<i>Orchis pallens</i> L.	<i>Orchis pallens</i> L.	Med	RF, Ad, Kr
365	<i>Orchis provincialis</i> Balb. ex Lam. & DC.	<i>Orchis provincialis</i> Balb. ex DC.	Med	RF, Kr
366	<i>Orchis punctulata</i> Steven ex Lindl.	<i>Orchis punctulata</i> Rchb.	Med(e)	Ar, RF, Kr

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367	<i>Orchis purpurea</i> Huds. subsp. <i>caucasica</i> (Regel) B.Baumann, H.Baumann, R.Lorenz & Ruedi Peter	<i>Orchis purpurea</i> Huds	Med(e)	Az, RF, Ad, Ch, Da, In, KB, Kr, NOA, St
368	<i>Orchis simia</i> Lam.	<i>Orchis simia</i> Lam.	Euro-Med	RF, Ad, Ch, Da, In, KB, Kr, St
369	<i>Ornithogalum arcuatum</i> Steven	<i>Ornithogalum arcuatum</i> Steven	Med(e)	Ch, In, St
370	<i>Ornithogalum hyrcanum</i> Grossh.	<i>Ornithogalum hyrcanum</i> Grossh.	Cauc-Ir	Az
371	<i>Orobancha gamosepala</i> Reut.	<i>Orobancha gamosepala</i> Reut.	Anat-Cauc	Kr
372	<i>Orthilia secunda</i> (L.) House	<i>Pyrola secunda</i> L.	Hol	Ar, St
373	<i>Ostrya carpinifolia</i> Scop.	<i>Ostrya carpinifolia</i> Scop.	Med	Ge, RF, Ad, Ch, KB, KCh, Kr, NOA, St
374	<i>Pachyphragma macrophyllum</i> (Hoffm.) N.Busch	<i>Pachyphragma macrophyllum</i> (Hoffm.) N.Busch	Anat-Cauc	Ar
375	<i>Paeonia daurica</i> Andrews. subsp. <i>corifolia</i> (Rupr.) D.Y.Hong	<i>Paeonia caucasica</i> (Schipcz.) Schipcz.	Cauc	RF, Ad, KCh, Kr, NOA, St
376	<i>Paeonia daurica</i> subsp. <i>mlokosewitschii</i> (Lomakin) D.Y.Hong	<i>Paeonia mlokosewitschii</i> Lomakin	Cauc	Az, [Ge], RF, Da
377	<i>Paeonia daurica</i> subsp. <i>wittmanniana</i> (Hartwiss ex Lindl.) D.Y.Hong	<i>Paeonia wittmanniana</i> Hartwiss ex Lindl.	Cauc	[Ge], RF, KCh, Kr
378	<i>Paeonia mascula</i> (L.) Mill.	<i>Paeonia kavachensis</i> Aznav.	Med	RF
379	<i>Paeonia tenuifolia</i> L.	<i>Paeonia tenuifolia</i> L.	Steppe	Ar, RF, Ch, Da, In, KB, KCh, Kr, NOA, St
380	<i>Papaver bracteatum</i> Lindl.	<i>Papaver bracteatum</i> Lindl.	Anat-Cauc-Ir	RF, Ch, In, KB, NOA, St
381	<i>Papaver oreophilum</i> Rupr.	<i>Papaver oreophilum</i> Rupr.	Cauc	Ad
382	<i>Papaver orientale</i> L.	<i>Papaver orientale</i> L.	As(w)	Kr
383	<i>Papaver orientale</i> var. <i>paucifoliatum</i> Trautv.	<i>Papaver paucifoliatum</i> (Trautv.) Fedde	Anat-Cauc-Ir	Da
384	<i>Paris incompleta</i> M.Bieb.	<i>Paris incompleta</i> M.Bieb.	Anat-Cauc	St
385	<i>Parrotia persica</i> (DC.) C.A.Mey	<i>Parrotia persica</i> (DC.) C.A.Mey	Tcauc-Ir	Az
386	<i>Pedicularis wilhelmsiana</i> Fisch. ex M.Bieb.	<i>Pedicularis wilhelmsiana</i> Fisch. ex M.Bieb.	Anat-Cauc-Ir	St
387	<i>Peltariopsis planisiliqua</i> (Boiss.) N.Busch	<i>Peltariopsis planisitiana</i> (Boiss.) N.Busch	Anat-Tcauc-Ir	Ar
388	<i>Periploca graeca</i> L.	<i>Periploca graeca</i> L.	Med	Ch, St
389	<i>Phedimus stoloniferus</i> (S.G.Gmel.) 't Hart	<i>Sedum stoloniferum</i> S.G.Gmel.	Anat-Cauc-Ir	Ar
390	<i>Phlomis herba-venti</i> L. subsp. <i>pungens</i> (Willd.) Maire ex DeFilipps	<i>Phlomis pungens</i> Willd.	Med	Kr
391	<i>Physochlaina orientalis</i> (M.Bieb.) G.Don	<i>Physochlaina orientalis</i> (M.Bieb.) G.Don	Anat-Cauc-Ir	St
392	<i>Physoptychis caspica</i> (Hablitz) Botsch.	<i>Physoptychis gnaphalodes</i> (DC.) Boiss.	Anat-Cauc-Ir	Ar, Az
393	<i>Pistacia atlantica</i> Desf.	<i>Pistacia mutica</i> Fisch.& C.A.Mey	Med	Ge, RF, Kr
394	<i>Platanthera bifolia</i> (L.) Rich.	<i>Platanthera bifolia</i> (L.) Rich.	Euro-Sib	Ad, In, Kr, St
395	<i>Platanthera chlorantha</i> (Custer) Rchb.	<i>Platanthera chlorantha</i> (Custer) Rchb.	Euro-Med	Ad, In, KB, Kr, St
396	<i>Pontechium maculatum</i> (L.) Böhle & Hilger	<i>Echium russicum</i> S.G.Gmel.	Med	Kr
397	<i>Potentilla camillae</i> Kolak.	<i>Potentilla camillae</i> Kolak.	Cauc	Kr

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398	<i>Potentilla divina</i> Albov	<i>Potentilla divina</i> Albov	Anat-Cauc	Ad, KB, Kr
399	<i>Potentilla taurica</i> Willd. ex D.F.K.Schltl.	<i>Potentilla taurica</i> Willd.	Cr-Cauc	Kr
400	<i>Primula amoena</i> M.Bieb	<i>Primula amoena</i> M.Bieb.	Cauc	Ar, Ch, In, St
401	<i>Primula cordifolia</i> Rupr.	<i>Primula cordifolia</i> Rupr.	Cauc	Ar
402	<i>Primula juliae</i> Kusn.	<i>Primula juliae</i> Kusn.	Cauc	Az, [Ge], RF, Da
403	<i>Primula vulgaris</i> L. subsp. <i>rubra</i> (Sm.) Arcang.	<i>Primula komarovii</i> A.Les.	Med(e)/Cauc	Ar
404	<i>Primula vulgaris</i> subsp. <i>rubra</i>	<i>Primula sibthorpii</i> Hoffmanns.	Med(e)/Cauc	Da, In
405	<i>Prometheum pilosum</i> (M.Bieb.) H.Ohba	<i>Sedum pilosum</i> M.Bieb.	Anat-Cauc-Ir	KB, St
406	<i>Prunus incana</i> (Pall.) Batsch	<i>Cerasus incana</i> (Pall.) Spach	As(w)	Ch, In, NOA, St
407	<i>Prunus laurocerasus</i> L.	<i>Laurocerasus officinalis</i> Roem.	Med(e)	Az
408	<i>Prunus mahaleb</i> L.	<i>Cerasus mahaleb</i> (L.) Mill	Med	Kr
409	<i>Prunus padus</i> L.	<i>Padus racemosa</i> (Lam.) Gilib.	PArct	Az
410	<i>Prunus tenella</i> Batsch	<i>Amygdalus nana</i> L.	Steppe	Ch, KB, Kr
411	<i>Psephellus barbeyi</i> Albov	<i>Psephellus barbeyi</i> Albov	Cauc	Kr
412	<i>Psephellus czirkeiensis</i> (Husseinov) Greuter	<i>Centaurea daghestanica</i> (Lipsky) Wagenitz	TCauc	Da
413	<i>Psephellus leucophyllus</i> (M.Bieb.) C.A.Mey.	<i>Psephellus leucophyllus</i> (M.Bieb.) C.A.Mey.	NCauc	St
414	<i>Psephellus trinervius</i> (Stephan ex Willd.) Wagenitz	<i>Centaurea trinervia</i> Stephan ex Willd.	Eux	Kr
415	<i>Pseudopodospermum leptophyllum</i> (DC.) Kuth.	<i>Scorzonera leptophylla</i> (DC.) Grossh.	Anat-Tcauc-Ir	[Ge]
416	<i>Pseudovesicaria digitata</i> (C.A.Mey) Rupr.	<i>Pseudovesicaria digitata</i> (C.A.Mey) Rupr.	Med(e)	Ar, Az, RF, Ch, Da, In, KB, KCh, NOA
417	<i>Pterocarya fraxinifolia</i> (Poir.) Spach	<i>Pterocarya pterocarpa</i> (Michx.) Delchev.	Anat-Cauc-Ir	Az, [Ge], RF, Da, Kr
418	<i>Pulsatilla albana</i> (Steven) Bercht. & J.Presl	<i>Pulsatilla albana</i> (Steven) Bercht. & J.Presl	Cauc-Ir	In, St
419	<i>Punica granatum</i> L.	<i>Punica granatum</i> L.	As(w)	Az, [Ge], Da, Kr
420	<i>Puschkinia scilloides</i> Adams	<i>Puschkinia scilloides</i> Adams	As(w)	Da, St
421	<i>Pyracantha coccinea</i> M.Roem.	<i>Pyracantha coccinea</i> M.Roem.	Med	Az, Ad, Da
422	<i>Pyrola rotundifolia</i> L.	<i>Pyrola rotundifolia</i> L.	PArct	St
423	<i>Pyrus salicifolia</i> Pall.	<i>Pyrus salicifolia</i> Pall.	Anat-Cauc-Ir	Ch
424	<i>Quercus castaneifolia</i> C.A.Mey	<i>Quercus castaneifolia</i> C.A.Mey	Med(e)	Az
425	<i>Quercus hartwissiana</i> Steven	<i>Quercus hartwissiana</i> Steven	Eux	Ge, KCh
426	<i>Quercus macranthera</i> Fisch. & C.A.Mey. ex Hohen.	<i>Quercus macranthera</i> Fisch.	Med(e)	Ge, Kr
427	<i>Quercus pontica</i> K.Koch	<i>Quercus pontica</i> K.Koch	Anat-TCauc	Ge
428	<i>Quercus robur</i> L. subsp. <i>imeretina</i> (Steven ex Woronow) Menitsky	<i>Quercus imeretina</i> Steven ex Woronow	Cauc	Ge
429	<i>Ranunculus helenae</i> Albov	<i>Ranunculus helenae</i> Albov	Cauc	RF, Ad, Kr
430	<i>Ranunculus illyricus</i> L.	<i>Ranunculus illyricus</i> L.	Med	Kr
431	<i>Ranunculus suukensis</i> N.Busch	<i>Ranunculus suukensis</i> N.Busch	Cauc	Kr
432	<i>Ranunculus tuberosus</i> Lapeyr.	<i>Ranunculus nemorosus</i> DC.	Euro	St

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433	<i>Rhamnus imeretina</i> J.R.Booth ex G.Kirchn.	<i>Rhamnus imeretina</i> Koehne	Anat-Cauc	Kr
434	<i>Rhizocephalus orientalis</i> Boiss.	<i>Rhizocephalus orientalis</i> Boiss.	As(w)	Ar
435	<i>Rhododendron caucasicum</i> Pall.	<i>Rhododendron caucasicum</i> L.	Anat-Cauc	Ar, Az, Ch, In, KB
436	<i>Rhododendron luteum</i> Sweet	<i>Rhododendron luteum</i> Sweet	Euro-Med	Az, Ch, St
437	<i>Rhododendron ponticum</i> L.	<i>Rhododendron ponticum</i> L.	Med	KCh
438	<i>Ribes uva-crispa</i> L.	<i>Grossularia reclinata</i> (L.) Mill.	Euro-Med	Ch
439	<i>Rindera tetraspis</i> Pall.	<i>Rindera tetraspis</i> Pall.	Steppe	Ch, Kr, St
440	<i>Roemeria refracta</i> DC.	<i>Roemeria refracta</i> DC.	As(c)	In, St
441	<i>Rosa iberica</i> Steven ex M.Bieb.	<i>Rosa iberica</i> Steven	Med(e)	Kr
442	<i>Rosa oxyodon</i> Boiss.	<i>Rosa oxyodon</i> Boiss.	Cauc	Ch
443	<i>Ruscus colchicus</i> Yeo	<i>Ruscus hypophyllum</i> auct. non L.	Anat-Cauc	RF, Ad, Kr,
444	<i>Ruscus hyrcanus</i> Woronow	<i>Ruscus hyrcanus</i> Woronow	Med(e)	Az
445	<i>Salvia aethiopis</i> L.	<i>Salvia aethiopis</i> L.	Med	Kr
446	<i>Salvia nutans</i> L.	<i>Salvia nutans</i> L.	Steppe	Kr, St
447	<i>Salvia verbascifolia</i> M.Bieb.	<i>Salvia verbascifolia</i> M.Bieb.	Cauc	Da
448	<i>Samolus valerandi</i> L.	<i>Samolus valerandi</i> L.	Parct-Af	St
449	<i>Saxifraga columnaris</i> Schmalh. ex Akinf.	<i>Saxifraga columnaris</i> Schmalh.	NCauc	RF, Ch, In, KB, NOA
450	<i>Saxifraga dinnikii</i> Schmalh. ex Akinf.	<i>Saxifraga dinnikii</i> Schmalh.	NCauc	RF, In, KB, NOA
451	<i>Saxifraga flagellaris</i> Willd. ex Sternb.	<i>Saxifraga flagellaris</i> Willd.	Hol(arcto-alp)	St
452	<i>Saxifraga scleropoda</i> Sommier & Levier.	<i>Saxifraga scleropoda</i> Sommier & Levier	NCauc	Kr
453	<i>Saxifraga tridactylites</i> L.	<i>Saxifraga tridactylites</i> L.	Med	Ar
454	<i>Scilla bifolia</i> L.	<i>Scilla bifolia</i> L.	Euro-Med	Ad
455	<i>Scilla monanthos</i> K.Koch	<i>Scilla monanthos</i> K.Koch	Med(e)	Kr
456	<i>Scilla rosenii</i> K.Koch	<i>Scilla rosenii</i> K.Koch	Anat-TCauc	Ar
457	<i>Sclerochloa woronowii</i> (Hack.) Tzvelev	<i>Scleropoa woronowii</i> Hack.	As(w)	Ar
458	<i>Scopolia caucasica</i> Kolesn. ex Kreyer	<i>Scopolia caucasica</i> Kolesn.	NCauc	Ad
459	<i>Scrophularia atropatana</i> Grossh.	<i>Scrophularia atropatana</i> Grossh.	Anat-Tcauc-Ir	Ar
460	<i>Scrophularia chrysantha</i> Jaub. & Spach	<i>Scrophularia chrysantha</i> Jaub. & Spach	Anat-TCauc	Kr
461	<i>Scrophularia lateriflora</i> Trautv.	<i>Scrophularia lateriflora</i> Trautv.	Cauc	Kr
462	<i>Scrophularia rupestris</i> M.Bieb. ex Willd.	<i>Scrophularia rupestris</i> M.Bieb.	Med(e)	Kr
463	<i>Scutellaria caucasica</i> A.Ham.	<i>Scutellaria polyodon</i> Juz.	NCauc	St
464	<i>Seseli ponticum</i> Lipsky	<i>Seseli ponticum</i> Lipsky	Cauc	KCh
465	<i>Silene chlorifolia</i> Sm.	<i>Silene chlorifolia</i> Sm.	Med(e)	In
466	<i>Silene coronaria</i> (L.) Clairv.	<i>Lychnis coronaria</i> (L.) Desr.	Med	Ar
467	<i>Silene hoefftiana</i> Fisch. & C.A.Mey.	<i>Petrocoma hoefftiana</i> (Fisch. & C.A.Mey.) Rupr.	NCauc	Ch, Da, In, KB, St
468	<i>Silene meyeri</i> Fenzl ex Boiss. & Buhse	<i>Silene meyeri</i> Fenzl	Cauc-Ir	Ar

Rare plant species of the Caucasian flora in the KWA herbarium

No	Accepted taxon name	Name on KWA specimens	Range	Protection
469	<i>Silene pygmaea</i> Adams	<i>Silene pygmaea</i> Adams	Cauc	[Ge], Kr
470	<i>Smilax excelsa</i> L.	<i>Smilax excelsa</i> L.	Med(e)	Ar, Da
471	<i>Smyrniopsis aucheri</i> Boiss.	<i>Smyrniopsis aucheri</i> Boiss.	Anat-Tcauc-Ir	Az
472	<i>Soda inermis</i> Fourr.	<i>Salsola soda</i> L.	Med-As(c)	Ar
473	<i>Sorbus hajastana</i> Gabrieljan	<i>Sorbus hajastana</i> Gabrieljan	TCauc	Ar
474	<i>Sorbus kusnetzovii</i> Zinserl.	<i>Sorbus kusnetzovii</i> Zinserl.	Anat-Cauc	Da
475	<i>Sorbus subfusca</i> (Ledeb. ex Nordm.) Boiss.	<i>Sorbus subfusca</i> (Ledeb.) Boiss.	Anat-Cauc	Ad, Da
476	<i>Stachys cretica</i> L.	<i>Stachys cretica</i> L.	Med	Kr
477	<i>Stachys iberica</i> M.Bieb.	<i>Stachys iberica</i> M.Bieb.	Med(e)	Kr
478	<i>Staphylea colchica</i> Steven	<i>Staphylea colchica</i> Steven	Cauc	Az, Ge, RF, Ad, Kr
479	<i>Staphylea pinnata</i> L.	<i>Staphylea pinnata</i> L.	Med	Ar, [Ge], Ad, Kr
480	<i>Sterigmotemum elichrysifolium</i> (DC.) D.A.German & Al-Shehbaz	<i>Anchonium elichrysifolium</i> (DC.) Boiss.	As(w)	[Ge]
481	<i>Sternbergia vernalis</i> (Mill.) Gorer & J.H.Harvey	<i>Sternbergia fischeriana</i> (Herb.) Roem.	Med(e)	Ar, Az
482	<i>Steveniella satyrioides</i> (Spreng.) Schltr.	<i>Steveniella satyrioides</i> (Spreng.) Schltr.	Med(e)	Ar, Az, RF, Ad, Da, Kr
483	<i>Stipa caucasica</i> Schmalh.	<i>Stipa caucasica</i> Schmalh.	Cauc-Ir	Ch, KCh, St
484	<i>Stipa lessingiana</i> Trin. et Rupr.	<i>Stipa lessingiana</i> Trin. et Rupr.	Steppe-Desert	KB, Kr
485	<i>Stipa pennata</i> L.	<i>Stipa pennata</i> L.	Steppe-Desert	Ad, Ch, Da, In, KB, KCh, Kr, NOA, St
486	<i>Stipa pulcherrima</i> K.Koch	<i>Stipa pulcherrima</i> K.Koch	Steppe-Desert	RF, Ad, Ch, Da, In, KCh, Kr, NOA, St
487	<i>Symphyoloma graveolens</i> C.A. Mey.	<i>Symphyoloma graveolens</i> C.A. Mey.	Cauc	Ch, In, KB, NOA
488	<i>Tanacetum vulgare</i> L.	<i>Tanacetum vulgare</i> L.	PArct	Ch
489	<i>Tanacetum zangezuricum</i> Chandjian	<i>Pyrethrum komarovii</i> Sosn.	TCauc	Ar, Az
490	<i>Telekia speciosa</i> (Schreb.) Baumg.	<i>Telekia speciosa</i> (Schreb.) Baumg.	Med(e)	Az, St
491	<i>Tetradiclis tenella</i> (Ehrenb.) Litv.	<i>Tetradiclis tenella</i> (Ehrenb.) Litv.	Med(e)	St
492	<i>Teucrium hircanicum</i> L.	<i>Teucrium hircanicum</i> L.	Anat-Cauc-Ir	Ar
493	<i>Thesium procumbens</i> C.A.Mey.	<i>Thesium procumbens</i> C.A.Mey.	Med(e)	Ar
494	<i>Thymus daghestanicus</i> Klokov & Des.-Shost.	<i>Thymus daghestanicus</i> Klokov & Des.-Shost.	NCauc	St
495	<i>Thymus majkopiensis</i> Klokov & Des.-Shost.	<i>Thymus majkopiensis</i> Klokov	NCauc	Ad, Kr
496	<i>Thymus nummularius</i> M.Bieb.	<i>Thymus pseudopulegioides</i> Klokov & Des.-Shost.	Anat-Cauc-Ir	St
497	<i>Thymus pannonicus</i> All.	<i>Thymus marschallianus</i> Willd.	Steppe	Ad
498	<i>Thymus pastoralis</i> Iljin	<i>Thymus pastoralis</i> Iljin ex Klokov	NCauc	St
499	<i>Thymus pulchellus</i> C.A.Mey.	<i>Thymus pulchellus</i> C.A.Mey.	NCauc	RF, KCh, Kr

No	Accepted taxon name	Name on KWA specimens	Range	Protection
500	<i>Torminalis glaberrima</i> (Gand.) Sennikov & Kurtto	<i>Sorbus torminalis</i> (L.) Crantz	Med	Ch, NOA, St
501	<i>Tragopogon collinus</i> DC.	<i>Tragopogon collinus</i> DC.	As(w)	Ar
502	<i>Tragopogon tuberosus</i> K.Koch	<i>Tragopogon tuberosus</i> K.Koch	Cauc	Ar
503	<i>Traunsteinera globosa</i> (L.) Rchb.	<i>Orchis globosa</i> L.	Med	RF, Da, KB, Kr, NOA, St
504	<i>Traunsteinera sphaerica</i> (M.Bieb.) Schltr.	<i>Orchis sphaerica</i> M.Bieb	Eux	RF, Ad, Ch, Da, KB, KCh, Kr, NOA, St
505	<i>Trifolium angustifolium</i> L	<i>Trifolium angustifolium</i> L.	Med	Ar, St
506	<i>Trifolium polyphyllum</i> C.A. Mey.	<i>Trifolium polyphyllum</i> C.A. Mey.	Anat-Cauc	In
507	<i>Trifolium sebastiani</i> Savi	<i>Trifolium sebastiani</i> Savi	Med	Ar
508	<i>Trigonocaryum involucratum</i> (Steven) Kusn.	<i>Trigonocaryum involucratum</i> (Steven) Kusn.	Cauc	In, KB
509	<i>Tulipa humilis</i> Herb.	<i>Tulipa lipskyi</i> Grossh.	As(w)	RF, KCh, Kr
510	<i>Tulipa julia</i> K.Koch	<i>Tulipa julia</i> K.Koch	Anat-TCauc	Az
511	<i>Tulipa schmidtii</i> Fomin	<i>Tulipa schmidtii</i> Fomin	Cauc-Ir	Az
512	<i>Tulipa suaveolens</i> Roth	<i>Tulipa schrenkii</i> Regel.	Steppe	RF
513	<i>Tulipa sylvestris</i> L. subsp. <i>australis</i> (Link) Pamp.	<i>Tulipa biebershteinii</i> Schult. & Schult.f.	Steppe	Ar, Az, [Ge], Ch, KB, Kr, NOA, St
514	<i>Tulipa systola</i> Stapf	<i>Tulipa florenskyi</i> Woronow	As(w)	Ar, Az
515	<i>Tulipa undulatifolia</i> Boiss.	<i>Tulipa eichleri</i> Regel	Med	Az, [Ge]
516	<i>Ulmus glabra</i> Huds.	<i>Ulmus glabra</i> Huds	Euro-Med	Ge
517	<i>Ulmus glabra</i> f. <i>elliptica</i> (Beck) Soó	<i>Ulmus elliptica</i> K.Koch	Euro-Med	[Ge]
518	<i>Ulmus minor</i> Mill.	<i>Ulmus suberosa</i> Moench	Euro-Med	Ge
519	<i>Utricularia vulgaris</i> L.	<i>Utricularia vulgaris</i> L.	PArct	St
520	<i>Vaccinium arctostaphylos</i> L.	<i>Vaccinium arctostaphylos</i> L.	Med(e)	Ch
521	<i>Vaccinium myrtillus</i> L.	<i>Vaccinium myrtillus</i> L.	Bor	KB
522	<i>Vaccinium vitis-idaea</i> L.	<i>Vaccinium vitis-idaea</i> L.	Bor	KB
523	<i>Valeriana alliariifolia</i> Vahl	<i>Valeriana alliariifolia</i> Vahl	Med(e)	Az
524	<i>Valeriana caucasica</i> (Boiss.) Christenh. & Byng	<i>Pseudobetckea caucasica</i> (Boiss.) Lincz.	Cauc	Ch
525	<i>Valeriana officinalis</i> L.	<i>Valeriana officinalis</i> L.	Euras	Ch, KB
526	<i>Verbascum formosum</i> Fisch. ex Schrank	<i>Verbascum formosum</i> M.Bieb.	Cauc	Ar
527	<i>Veronica pontica</i> (Rupr. ex Boiss.) Wettst.	<i>Paederotella pontica</i> (Rupr. ex Boiss.) Kem.-Nath.	Cauc	Kr
528	<i>Veronica telephifolia</i> Vahl	<i>Veronica minuta</i> C.A.Mey	Anat-Cauc	Ad, Kr
529	<i>Viburnum lantana</i> L.	<i>Viburnum lantana</i> L.	Euro-Med	In
530	<i>Viola caucasica</i> Kolen. ex Rupr.	<i>Viola caucasica</i> Kolen. ex Rupr.	Cauc	Ar
531	<i>Viola oreades</i> M.Bieb.	<i>Viola oreades</i> M.Bieb.	Eux	Ch
532	<i>Vitex agnus-castus</i> L.	<i>Vitex agnus-castus</i> L.	Med	RF, Kr
533	<i>Zelkova carpinifolia</i> (Pall.) K.Koch	<i>Zelkova carpinifolia</i> (Pall.) K.Koch	As(w)	Az, Ge
534	<i>Ziziphora capitata</i> L.	<i>Ziziphora capitata</i> L.	Med	Kr

Рідкісні види рослин кавказької флори в гербарії Національного ботанічного саду імені М.М. Гришка НАН України (KWHN): репрезентативність та хорологія

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Кавказ є одним із флористично найбагатших регіонів позатропічної Євразії, що характеризується високим рівнем ендемізму та винятковим різноманіттям рідкісних і зникаючих видів судинних рослин. Метою цього дослідження є оцінка репрезентативності та географічної структури рідкісних таксонів флори Кавказу, збережених у гербарії Національного ботанічного саду імені М.М. Гришка Національної академії наук України (KWHN). Дослідження ґрунтується на комплексній інвентаризації зразків рослин флори Кавказу, більшість із яких були зібрані в період інтенсивних ботанічних досліджень регіону експедиціями Національного ботанічного саду під керівництвом С.С. Харкевича у 1950–1970-х роках. У процесі інвентаризації номенклатуру видів було критично переглянуто відповідно до сучасних таксономічних уявлень. Охоронювані таксони ідентифіковано на підставі їх включення до чинних Червоних книг країн та адміністративних територій Кавказу. Хорологічний аналіз здійснювали шляхом класифікації природних ареалів видів і підвидів досліджених зразків.

У результаті інвентаризації в гербарії KWHN зафіксовано 534 зразки таксонів кавказької флори з охоронним статусом, що відповідає 527 сучасно прийнятим видам і підвидам із 270 родів і 89 родин. Серед них представлені один вид плауноподібних, один вид хвощеподібних, 17 видів папоротеподібних, 11 видів голонасінних і 497 видів покритонасінних рослин. Загалом 210 видів і підвидів охороняються в країнах Закавказзя, зокрема 131 таксон занесений до Червоної книги Вірменії, 69 – Азербайджану та 52 – Грузії. Крім того, 403 види і підвиди охороняються в Червоних книгах адміністративних територій Північного Кавказу, при цьому найбільшу кількість зафіксовано в Краснодарському краї (189 таксонів) і Ставропольському краї (161 таксон). Географічна структура досліджених таксонів характеризується домінуванням середземноморських, анатолійсько-кавказько-іранських і власне кавказьких типів ареалів, які разом становлять 66,6 % від загального спектру. Такий розподіл відображає біогеографічне положення Кавказу в межах регіону Давнього Середземномор'я. Серед зафіксованих таксонів 107 видів і підвидів є ендеміками Кавказу. На основі аналізу гербарного матеріалу запропоновано дві нові номенклатурні комбінації в ранзі різновидів – *Buxus sempervirens* var. *hyrcana* (Pojark.) Shynder & Bahatska (= *B. hyrcana* Pojark.) та *Lilium martagon* var. *caucasicum* (Misch.) Shynder & Bahatska (= *L. martagon* subsp. *caucasicum* Misch.), що дозволяє точніше відобразити морфологічну та географічну диференціацію кавказьких популяцій, які нині не визнаються самостійними таксонами. Дослідження підтвердило, що гербарій KWHN є унікальним сховищем *ex situ* для вивчення флористичного різноманіття Кавказу в Україні, зокрема його рідкісних і охоронюваних компонентів.

Ключові слова: біорізноманіття, біологічні колекції, ендемізм, охорона, червона книга