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RESEARCH ARTICLE

Critical analysis of the taxonomic composition of rare vascular plants in the flora of Kirovohrad Oblast

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Abstract

Kirovohrad Oblast, located at the junction of the Forest-Steppe and Steppe zones in central Ukraine, has undergone significant anthropogenic transformation. Based on field surveys conducted by us between 1994 and 2025, a critical reassessment of published data, and an analysis of herbarium collections, the taxonomic composition of rare vascular plants in the flora of Kirovohrad Oblast has been evaluated. In total, 151 spontaneous plant species with international, national, or regional conservation status were documented, representing ca. 12.6 % of the estimated local flora. Among them, five species have high-priority conservation categories in the IUCN Red List, nine species are included in the Revised Appendix I of the Bern Convention, 65 species are listed in the Red Book of Ukraine, and 79 species appear in the List of vascular plant species subjected to special protection in the territory of Kirovohrad Oblast. Rare plants are unevenly distributed across the region: 80 species occur in the western, 118 in the northern, and 100 in the southern (steppe) parts of the oblast, with 133 species restricted to the Forest-Steppe zone, indicating higher floristic diversity in this part of the region. Based on new data and earlier findings, several species have been included for the first time among the rare plants of Kirovohrad Oblast, including *Cephalanthera damasonium, Eremogone cephalotes, Odontarrhena tortuosa* subsp. *savranica*, and *Viola alba*. A critical analysis of the List of vascular plant species subjected to special protection in the territory of Kirovohrad Oblast showed that not all species meet the criteria for regional-level protection. Some species listed as regionally rare in Kirovohrad Oblast are unconfirmed in the studied flora; two are alien, and three already have national or international conservation status. In total, 33 rare species have been erroneously or insufficiently justified as reported for Kirovohrad Oblast. Several proposals are offered to optimise the regional list of rare plants requiring protection in Kirovohrad Oblast, with special attention to the improved conservation of wetland and forest margin-range species, which are more vulnerable to present-day climate change. Examples of cultivating rare species are provided as an additional *ex situ* conservation measure.

Keywords: flora, biodiversity, protection, regionally rare species, Red Book of Ukraine, Bern Convention, Forest-Steppe, Steppe

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Introduction

Kirovohrad Oblast is situated at the junction of two major natural zones, the Forest-Steppe and the Steppe, which results in a pronounced heterogeneity of its vegetation cover (Marynych, 1989–1993). The region encompasses elements of nemoral, meadow-steppe, petrophytic (granite outcrops), psammophytic, and related floristic complexes, creating a highly mosaic diversity of habitats. However, due to extensive agricultural and industrial development, only small fragments of the natural vegetation have been preserved (Andriyenko, 1999). For a long time, information on the occurrence of rare plant species documented in the late 20th century served as the basis for compiling the lists of regionally rare plants (Kirovohrad Regional Council, 1999, 2018) and for preparing materials for the Red Book of Ukraine (Didukh, 2009; Ministry of Environmental Protection and Natural Resources of Ukraine, 2021). Today, however, these data remain incomplete and localized, and therefore require substantial revision. In this context, a critical reassessment of the taxonomic composition of rare vascular plants in the flora of Kirovohrad Oblast is necessary.

Material and methods

The aim was to critically revise the list of rare vascular plants in the flora of the Kirovohrad Oblast, compare it with existing information on rare plants in the region, and identify shortcomings in previous floristic inventories. We conducted field studies of vegetation from 1994 to 2025, primarily within the Holovanivsk Raion. Publications on the flora and rare plants of the Kirovohrad region as a whole were critically examined, and herbarium specimens from KW, KWHA, KWU, MSUD, SOF, UM, and UPU (Thiers, 2026).

The objects of the study were rare plant species listed in the Updated Annex I of the Bern Convention (EUNIS, 2011), the IUCN Red List (IUCN, 2026) with categories following Korotchenko & Mosyakin (2014) for species with categories above LC, the Red Book of Ukraine (Ministry of Environmental Protection and Natural Resources of Ukraine, 2021), and the List of vascular plant species subjected to special protection in the territory of Kirovohrad Oblast (Kirovohrad Regional Council, 2018). Nomenclature follows the Plants of the World Online checklist (POWO, 2026).

Study area

The study area lies within the administrative boundaries of Kirovohrad Oblast, situated in the geographical centre of Ukraine. The region lies on a gently undulating plain in the southern part of the Dnipro Upland, with elevations generally ranging from 80 to 267 m a.s.l. The total area of the oblast is approximately 24,600 km^2. Major river systems include the Southern Buh, Inhul, Inhulets, Synyukha, and Dnipro.

According to the physiographical regionalization of Ukraine (Marynych et al., 2003), the northern and western parts of Kirovohrad Oblast lie within the Forest-Steppe zone (43.5 %). In contrast, its southern portion belongs to the Steppe zone (56.5 %). Given the considerable latitudinal extent of the oblast within the Forest-Steppe, the natural internal boundary within this zone is formed by the valley of the Synyukha River, which is widely used as a reference line in studies of the region's vegetation cover (Myrza-Sidenko, 2006; Barmak, 2013). Historically, this river also served as an administrative frontier between the Polish–Lithuanian Commonwealth and the Russian Empire, and later – between the Podillia and Kherson Governorates (Paczoski, 1914; Kuzyk & Biloshapka, 2005). Accordingly, we distinguish three subregions within the study area (Fig. 1): the western (Forest-Steppe), the northern (Forest-Steppe), and the southern (Steppe).

The region's contemporary landscape is dominated by agricultural land, which occupies 71.6 % of its area. Natural vegetation is represented by broadleaf forests (oak and oak–hornbeam) in the northern and western parts (natural and planted forests together cover 6.2 % of the territory), as well as by fragments of steppe and rocky-granite communities, mostly confined to the slopes of river valleys and ravines. Wetland and meadow habitats occupy relatively small areas and are highly synanthropized. Psammophytic communities occur locally in the valleys of major rivers. Large expanses of floodplain meadows in the Dnipro valley were submerged following the creation of the Kremenchuk Reservoir

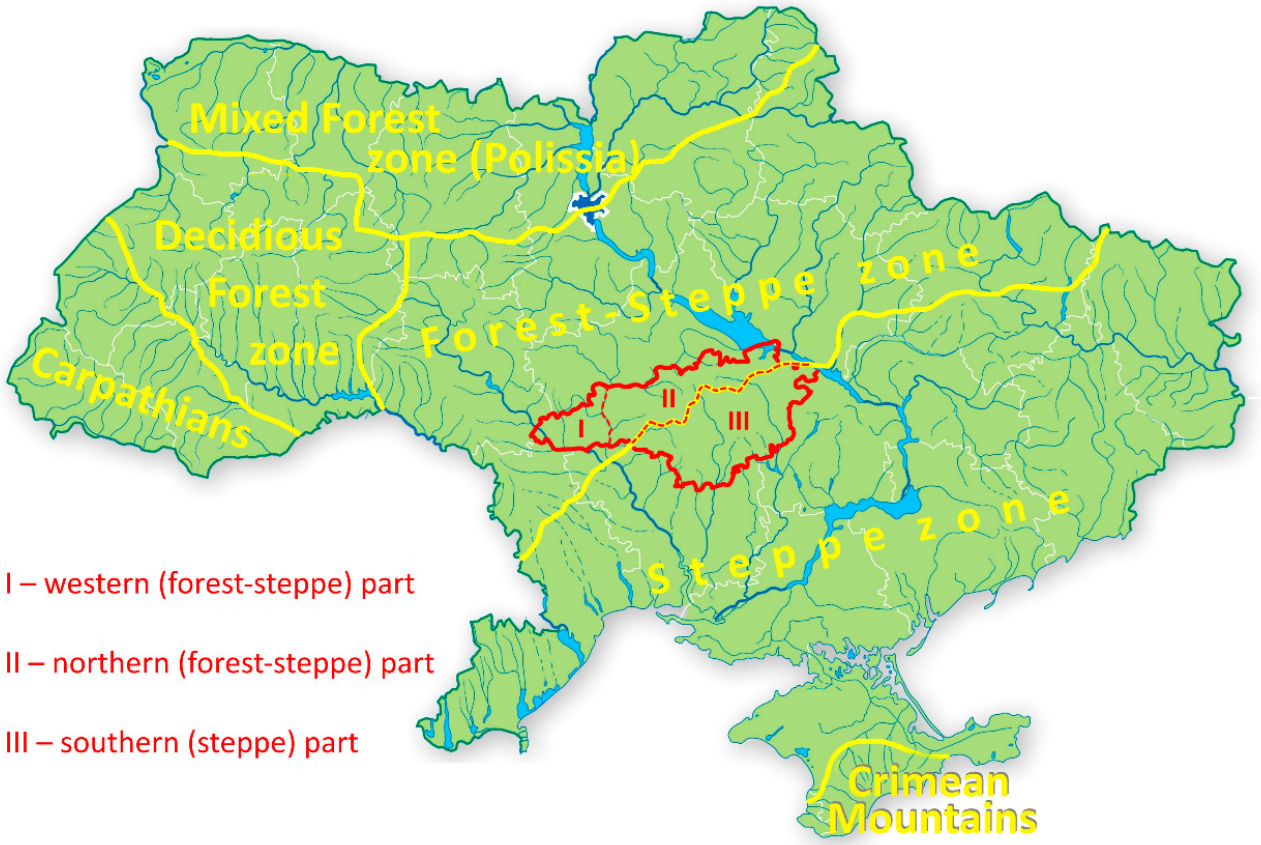

Figure 1. Location of Kirovohrad Oblast within Ukraine and its physiographical subdivision.

(Marynych, 1989–1993; Kirovohrad Regional Military Administration, 2024).

History of research on rare plants in Kirovohrad Oblast

The history of botanical research on the vegetation of Kirovohrad Oblast has been covered in several publications (Andriyenko, 1999; Myrza-Sidenko, 2006; Arkushyna & Popova, 2010; Barmak, 2013). The modern stage of phytosozological studies in the region began with comprehensive expedition surveys conducted under the leadership of T.L. Andriienko (Honcharov, 2011). The participants examined most of the oblast in search of valuable sites with preserved natural vegetation and habitats of rare plant species. They contributed to the establishment of numerous new protected areas (Andriyenko, 1999). Based on the results of these investigations, the first "List of animal and vascular plant species subjected to special protection in the territory of Kirovohrad Oblast" (Kirovohrad Regional Council, 1999) was compiled, comprising 90 vascular plant species.

Subsequently, floristic studies continued, leading to clarification of the species composition of rare plants and the discovery of many new localities (Arkushyna & Popova, 2002, 2010; Kucherevskyi, 2004; Myrza-Sidenko, 2006; Vynokurov, 2014; Baranets, 2021; Trotner, 2024, 2025; Trotner & Trotner, 2025). Within the study area, the distribution of 48 rare plant species was documented for the former Uliianivka Raion (Holovko & Kuzemko, 2012; Holovko, 2014). Additional contributions clarified the distribution of rare plants and reported new species for the flora of the oblast (Myrza-Sidenko, 2011; Chorna, 2011; Shynder, 2017; Kuzemko, 2019; Lavrynenko, 2023b; Moysiyenko et al., 2024), substantially enriching the earlier information (Andriyenko, 1999; Honcharov, 2011). Special morphological and population studies of individual rare species were also carried out (Didenko et al., 2010; Melnyk et al., 2010; Shynder & Kozyr, 2010; Drabyniuk & Grevtsova, 2011; Barmak & Scherbakova, 2012; Barmak, 2013; Chekanov & Didenko, 2013).

Based on vegetation studies, a number of important recommendations were produced

concerning the optimisation and expansion of the protected-area network (Gelevera & Zarubina, 2006; Kozynska, 2008; Kuzemko, 2008; Koniakin, 2009; Myrza-Sidenko et al., 2008; Barvinok, 2012; Holovko, 2014; Artemenko, 2016; Korniak, 2016; Zhulenko, 2021; Myrza-Sidenko, 2022; Lavrynenko, 2023a, 2023b; Pidtykana et al., 2025) and the formation of the ecological network in Kirovohrad Oblast (Myrza-Sidenko, 2006, 2017; Zarubina, 2010). Essential recommendations on plant conservation in the region were also provided by Kilnitska et al. (2025).

For many years, the monograph of Andriyenko (1999) remained the most comprehensive source of information on rare plants and valuable natural sites, and its data were frequently reproduced in later publications (Kuzyk & Biloshapka, 2005; Honcharov, 2011). In the 3rd edition of the Red Book of Ukraine, 55 rare plant species were reported for Kirovohrad Oblast (Didukh, 2009, 2010b). Later, this number was increased to 65. A Lists of animal and vascular plant species subjected to special protection in the territory of Kirovohrad Oblast (further in text – Protection List of Kirovohrad Oblast), comprising 95 species, was published (Kirovohrad Regional Council, 2018).

Overall, the review of phytosozological studies for Kirovohrad Oblast demonstrates a clear need for a modern, comprehensive inventory of the rare plant species comprising its flora.

Results and discussion

Based on a critical evaluation of available data, we confirm the presence of 151 plant species in the spontaneous flora of Kirovohrad Oblast that have international, national, or regional conservation status (Table 1). These account for approximately 12.6 % of the natural flora of the oblast, which we estimate at about 1,200 native species and subspecies.

Spatially, in the western part of Kirovohrad Oblast, 80 rare plant species were recorded (excluding doubtful records and cultivated plants), in the northern part 118 species, and in the southern (steppe) part 100 species. Altogether, 133 rare plant species are recorded within the Forest-Steppe zone of Kirovohrad Oblast. This indicates a higher concentration of rare species specifically within the Forest-Steppe zone, which should be taken into account in future optimisation of the oblast's protected-area network.

A total of 65 species from the presented list are included in the Red Book of Ukraine. TTaking into account the updated Protection List of Kirovohrad Oblast (Ministry of Environmental Protection and Natural Resources of Ukraine, 2021), and based on a critical evaluation of both our own and previously published data, we recommend that the following species be considered rare:

Botrychium lunaria – based on an old record by Lindemann (1882), later accepted by Paczoski (1914) and Fomin (1936);

Cephalanthera damasonium – see Shynder (2017) for details;

Eremogone cephalotes – we have observed this species in collaboration with D. Borovyk (Shynder, 2021);

Nymphoides peltata – see Paczoski (2008) and Yemelianova (2015) for details;

Odontarrhena tortuosa subsp. *savranica* – see Osychniuk (1958) for details;

Viola alba – see Chorna (2011) for details.

Also, the habitat of *Scopolia carniolica* has recently been confirmed by Shevchyk (2023). This species has been considered extinct in the region since its discovery in the early 20th century (Paczoski, 1910; Shynder & Negrash, 2014).

The spontaneous spread of *Staphylea pinnata* in forest plantations has also been reported by Trotner (2024).

Among the species listed in the Red Book of Ukraine, the following should be regarded as extinct within the region: *Anacamptis palustris*, *Botrychium lunaria*, *Crambe tataria*, *Gladiolus tenuis*, and *Gymnadenia conopsea*. Natural populations of *Galanthus nivalis* in Holovanivsk Raion are likely extinct, and the records from Kropyvnytskyi and Oleksandriia raions (Honcharov, 2011; Melnyk & Didenko, 2013) are not supported by other sources and are geographically isolated from the southern boundary of the species' main range (Melnyk & Didenko, 2013); therefore, they may represent introductions.

Eighteen species listed in the Red Book of Ukraine have been reported for the flora of Kirovohrad Oblast at various times either erroneously or without sufficient confirmation:

Table 1. Critical list of rare plant species protected within the territory of Kirovohrad Oblast. Legend: **IUCN** – IUCN Red List (in brackets – protection category); **RBU** – Red Book of Ukraine; **BC** – Revised Appendix of the Bern Convention; **rr** – regionally rare plant; **(–)** – extinct plant; **/** – doubtful or erroneous records; **?** – unconfirmed but plausible records; ***** – cultivated plant.

No	Species or infraspecies	Source	Subregion
1	*Aconitum lasiostomum* Rchb. ex Besser	rr	I, II
2	*Acorus calamus* L.	rr	I, II
3	*Adonis vernalis* L.	RBU	I, II, III
4	*Adonis volgensis* Steven ex DC.	RBU	*I, III
5	*Aegonychon purpurocaeruleum* (L.) Holub	rr	I, II, III
6	*Alkekengi officinarum* Moench (= *Physalis alkekengi* L.)	rr	I, II, III
7	*Allium sphaeropodum* Klokov (= *A. flavum* L. subsp. *tauricum* (Besser ex Rchb.) K.Richt. s.l.)	RBU	I
8	*Allium ursinum* L.	RBU	II
9	*Anacamptis laxiflora* (Lam.) R.M.Bateman, Pridgeon & M.W.Chase	RBU	II
10	*Anacamptis palustris* (Jacq.) R.M.Bateman, Pridgeon & M.W.Chase subsp. *elegans* (Heuff.) R.M.Bateman, Pridgeon & M.W.Chase	RBU	(–)II, (–)III
11	*Anchusa pseudoochroleuca* Des.-Shost.	rr	II
12	*Anemonoides sylvestris* (L.) Galasso, Banfi & Soldano (≡ *Anemone sylvestris* L.)	rr	I, II, III
13	*Asplenium ruta-muraria* L.	rr	III
14	*Asplenium septentrionale* (L.) Hoffm.	rr	I, II, III
15	*Asplenium trichomanes* L.	rr	I, II, III
16	*Astragalus dasyanthus* Pall.	RBU	I, II, III
17	*Astragalus odessanus* Besser (= *A. cornutus* Pall. s.l.)	RBU	III
18	*Astragalus pallescens* M.Bieb.	rr	III
19	*Astragalus ponticus* Pall.	RBU	I, II, III
20	*Asyneuma canescens* (Waldst. & Kit.) Griseb. & Schenk	rr	I, III
21	*Athyrium filix-femina* (L.) Roth	rr	II, /III
22	*Bellevalia speciosa* Woronow ex Grossh. (= *B. sarmatica* (Pall. ex Miscz.) Woronow)	rr	I, II, III
23	*Berberis vulgaris* L.	rr	I, II, III
24	*Betonica officinalis* L.	rr	I, II, III
25	*Botrychium lunaria* (L.) Sw.	RBU	(–)II
26	*Bupleurum falcatum* L.	rr	I, III
27	*Caragana scythica* (Kom.) Pojark.	RBU	III
28	*Carex atherodes* Spreng.	rr	?II, III
29	*Carex brevicollis* DC.	rr	I, II
30	*Carex disticha* Huds.	rr	I, II, ?III
31	*Carex hartmaniorum* A.Cajander	rr	II
32	*Carex hordeistichos* Vill.	rr	I, II, III
33	*Carex secalina* Willd. ex Wahlenb.	RBU	III
34	*Carex stenophylla* Wahlenb.	rr	/I, II, III
35	*Centaurea borysthenica* Gruner	rr	I, II, III

Table 1. Continued.

No	Species or infraspecies	Source	Subregion
36	*Centaurium erythraea* Rafn	rr	I, II, III
37	*Cephalanthera damasonium* (Mill.) Druce	RBU	I, III
38	*Clematis integrifolia* L.	rr	I, II, III
39	*Clematis recta* L.	rr	I, III
40	*Colchicum bulbocodium* Ker Gawl. subsp. *versicolor* (Ker Gawl.) K.Perss. (≡ *Bulbocodium versicolor* (Ker Gawl.) Spreng.)	RBU	II, III
41	*Convallaria majalis* L.	rr	I, II, III
42	*Cornus mas* L.	rr	I, II, III
43	*Coronilla elegans* Pančić (≡ *Securigera elegans* (Pancic) Lassen)	RBU	II, /III
44	*Corydalis cava* (L.) Schweigg. & Körte subsp. *marschalliana* (Willd.) Hayek (≡ *C. marschalliana* (Pall. ex Willd.) Pers.)	rr	/I, II
45	*Crambe tataria* Sebeók	RBU; BC	(–)II, (–)III
46	*Crataegus meyeri Pojark.* (= *C. ucrainica* Pojark.)	IUCN(DD)	II, ?III
47	*Crocus reticulatus* Steven ex Adam	RBU	I, II, III
48	*Cystopteris fragilis* (L.) Bernh.	rr	I, III
49	*Dactylorhiza incarnata* (L.) Soó (= *Orchis latifolia* auct. non L. (Oksner, 1924))	RBU	II
50	*Dactylorhiza majalis* (Rchb.) P.F.Hunt & Summerh.	RBU	II, III
51	*Dianthus capitatus* J.St.-Hil. subsp. *andrzejowskianus* Zapał. (≡ *D. andrzejowskianus* (Zapał.) Kulcz.)	rr	?I, II, III
52	*Dianthus hypanicus* Andrz.	RBU; IUCN (VU), BC	/I, II, III
53	*Dianthus squarrosus* M.Bieb.	rr	II
54	*Digitalis grandiflora* Mill.	rr	II, III
55	*Dryopteris carthusiana* (Vill.) H.P.Fuchs	rr	I, II, III
56	*Dryopteris cristata* (L.) A.Gray	rr	II
57	*Dryopteris filix-mas* (L.) Schott	rr	I, III
58	*Ephedra distachya* L.	rr	I, II, III
59	*Epipactis atrorubens* (Hoffm.) Besser	RBU	II, III
60	*Epipactis helleborine* (L.) Crantz	RBU	I, II, III
61	*Epipactis palustris* (L.) Crantz	RBU	II
62	*Equisetum telmateia* Ehrh.	rr	I, II, /III
63	*Eremogone cephalotes* (M.Bieb.) Fenzl	RBU	III
64	*Eriophorum angustifolium* Honck.	rr	II, /III
65	*Euonymus nanus* M.Bieb.	RBU	II, *III
66	*Fritillaria meleagroides* Patrin ex Schult. & Schult.f.	RBU	II
67	*Fritillaria ruthenica* Wikst.	RBU	II, III
68	*Galanthus nivalis* L.	RBU	(–)I, *II, /III
69	*Galega officinalis* L.	rr	I, II, III
70	*Gladiolus tenuis* M.Bieb.	RBU	(–)II, ?III
71	*Glechoma hirsuta* Waldst. & Kit.	IUCN(DD)	I

Table 1. Continued.

No	Species or infraspecies	Source	Subregion
72	*Goniolimon besserianum* (Schult. ex Rchb.) Kusn.	rr	I, III
73	*Goniolimon tataricum* (L.) Boiss.	rr	III
74	*Gymnadenia conopsea* (L.) R.Br.	RBU	(–)II
75	*Gymnospermium odessanum* (DC.) Takht.	RBU	III
76	*Hesperis tristis* L.	rr	I, II, III
77	*Hyacinthella leucophaea* (K.Koch) Schur	rr	I, II, III
78	*Inula helenium* L.	rr	I, II, III
79	*Iris aphylla* L. var. *hungarica* (Waldst. & Kit.) D.Dubovik (≡ *I. hungarica* Waldst. & Kit.)	BC; rr	I, II, III
80	*Iris graminea* L.	rr	I, II
81	*Iris halophila* Pall. (= *I. gueldenstadtiana* Lepech.)	rr	I, III
82	*Iris pineticola* Klokov (= *I. arenaria* Waldst. & Kit. s.l., *I. humilis* Georgi subsp. *arenaria* (Waldst. & Kit.) Á.Löve & D.Löve)	RBU; BC	III
83	*Iris pontica* Zapał.	RBU	I, II, III
84	*Iris pseudacorus* L.	rr	I, II, III
85	*Iris pumila* L.	rr	I, II, III
86	*Iris sibirica* L.	RBU	II, /III
87	*Jurinea calcarea* Klokov	rr	I, II, III
88	*Jurinea cyanoides* (L.) Rchb.	BC	II, III
89	*Klasea lycopifolia* (Vill.) Á.Löve & D.Löve (≡ *Serratula lycopifolia* (Vill.) A.Kern.)	RBU; BC	I, II, III
90	*Lilium martagon* L.	RBU	I, II
91	*Limonium alutaceum* (Steven) Kuntze	rr	II, III
92	*Linum hirsutum* L.	rr	I, II, III
93	*Melittis melissophyllum* L. subsp. *carpatica* (Klokov) P.W.Ball (= *M. sarmatica* Klokov)	rr	II, /III
94	*Muscari neglectum* Guss. ex Ten.	rr	I, II, III
95	*Muscari tenuiflorum* Tausch (≡ *Leopoldia tenuiflora* (Tausch) Heldr.)	rr	I, III
96	*Neottia nidus-avis* (L.) Rich.	RBU	II, III
97	*Neottia ovata* (L.) Bluff & Fingerh. (≡ *Listera ovata* (L.) R.Br.)	RBU	(–)I, II
98	*Nuphar lutea* (L.) Sm.	rr	I, II, III
99	*Nymphoides peltata* (S.G.Gmel.) Kuntze	RBU	?I, II
100	*Odontarrhena tortuosa* (Willd.) C.A.Mey subsp. *savranica* (Andrz. ex Besser) Španiel, Al-Shehbaz & Marhold (≡ *Alyssum savranicum* Andrz.)	RBU	I
101	*Onosma visianii* Clementi (= *O. macrochaeta* Klokov & Dobrocz.)	rr	III
102	*Orchis militaris* L.	RBU	II, /III
103	*Ornithogalum boucheanum* (Kunth) Asch.	RBU	I, II, III
104	*Ornithogalum orthophyllum* Ten. subsp. kochii (Parl.) Zahar. (= *O. gussonii* auct. non Ten.)	rr	I, II, III
105	*Ostericum palustre* (Besser) Besser (≡ *Angelica palustris* (Besser) Hoffm.)	BC	II, III
106	*Pedicularis kaufmannii* Pinzger	rr	II, III
107	*Pentanema ensifolium* (L.) D.Gut.Larr., Santos-Vicente, Anderb., E.Rico & M.M.Mart.Ort. (≡ *Inula ensifolia* L.)	rr	I, III

Table 1. Continued.

No	Species or infraspecies	Source	Subregion
108	*Platanthera bifolia* (L.) Rich.	RBU	II
109	*Platanthera chlorantha* (Custer) Rchb.	RBU	II
110	*Polypodium vulgare* L.	rr	I, II, III
111	*Pontechium maculatum* (L.) Böhle & Hilger (= *Echium russicum* J.F.Gmel.)	BC	III
112	*Primula veris* L.	rr	I, II
113	*Prunus fruticosa* Pall. (≡ *Cerasus fruticosa* (Pall.) Woronow)	rr	I, II, III
114	*Prunus mahaleb* L. (≡ *Cerasus mahaleb* (L.) Mill.)	rr	I, II, III
115	*Prunus tenella* Batsch. (= *Amygdalus nana* L.)	rr	I, II, III
116	*Pseudoroegneria stipifolia* (Trautv.) Á.Löve (≡ *Elytrigia stipifolia* (Czern. ex Nevski) Nevski)	RBU	II, ?III
117	*Pulsatilla patens* (L.) Mill.	RBU; BC	II
118	*Pulsatilla pratensis* (L.) Mill. (= *P. bohemica* auct. non (Skalický) Tzvelev, *P. nigricans* Störck.)	RBU	I, II, III
119	*Pyrola rotundifolia* L.	rr	II
120	*Ranunculus polyphyllus* Waldst. & Kit. ex Willd.	IUCN(DD)	(–)II
121	*Rosa spinosissima* L.	rr	I, II, III
122	*Scilla bifolia* L.	rr	I, II, III
123	*Scilla siberica* Haw.	rr	II, III
124	*Scopolia carniolica* Jacq.	RBU	II
125	*Scrophularia vernalis* L.	RBU	II
126	*Scutellaria altissima* L.	rr	I, II, III
127	*Scutellaria verna* Besser (= *S. supina* L.)	RBU	III
128	*Sedum borissovae* Balk.	rr	I, II, III
129	*Sempervivum ruthenicum* Schnittsp. & C.B.Lehm.	rr	I, II
130	*Senecio doria* L. (= *S. schwetzowii* Korsh.)	rr	I, II, III
131	*Silene nutans* L.	rr	I, II, III
132	*Staphylea pinnata* L.	RBU	III
133	*Stipa borysthenica* Klokov ex Prokudin	RBU	II
134	*Stipa capillata* L.	RBU	I, II, III
135	*Stipa dasyphylla* (Lindem.) Czern. ex Trautv.	RBU	I, II, III
136	*Stipa graniticola* Klokov (= *S. borysthenica* Klokov ex Prokudin s.l.)	RBU	I, III
137	*Stipa lessingiana* Trin. & Rupr.	RBU	I, II, III
138	*Stipa pennata* L.	RBU	I, II, III
139	*Stipa pulcherrima* K.Koch	RBU	?I, II, III
140	*Stipa tirsa* Steven	RBU	II, III
141	*Stipa ucrainica* P.A.Smirn.	RBU	III
142	*Taeniopetalum arenarium* (Waldst. & Kit.) V.N.Tikhom. (≡ *Peucedanum arenarium* Waldst. & Kit., *P. borysthenicum* Klokov)	rr	II
143	*Thelypteris palustris* Schott	rr	I, II, III

Table 1. Continued.

No	Species or infraspecies	Source	Subregion
144	*Thymus* × *tschernjaievii* Klokov & Des.-Shost. (= *T. pallasianus* Heinr.Braun × *T. pannonicus* All.)	rr	II
145	*Tulipa graniticola* Klokov & Zoz (= *T. biebersteiniana* Schult. & Schult., *T. sylvestris* L. subsp. *australis* (Link) Pamp. s.l.)	RBU	III
146	*Tulipa hypanica* Klokov & Zoz (= *T. biebersteiniana*, *T. sylvestris* subsp. *australis* s.l.)	RBU	/I, II, III
147	*Tulipa quercetorum* Klokov & Zoz (= *T. biebersteiniana*, *T. sylvestris* L. subsp. australis (Link) Pamp. s.l.)	RBU	I, II, III
148	*Urtica kioviensis* Rogow.	IUCN(DD)	II
149	*Utricularia minor* L.	RBU	II
150	*Viola alba* Besser	RBU	I
151	*Vitis vinifera* L. var. *sylvestris* Willd. (≡ *Vitis sylvestris* C.C.Gmel.)	rr	*?III

Aconitum besserianum Andrz. ex Trautv. was reported from Oleksandriia (Schmalhausen, 1895), but this record evidently refers to *A. lasiostomum*, since the range of *A. besserianum* encompasses only the western part of the Podolian Upland (Didukh, 2004, 2009).

Allium scythicum Zoz (= *A. regelianum* A.K.Becker s.l.) was reported by Kucherevskyi (2004) from steppe slopes in the vicinity of the settlement of Petrove. However, since the described habitat conditions do not correspond to the halophytic biotopes typical of *A. scythicum* (Didukh, 2009), this record is unlikely to refer to this taxon. Most likely, it concerns morphologically similar plants of *A. regelianum* also listed in the Red Book of Ukraine (Ministry of Environmental Protection and Natural Resources of Ukraine, 2021), although its occurrence in the flora requires confirmation. Otherwise, it can be *A. sphaerocephalon* L.

Astragalus exscapus L. was reported from the former Bobrynets and Dolynska raions (Myrza-Sidenko, 2011). However, these records evidently refer to *A. exscapus* subsp. *pubiflorus* (DC.) Soó rather than *A. exscapus* s.str. (≡ *A. exscapus* subsp. *exscapus*), which is included in the Red Book of Ukraine (Ministry of Environmental Protection and Natural Resources of Ukraine, 2021), with confirmed localities known only from Odesa Oblast (Didukh, 2009).

Astragalus henningii (Steven) Boriss. was reported from the Monastyryshche Landscape Reserve (Kirovohrad Regional Military Administration, 2022), but the confirmed range of this species lies south of the oblast (Kucherevskyi, 2004; Didukh, 2009). Therefore, this record requires verification.

Carex liparocarpos Gaudin was reported for the Inhul valley (Kirovohrad Regional Council, 1999; Vynokurov, 2014), but this record is doubtful because it is absent from adjacent regions (Kucherevskyi, 2004), and confirmed localities occur only in the southern steppe zone (Didukh, 2009).

Colchicum sp. was collected by Ryabkov near Svitlovodsk in 1883 and published under the name *C. bulbocodioides* M.Bieb. in Schmalhausen (1897). Paczoski (1914) initially referred this material to *C. montanum* L., although he had damaged the specimens; later, he considered that the plants most likely belonged to *C. versicolor*, or that Ryabkov had simply mixed up the labels. Bordzilowski (1950) subsequently assigned the record to *C. biebersteinii* Rouy (= *C. ancyrense* B.L.Burtt, *C. triphyllum* Kunze), but also noted that this isolated habitat did not correspond to the known ecology and geography of the species and therefore required confirmation. We interpret this as Ryabkov's plants indeed represent *C. bulbocodium* subsp. *versicolor*, although the habitat has likely been lost.

Cymbaria borysthenica Pall. ex Schltdl. was reported for the Inhul valley by Chopyk (1978) and in the flora of the Syniukha–Inhulets interfluve (Barmak, 2013), but remains unconfirmed (Myrza-Sidenko, 2011).

Delphinium sergei O.D.Wissjul. was reported for the urban flora of Kropyvnytskyi (Arkushyna & Popova, 2010), but this locality is not confirmed in other sources (Honcharov, 2011; Didukh, 2009), and the natural range of this species in Ukraine is restricted to the east of the country (Didukh, 2004). In addition, plants of this species were collected by F.O. Hryn in Mykolaiv Oblast in the "Labirynt" tract in 1949 (KW). This locality is situated within an artificial forest plantation established by V.P. Skarzhynskyi in the 19th century. The occurrence of the species there was later confirmed by other authors (Dubovyk, 1991; Didukh, 2004; Baranovskyi & Loza, 2005; Novosad et al., 2013). However, we believe this habitat is artificial in origin. Overall, the presence of the genus *Delphinium* in the modern flora of Kirovohrad Oblast is rather doubtful. Lindemann (1875) reported *D. fissum* Waldst. & Kit. for a forest near the former border of Kyiv Governorate. Later, Schmalhausen (1895) listed *D. hybridum* Stephan ex Willd. for the former Yelysavethrad County, referring precisely to that earlier record. Paczoski (2008) considered this record erroneous, but at the same time mentioned *D. elatum* L. for the "Manuela – datscha" forest, also citing Lindemann. Subsequently, Visjulina (1953) cited *D. leiocarpum* Huth for the vicinity of Kropyvnytskyi, referring to Schmalhausen. According to current data on species distribution within the genus (Didukh, 2004), all these records (in fact, a single record originating from Lindemann's specimen) correspond to *D. cuneatum* Spreng., presumably from a habitat that has since been lost. This species was also listed for the Birzulivski Horby protected area (Kirovohrad Regional Council, 1999; Myrza-Sidenko, 2006). However, during field studies, Lavrynenko (2023b) established that another, though morphologically similar species grows there – *Aconitum anthora* L. (see also Moysiyenko et al., 2024).

Dictamnus albus L. was mentioned in the late 18th century for the former "Great Forest" in Oleksandriia Raion (Güldenstädt, 1791), but this record almost certainly concerns another plant.

Gladiolus imbricatus L. was reported by Dokturovskyi (1908) for the Chornyi Lis (Black Forest). Later, Paczoski (1914) confirmed its occurrence there and additionally reported it from the environs of Dobrovelychkivka and Oleksandriia (MSUD). However, these records were found to refer to *G. tenuis* (Bordzilowski, 1950; Didukh, 2009).

Glycyrrhiza glabra L. was included in the Protection List of Kirovohrad Oblast (Kirovohrad Regional Council, 2018). We have found no evidence of the spontaneous occurrence of this species within Kirovohrad Oblast. Its known distribution range lies in the southern part of the Steppe zone (Didukh, 2009; Moysiyenko et al., 2023).

Gypsophila thyraica Krasnova was included on the Protection List of Kirovohrad Oblast (Kirovohrad Regional Council, 1999) and reported from the Syniukha–Inhul interfluve (Barmak, 2013). However, its natural range lies in the Dniester valley on the western Podillia Upland (Didukh, 2009), far from Kirovohrad Oblast.

Hyacinthella pallasiana (Steven) Losinsk. was reported near Blahovishchenske (Holovko, 2014; Honcharov, 2011), likely instead of *H. leucophaea*. The natural range of *H. pallasiana* does not extend to Kirovohrad Oblast (Bordzilowski, 1950; Didukh, 2009).

Iris furcata M.Bieb. was reported from several locations (Lindemann, 1867; Myrza-Sidenko, 2011; Kovalenko et al., 2017), but its confirmed range lies in eastern Ukraine (Didukh, 2009), and the regional records (i.e., MSUD 468) belong to *I. aphylla*.

Paeonia tenuifolia L. remains enigmatic: it has been cited in several sources (Zhuravel, 2005; Didukh, 2009; Arkushyna & Popova, 2010), but without exact localities, and its occurrence in the oblast is unconfirmed (Myrza-Sidenko, 2011). Paczoski (2008) did not mention this species anywhere within the former Kherson Governorate, which included most of today's Kirovohrad Oblast. At the same time, this plant is cultivated (Honcharov, 2011).

Prunus klokovii (Sobko), comb. ined., was reported from the vicinity of Ustynivka (Barmak, 2013). But all confirmed localities lie within the South Bug valley and its immediate tributaries in Mykolaiv Oblast (Didukh, 2009; Novosad et al., 2013). Records in Kirovohrad Oblast require further verification.

Pulsatilla grandis Wender. Earlier references to *Anemone pulsatilla* L. in Güldenstädt (1791) were attributed by Paczoski (2008) to *P. vulgaris* Mill., though they more

likely correspond to *P. nigricans*. In addition, *P. grandis* was reported for the Antonovychski Horby protected area and Kvitucha Balka botanical reserve (Honcharov, 2011; Barmak, 2013), but the confirmed range of the species does not include Kirovohrad Oblast (Didukh, 2009; Horbnyak, 2015). A report of plants escaped from cultivation in Kropyvnytskyi (Arkushyna & Popova, 2002) may also correspond to *P. vulgaris*, which is often cultivated in flower gardens (Horbnyak, 2015; Glukhova et al., 2016).

Tulipa biflora Pall. was cited by Paczoski (1914) as an interpretation of *T. sylvestris* var. *biflora* Led. (Rehmann, 1872) for the Inhul River valley. Paczoski himself doubted this record, and later Bordzilowski (1950) rejected it.

Nine species of the spontaneous flora of Kirovohrad Oblast are included in the Revised Appendix I of the Bern Convention (EUNIS, 2011; Solomakha, 2016), most of which were already reported by authors of the 19th–20th centuries. Of these, *Crambe tataria* is extinct in the region. Among the three unconfirmed Bern-listed species previously cited for the oblast are the already mentioned *Paeonia tenuifolia* and *Pulsatilla grandis*, as well as *Adenophora liliifolia* (L.) A.DC., reported from the South Bug valley within the former Haivoron Raion (Kirovohrad Regional Council, 1999: p. 192), from the Syniukha–Dnipro interfluve (Myrza-Sidenko, 2006), from the Syniukha–Inhulets interfluve (Barmak, 2013), and from Kropyvnytskyi (Korshinsky, 1894). Regarding the latter record, Paczoski (2008) noted that it was provided with no clear evidence. Habitats of *A. liliifolia* are known from Vinnytsia Oblast (Korshinsky, 1894; Visjulina, 1961), but its occurrence in Kirovohrad Oblast remains unconfirmed due to mismatches between local environmental conditions and the species' ecological requirements. The species' range in lowland Ukraine has declined markedly (Solomakha, 2016).

In the IUCN Red List, four species of the region are classified as DD (Data Deficient), including *Ranunculus polyphyllus*, which is likely extinct, and one species is classified as VU (Vulnerable). In addition, among the unconfirmed species, *Prunus klokovii* and *Paeonia tenuifolia* also have DD status.

Of the 95 species included in the Protection List of Kirovohrad Oblast (Kirovohrad Regional Council, 2018), our critical review confirms only 79 (83.2%) as part of the flora of Kirovohrad Oblast. Moreover, within this group, *Adenophora liliifolia* and *Iris aphylla* are currently protected under the Bern Convention, and *Glycyrrhiza glabra* is included in the Red Book of Ukraine (Ministry of Environmental Protection and Natural Resources of Ukraine, 2021). Therefore, their continued presence in the Protection List of Kirovohrad Oblast (Kirovohrad Regional Council, 2018) is likely unnecessary.

Most of the remaining species listed in the Protection List of Kirovohrad Oblast (Kirovohrad Regional Council, 2018) fully justify their status as rare. Nevertheless, some of the species must be removed from this list. Among them are the alien species *Acorus calamus* and *Prunus mahaleb*, which are not native to the flora of the oblast. The problem of alien plants being mistakenly included in conservation lists has been addressed earlier (Shevera & Protopopova, 2017). A number of species are typical and fairly common components of particular plant communities in Kirovohrad Oblast – *Asyneuma canescens*, *Inula helenium*, *Linum hirsutum*, *Muscari neglectum*, *Prunus fruticosa*, and *P. tenella* – and therefore their regional conservation status should be reconsidered in the future.

The Protection List of Kirovohrad Oblast (Kirovohrad Regional Council, 2018) also includes *Gagea hypanica* Sobko, reported from the Kropyvnytskyi (Arkushyna & Popova, 2002), and Syniukha–Inhulets interfluve (Barmak, 2013). However, this taxon originally described as an endemic of granite outcrops in the Southern Buh valley (Sobko, 1971) is currently treated as a synonym of *G. bohemica* (Zauschn.) Schult. & Schult.f. (POWO, 2026) and represents only a pubescent form of that species.

Fourteen species (14.7%) from the Protection List of Kirovohrad Oblast (Kirovohrad Regional Council, 2018) cannot be confirmed within the flora of Kirovohrad Oblast, including the already mentioned *Adenophora liliifolia*.

Dianthus carthusianorum L. was listed for the flora of the Kirovohrad Oblast (Kirovohrad Regional Council, 1999), evidently in place of another species, since, even in the broadest sense, the species occurs only in Western Ukraine (Didukh, 2002). Kleopov (1932) noted that he had seen a

specimen of *D. carthusianorum* collected in 1895 by E. Lindemann in Yelisavetgrad (now Kropyvnytskyi) deposited at the KW herbarium. However, he also noted that this record might involve a label mix-up.

Fragaria moschata Duchesne ex Weston was reported from the vicinity of Onufriivka (Kirovohrad Regional Council, 1999: p. 178) and from the area near Petrove settlement (Barmak, 2013). However, these records most likely refer to tall forms of *F. viridis* Weston. The confirmed range of *F. moschata*, a mesophytic species, lies to the north of Kirovohrad Oblast (Dobroczajeva, 1954).

Geum rivale L. has a confirmed range north of Kirovohrad Oblast (Kotov, 1954), and we have found no reliable evidence of its occurrence here. In the suitable habitat where this species could potentially grow (a swampy area in Chornyi Lis), another, less hygrophilous *Geum* species was recorded – *G. aleppicum* Jacq. (Lindemann, 1867; Paczoski, 2008).

Limonium gmelini (Willd.) Kuntze (= *L. meyeri* (Boiss.) Kuntze) was reported from several doubtful localities, including steppe near Kropyvnytskyi (Lindemann, 1867, 1882), Oleksandriia Raion (Parkhomenko & Vasyliuk, 2022), and the former floodplain of the Dnipro (Paczoski, 1915). However, its natural range is restricted to the coastal zone of the Black Sea, and no confirmed specimens have been recorded from Kirovohrad Oblast (Didukh, 2010a). Paczoski (2008) does not list *L. gmelini* outside the former Kherson Governorate.

Linum czernjajevii Klokov was indicated for Kropyvnytskyi Raion without details (Kucherevskyi, 2004), but there is no confirmed evidence of its occurrence in the oblast (Optasiuk & Shevera, 2011).

Muscari comosum (L.) Mill. (≡ *Leopoldia comosa* (L.) Parl.) was reported from the Syniukha basin (Güldenstädt, 1791), the vicinity of Kropyvnytskyi (Lindemann, 1867, 1882), and the Dolynsko-Pokrovskyi landscape reserve (Barmak, 2013). However, Paczoski (1914) had already referred the records by Güldenstädt and Lindemann to *M. tenuiflorum* Tausch. The confirmed range of *M. comosum* is limited to the southwestern part of Ukraine (Bordzilowski, 1950).

Ornithogalum fimbriatum Willd. was reported from the Syniukha–Inhulets interfluve (Barmak, 2013), but the nearest confirmed locality is near Dnipro city (Kucherevskyi, 2004).

Ornithogalum fischerianum Krasch. was reported near Bobrynets (Kirovohrad Regional Council, 1999; Barmak, 2013), but its confirmed range does not extend into Kirovohrad Oblast (Paczoski, 1914; Bordzilowski, 1950; Kucherevskyi, 2004).

Polypodium interjectum Shivas was included in the Protection List of Kirovohrad Oblast (Kirovohrad Regional Council, 2018) and also indicated for the Sinyukha-Ingulets interfluve by Barmak (2013). The verified range of *P. interjectum* includes Western Ukraine and the Crimean Peninsula (Didukh, 2000; Bezsmertna, 2011).

Rhaponticoides ruthenica (Lam.) M.V.Agab. & Greuter (≡ *Centaurea ruthenica* Lam.) was cited from Kropyvnytskyi and its environs (Lindemann, 1867, 1881; Schmalhausen, 1897; Arkushyna & Popova, 2002; Barmak, 2013), from the former Ulianivka Raion (Holovko & Kuzemko, 2012), and from the former Novhorodkivka Raion (Barmak, 2013). However, confirmed localities of this eastern Pontic species in the Right-Bank Steppe are restricted to the extreme south and to Dnipropetrovsk Oblast (Dobroczajeva, 1965; Kucherevskyi, 2004).

Symphytum besseri Zaverucha (= *S. tuberosum* L. s.l., *S. microcalyx* Opiz) was reported for the forests Chornyi Lis and Chuta in northern Kirovohrad Oblast (Kirovohrad Regional Council, 1999; Sidenko, 2000). These records evidently refer to *S. tauricum* Willd., which had already been reported earlier from this area (Lindemann, 1868; Schmalhausen, 1897; Dobroczajeva, 1957; Paczoski, 2008), has been confirmed recently (Baranets, 2021), and respective specimens are deposited at the KWU herbarium.

Trifolium pannonicum Jacq. has a confirmed range in the Western Podillia Upland, Northern Bukovyna, and the Carpathians (Visjulina, 1954; Paczoski, 2008), far from Kirovohrad Oblast.

Valeriana rossica P.A.Smirn. was generally listed for Kirovohrad Oblast (Kirovohrad Regional Council, 1999), the former Uliianivka Raion (Kuzyk & Biloshapka, 2005), and the Sinyukha-Ingulets interfluve (Barmak, 2013). However, confirmed habitats of this European–Siberian species in Ukraine are known only from Kharkiv and Sumy oblasts (Katina, 1961; Fedoronchuk, 2023).

The present review has revealed a number of shortcomings in the Protection List of Kirovohrad Oblast (Kirovohrad Regional Council, 2018). Formally, after excluding alien plants, species with national or international protection status, and species not confirmed within the administrative region, only 74 species (77.9 %) from that list meet the stated criteria. In our view, several wetland and forest-margin species should be prioritised for inclusion in a future edition of the Protection List of Kirovohrad Oblast, as they are currently threatened with extinction due to ongoing climate change, or their previously known localities have already vanished. Such species include: *Aconitum anthora*, *Arctium nemorosum* Lej., *Campanula persicifolia* L., *Chaerophyllum prescottii* DC., *Menyanthes trifoliata* L., and *Sanguisorba officinalis* L. Thus, we supplement the previously expressed proposals for optimizing the list of regionally rare plant species in Kirovohrad Oblast (Myrza-Sidenko, 2006; Barmak, 2013; Vynokurov, 2014).

An unresolved issue concerns species that are probably extinct in the flora of Kirovohrad Oblast, such as *Calluna vulgaris* (L.) Hull, *Chimaphila umbellata* (L.) W.P.C.Barton, *Drosera rotundifolia* L., *Eriophorum latifolium* Hoppe, *Monotropa hypopitys* L., *Orthilia secunda* (L.) House, and *Pyrola chlorantha* Sw. These species require targeted searches for extant localities and, in the long term, if climatic conditions stabilise, may play a vital role in the reintroduction.

In addition to species with current protection status, several plants formerly protected at the international or national level deserve mention. The first version of the IUCN Red List (Mosyakin, 1998) included *Linaria biebersteinii* Besser and *Trinia kitaibelii* M.Bieb. The first edition of the European Red List (Economic Commission for Europe, 1991; Sobko et al., 2002) listed *Galium volhynicum* Pobed., *Jacobaea borysthenica* (DC.) B.Nord. & Greuter (≡ *Senecio borysthenicus* (DC.) Andrz. ex Czern.), *Melica chrysolepis* Klokov (= M. × *thuringiaca* Rauschert s.l.), *Tragopogon ucrainicus* Artemczuk, and *Viola lavrenkoana* Klokov (= V. *hymettia* Boiss. & Heldr.). In 2018, the Protection List of Kirovohrad Oblast (Kirovohrad Regional Council, 2018) was revised, with seven species with national conservation status removed from it. However, an additional separate "List of plant species included in the Red Book of Ukraine and occurring within the territory of Kirovohrad Oblast" was established (Kirovohrad Regional Council, 2018). In 2021, *Salvinia natans* (L.) All. and *Trapa natans* L. were removed from the Red Book of Ukraine (Ministry of Environmental Protection and Natural Resources of Ukraine, 2021). These two species had previously also been included in the annexes to the Bern Convention (EUNIS, 2011).

A critical assessment of the taxonomic composition of rare plants in the flora of Kirovohrad Oblast will help improve the cadastral documentation of protected areas and enable evaluations of the need to optimise them. For example, it can be achieved by protecting the habitats of rare species currently underrepresented in the protected-area network.

Rare plant species are often cultivated in addition to their natural habitats. In particular, woody species in park and forest plantations, as well as ornamental perennials. Several introduced rare woody plants, such as *Staphylea pinnata* and *Taxus baccata* L., *Torminalis glaberrima* (Gand.) Sennikov & Kurtto (= *Sorbus torminalis* (L.) Crantz) sporadically grow in parks, with the largest concentration in the state-level Dendrological Park "Veseli Bokovenky" (Kirovohrad Regional Council, 1999). Notably, *Staphylea pinnata* was planted in shelterbelts in southern Kirovohrad Oblast in the mid-20th century (KW herbarium specimens), and likely also in forest plantations, as evidenced by its recently recorded spontaneous spread within an artificial forest stand of the Hurivske Forestry (Trotner, 2024). For Hurivske Forestry, the only record of *Vitis vinifera* var. *sylvestris* in Kirovohrad Oblast was reported (Kirovohrad Regional Council, 1999). Therefore, there is reason to assume that this species is not native to the flora of Kirovohrad Oblast.

According to Arkushyna (2017), 22 ornamental rare plants are cultivated in Kropyvnytskyi, including 18 native species introduced into cultivation. Among them *Adonis vernalis*, *A. volgensis*, *Bulbocodium versicolor*, species of *Crocus*, *Galanthus elwesii* Hook f., *G. nivalis*, *Iris pontica*, *Paeonia tenuifolia*, *Tulipa quercetorum*, and others. According to our observations, the following rare plants are cultivated as ornamentals in Blahovishchenske and its surroundings: *Adonis*

vernalis, *A. volgensis*, *Clematis integrifolia*, *Convallaria majalis*, *Galanthus elwesii* Hook.f., *G. nivalis*, *Dryopteris filix-mas*, *Iris graminea*, *Ornithogalum boucheanum*, *O. orthophyllum* subsp. *kochii*, *Sempervivum ruthenicum*, and *Tulipa quercetorum*. These and other species are found in other settlements. Notably, in cultivation on flower beds, *Adonis volgensis* shows much better acclimation than *A. vernalis* and readily self-seeds. Cultivation of rare plants is an important conservation measure, but only when plants originate from introduced (cultivated) populations rather than being taken from the wild (Pereboichuk et al., 2021; Kostruba, 2024; Shynder et al., 2025).

Conclusions

A critical evaluation of floristic data indicates that the spontaneous flora of Kirovohrad Oblast comprises 151 plant species and subspecies with international, national, or regional conservation status, representing approximately 12.6 % of the native component of flora. Rare species are concentrated mainly in the forest-steppe part of the oblast (133 species). In total, 13 species with international conservation status and 65 species listed in the Red Book of Ukraine (Ministry of Environmental Protection and Natural Resources of Ukraine, 2021) are confirmed. Several additional rare plant species not previously known from the flora of Kirovohrad Oblast have now been verified or clarified (e.g., *Cephalanthera damasonium*, *Eremogone cephalotes*, *Odontarrhena tortuosa* subsp. *savranica*, and *Viola alba*).

A critical analysis of the Protection List of Kirovohrad Oblast (Kirovohrad Regional Council, 2018) reveals both conceptual and factual shortcomings: only 79 species (83.2 %) are actually confirmed for the oblast. A total of 33 species previously reported as rare for Kirovohrad Oblast are considered erroneous or insufficiently verified. The Regional List requires comprehensive revision and harmonisation with the Red Book of Ukraine and current international red lists. Priority candidates for inclusion are wetland and forest species, particularly vulnerable to ongoing climate change and habitat degradation.

Many rare species are also cultivated as ornamental plants or components of park plantations (e.g., *Adonis vernalis*, *Paeonia tenuifolia*, *Staphylea pinnata*, *Taxus baccata*, and *Tulipa quercetorum*). Such cultivation can contribute to conservation only when based on propagated material from existing cultivated stocks.

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Критичний аналіз таксономічного складу рідкісних судинних рослин у флорі Кіровоградської області

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Кіровоградська область розташована на межі лісостепової і степової зон у центральному регіоні України. Її рослинний покрив зазнав значної антропогенної трансформації. На основі польових досліджень, проведених автором у 1994–2025 рр., критичного переосмислення опублікованих даних та аналізу гербаріїв, здійснено оцінку таксономічного складу рідкісних судинних рослин флори Кіровоградської області. Загалом зафіксовано 151 дикорослий вид, які мають міжнародний, національний та регіональний охоронний статус, що становить близько 12,6% від аборигенної фракції флори області, оціненої у близько 1200 видів та підвидів. Серед них 5 видів мають пріоритетні

категорії охорони у Червоному списку МСОП, 9 видів включені до Оновленого Додатка I Бернської конвенції, 65 видів занесені до Червоної книги України, а 79 видів занесені до Переліку видів судинних рослин, які підлягають особливій охороні на території Кіровоградської області. Рідкісні рослини розподілені по території нерівномірно: 80 видів виявлено у західній (лісостеповій), 118 – у північній (лісостеповій) та 100 – у південній (степовій) частинах області; при цьому 133 види зосереджені в межах Лісостепу, що свідчить про вищий рівень флористичного різноманіття саме в цій частині регіону. На основі нових даних та попередніх публікацій вперше включено до переліку созофітів Кіровоградської області такі види, як *Cephalanthera damasonium, Eremogone cephalotes, Odontarrhena tortuosa* subsp. *savranica* та *Viola alba*. Критичний аналіз офіційного Переліку регіонально рідкісних видів рослин показує, що не всі види відповідають критеріям потреби в охороні на регіональному рівні. Частина видів, які наводилися як регіонально-рідкісні для Кіровоградської області, є непідтвердженими у дослідженій флорі, два види є адвентивними, а 3 види мають національний чи міжнародний охоронний статус. Загалом 33 рідкісних види наводилися для Кіровоградської області помилково або без належного підтвердження. Запропоновано низку заходів щодо оптимізації регіонального переліку видів, які потребують охорони в Кіровоградській області, зокрема, з увагою до малопоширених лісових і водно-болотних гранично-ареальних видів, найбільш уразливих до сучасних кліматичних змін. Наведено приклади культивування рідкісних рослин як додаткового заходу охорони *ex situ*.

Ключові слова: флора, біорізноманіття, охорона, регіонально рідкісні види, Червона книга України, Бернська конвенція, Лісостеп, Степ