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RESEARCH ARTICLE

Ornamental perennials in floriculture of Central Ukraine: taxonomic diversity, structural analysis, and naturalization success of alien species

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Abstract

This study presents a comprehensive analysis of the taxonomic diversity, acclimatization processes, and naturalization success of ornamental herbaceous perennials and semi-woody plants in Central Ukraine. The role of these plants in regional floriculture and the ecological risks associated with their introduction are discussed. It was found that regional floriculture probably has a long history, but the first specific records on the study object appeared at the end of the 18th century. The research revealed that 794 species, subspecies, and hybrids from 301 genera and 70 families are cultivated in the regional floriculture. The largest number of species and infraspecific taxa belong to the families Asteraceae (11.6 %), Asparagaceae (6.5 %), Lamiaceae (6.5 %), Ranunculaceae (6.0 %), and Crassulaceae (5.3 %). The most represented genera are *Allium* (25 species), *Iris* (19 species and hybrids), and *Primula* (14 species and hybrids). It was found that 84.5 % of the studied species and infraspecific taxa are ergasiophytes, while 15.5 % are native plants, often represented by cultivars, reflecting the predominance of introduced species and cultivars in the assortment of ornamental plants. Among the plants used in floriculture in Central Ukraine, herbaceous perennials species constitute the largest group (77.5 %), while the presence of semi-woody plants (5.1 %) and annual and biennial plants (17.4 %) is significantly lower. The distribution of native species by range types covers all major elements of the natural flora, but species with European (23.6 %), Eurasian (19.5 %), and European-Mediterranean (13.9 %) distribution patterns are the most frequently cultivated. Among ergasiophytes, most species and infraspecies have Asian (28.0 %), Mediterranean (19.4 %), and American (19.1 %) origin, with a significant proportion of hybrids and cultigenous species (11.2 %). Overall, species from all geographic regions, including tropical and oceanic zones, are represented in floriculture.

An essential aspect of the study was assessing the acclimatization and naturalization degrees of ornamental alien plants. The scheme for overcoming limiting barriers by alien species was supplemented with a model describing the acclimatization of ergasiophytes and their escape beyond cultivated areas. The acclimatization of ergasiophytes in this study is considered a controlled process that is ongoing simultaneously with spontaneous naturalization. It was found that 44.9 % of ergasiophytes achieved complete acclimatization, 15.4 % penetrated beyond cultivation sites, becoming ergasiophygophytes, 2.7 % naturalized, and 1.5 % acquired invasive status. For example, invasive plants include *Helianthus tuberosus*, *Reynoutria japonica*, and *Solidago canadensis*. Potentially invasive species requiring monitoring and further study comprise *Corydalis caucasica*, *Petrosedum orientale*, *Symphyotrichum × versicolor*, *Thladiantha dubia*, and others.

Keywords: biodiversity, hemerophytes, cultivated plants, flora, introduction, ergasiophytes, plant invasions, Kyiv, Cherkasy Oblast, climate change, ecological risks

Authors' contributions: O. Shynder made a research plan. O. Shynder and T. Kostruba conducted most of the field research and performed the analysis. O. Pereboichuk corrected the inventory list. O. Pereboichuk and S. Glukhova studied the acclimatization of ornamental ergasiophytes in Kyiv City.

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Introduction

Ornamental plants constitute the largest group of cultivated species (Philip & Lord, 2003; Brickell, 2011; Mashkovska, 2015; Byalt et al., 2019; Shynder, 2022). These are predominantly introduced exotic and highly decorative native plants. Globally, approximately 60,000 plant species are used in ornamental horticulture, making the registration of this taxonomic diversity a critical issue (Mashkovska, 2015). In Western Europe, an effort to standardize information on cultivated ornamental plants resulted in the publication of the “European Garden Flora” (Cullen et al., 2011), serving as a valuable reference for a broad audience of botanists and floriculturists.

Inventory studies of ornamental plants across specific administrative or geographic regions have been conducted in only a few countries, such as Belarus (Lunina et al., 2010). In Ukraine, numerous publications address the species and cultivar diversity of ornamental perennials, yet these works rarely take the form of comprehensive ‘floras’ (Grodzinsky, 1985). More frequently, they appear as catalogs (Gorobets, 2009; Mashkovska, 2015; Glukhova et al., 2016) or species and cultivar lists from specific collections. The most comprehensive study of ornamental plants in urban and human floriculture in Ukraine remains the works of Barbarich (1945, 1972), though these are outdated in terms of contemporary taxonomic diversity. Currently, research in this field is linked mainly to general floristic studies of urban floras (Moysiienko, 1997; Arkushyna & Popova, 2010; Vasylyeva et al., 2019a, 2019b) or has a localized focus (Yanchuk et al., 2000; Shabarova et al., 2002; Herasymiuk, 2012). Shynder (2022) realized a detailed inventory and analysis of cultivated plant flora in the Rzhyshevsk territorial community (Kyiv Oblast), revealing the dominance of ornamental plants in terms of the number of taxa.

Today, the range of ornamental plants in Ukraine continuously expands with new ergasiophytes introduced from abroad, native adapted species, and artificially created interspecific and intergeneric hybrids. As of 2008, the collection of ornamental plants at the M.M. Gryshko National Botanical Garden (Kyiv) contained over 600 species and, together with cultivars, exceeded 4,000 collection names (Gorobets et al., 2008). The consolidated catalog of ornamental perennials growing in botanical gardens and arboreta of Ukraine (Mashkovska, 2015) comprises over 12,000 entries, including more than 4,200 species and hybrids. New cultivars spread through introduction centers (botanical gardens and arboreta), commercial nurseries, and mass horticulture. However, no comprehensive data exist on the taxonomic composition of plants used in floriculture at the national or regional level. Thus, a modern inventory of the taxonomic diversity of ornamental plants in specific regions is both timely and relevant.

Moreover, given the issue of plant invasions (Maryushkina, 2002; Abduloyeva & Karpenko, 2009; Burda, 2013; Gubar & Koniakin, 2020; Kalusová et al., 2024), particularly the spread of escaped cultivated plants (Mosyakin, 1991; Zavialova, 2017; Protopopova & Shevera, 2014, 2019; Nāburga & Evarts-Bunders, 2019; Mosyakin & Mosyakin, 2021), assessing the naturalization degrees of ergasiophytes and their potential invasiveness is crucial. This is particularly relevant for the largest group among cultivated plants – ornamental perennials (Chorna, 2006b, 2020; Chorna & Kostruba, 2019; Kostruba et al., 2021; Orlov et al., 2024).

This study aimed to comprehensively investigate the taxonomic diversity, structural characteristics, and geographic origins of ornamental herbaceous and semi-woody perennials cultivated in floriculture of Central Ukraine, with particular attention to the

degree of acclimatization and naturalization success of alien species.

A brief history of floriculture in Central Ukraine

In Ukraine, ornamental gardening and folk floriculture have been well-developed for centuries. According to interpreted written and unwritten sources from the Kyivan Rus period, some researchers suggest the existence of gardens at princely courts. It is assumed that during their campaigns in the Black Sea region, Old Rus princes and their retinue undoubtedly encountered local gardens and could have brought exotic plants back to Kyiv. With the Christianization of Rus under Volodymyr the Great, religious artifacts, books, statues, and possibly plants were systematically imported from Byzantium and cultivated in the first gardens. Byzantine missionary monks could have contributed to horticulture development, particularly in establishing monastery gardens (Bilous, 2001; Dudarets, 2019). However, specific confirmed references from that period mention only food crops. There is sufficient reason to believe that fruit growing was already well-developed among the Slavs in the first millennium, while vegetable gardens in the Kyiv area were recorded in chronicles from the mid-12th century (Dovzhenok, 1961). This has been confirmed by archaeobotanical data (Kozlovska et al., 2013), although the range of vegetable and fruit crops was still quite limited.

During the 14th–16th centuries, monastic gardens expanded significantly. These gardens included fruit-bearing and medicinal plants and flowers used for landscape beautification and were of symbolic importance in religious rituals. Traditional folk ritual songs, ornaments, and decorative patterns provide additional evidence of ornamental flowers in everyday culture (Polonska-Vasylenko, 1993; Kostruba, 2020). Some ‘flowers’ are mentioned in the “Tale of Igor’s Campaign” (1187), in a passage associated with the Stuhna River (a tributary of the Dnipro south of Kyiv): “Flowers have wilted in sorrow” (Partytyskiy, 1884: p. 31), but it is likely that this refers to wild plants.

Thus, no concrete historical records or archaeological evidence confirm cultivating ornamental flowers in Kyivan Rus (Dovzhenok, 1961; Pashkevych, 1991). Furthermore, Old Rus

chronicles rarely described nature and plants (Bilous, 2001). Consequently, it can only be hypothesized that flowers were grown in princely and noble courts and in monastery gardens during that period.

In the mid-17th century, the military engineer *Beauplan* (1660) did not mention ornamental plants in his descriptions of Ukraine. However, he recorded observing wild *Prunus fruticosa* and *P. tenella* in the Dnipro River valley and introduced them to his residence in Bar (Vinnytsia Oblast) for fruit production. This suggests that, in earlier times, cultivated plants were primarily valued for their practical use. The first naturalist to document ornamental plants in Ukraine was *Güldenstädt* (1791), who reported species such as peonies, roses, ornamental sage, tulips, and carnations in the southern part of recent Cherkasy Oblast in 1774.

By the late 18th century, aristocratic estate gardens and parks began to emerge in Ukraine, often featuring numerous ornamental ergasiophytes introduced from various regions. Among them, notable were “Sofiivka” in Uman (Cherkasy Oblast) (Kosenko & Mitin, 1995) and “Oleksandria” in Bila Tserkva (Kyiv Oblast) (Doiko et al., 2013). From that period onward, the assortment of ornamental perennials expanded significantly (Paczoski, 1887; Kostruba & Chorna, 2021a; Kostruba, 2024c). *Montresor* (1881) compiled a list of about 270 highly ornamental native species recommended for garden cultivation. By the late 19th century, around 50 of these species were frequently grown in the Central Ukraine region. Traditional folk gardens incorporated aromatic and medicinal plants such as mint and thyme and plants associated with protective folklore, including periwinkle and poppy. Over time, ergasiophytes like lovage, balsam, and hollyhock became widely cultivated, forming the basis of traditional Ukrainian floriculture by the turn of the 20th century (Kostruba, 2020; Kostruba & Chorna, 2021a).

During the 20th century, the variety of cultivated ornamental plants expanded significantly, with flowers being grown even during the challenging post-war years. *Dubniak* (1924) documented popular ornamental perennials in the vicinity of Myrhorod (Poltava Oblast), including *Dahlia* × *cultorum*, *Iris* × *germanica*, *Paeonia officinalis*, *Aquilegia vulgaris*, and *Lilium bulbiferum*,

alongside native species such as *Convallaria majalis*, *Thymus* sp. (sub nom. *T. vulgaris*), and *Vinca minor*. Traditional Ukrainian gardens also commonly included aromatic and medicinal plants such as *Mentha* × *piperita*, *Ruta graveolens*, and *Levisticum officinalis*. Additionally, new ornamental species like *Hyacinthus orientalis* and *Narcissus pseudonarcissus*, which lacked traditional ethnographic associations, began appearing in home gardens.

By the early 20th century, some researchers had already noted that certain ornamental ergasiophytes exhibited a tendency toward naturalization and escape from cultivation. For instance, Oksiuk (1924) recorded spontaneously spreading alien species such as *Heliopsis scabra*, *Rudbeckia laciniata*, and *Sedum spurium* in the “Oleksandria” Dendrological Park. Thus, by the first quarter of the 20th century, the role of ornamental gardens in facilitating the escape of alien plants had been recognized (Kotov, 1928).

By the late 1930s, a defined assortment of species had been established for commercial and private ornamental horticulture in Ukraine. Bonetskyi (1927) classified floral plants into those of primary industrial significance and those of secondary economic value. Significant contributions to the study of ornamental plants in Ukraine were made by Barbarich (1938, 1940, 1945, 1972). His research focused on the Polissia, Donbas, and other regions of Ukraine. At that time, the assortment of cultivated ornamental herbaceous plants in Central Ukraine and other parts of Ukraine was still relatively limited, with species requiring minimal maintenance being the most widespread. In total, Barbarich documented around 100 species of ornamental annual and perennial herbs in villages and district centers of Kyiv and Zhytomyr oblasts, with only 15–20 species being the most commonly encountered (Barbarich, 1938). Later, his survey of 35 cities in Ukraine identified 360 ornamental plants, 172 of which were herbaceous (Barbarich, 1945). He emphasized the need to introduce more native perennial ornamental plants into cultivation, including species such as *Anemone sylvestris*, *Asparagus officinalis*, *Campanula glomerata*, *C. persicifolia*, *Leucanthemum vulgare*, *Lilium martagon*, and *Primula veris* – many of which remain popular in ornamental gardening in the Central Ukraine region today.

Thus, by the mid-20th century, a core assortment of ornamental perennials had been established in Ukraine’s floriculture, along with initial recommendations for introducing native ornamental species into cultivation.

Ongoing research on ornamental perennials continues in major research institutions for plant introduction and acclimatization in Central Ukraine. In particular, such investigations are realized at the M.M. Gryshko National Botanical Garden of the NAS of Ukraine (Grodzinsky, 1985; Kokhno, 1997; Gorobets et al., 2008), the O.V. Fomin Botanical Garden of Taras Shevchenko National University of Kyiv (Berezkina, 2007), the National Dendrological Park “Sofiivka” of the NAS of Ukraine (Kosenko, 2000), the “Oleksandria” State Dendrological Park of the NAS of Ukraine (Galkin, 2013), and the Syrets Dendrological Park (Glukhova et al., 2016, 2019). Specialized studies in this area and other parts of Ukraine have focused on specific taxonomic groups, including monocots (Shvets, 2006; Buidin & Skrypka, 2009; Pavlova et al., 2011; Shcherbacova, 2014) and dicots (Moroz, 1983; Buidin, 2004; Berezkina, 2007; Muzychuk & Prokopchuk, 2005; Horai, 2007; Muzychuk & Pereboichuk, 2009; Andrukh, 2016; Mashkovska & Pereboichuk, 2019), as well as ecological-biomorphological groups (Sydoruk & Sydoruk, 1992; Horbenko & Hrynyk, 2010; Pavlenko, 2016; Alyokhin et al., 2021) of ornamental perennials. Research also covers the status of specific collections of taxa and cultivars (Slepchenko, 2001; Skybitska & Mohyliak, 2003; Krytska et al., 2010; Shynder, 2010; Alekhin et al., 2011; Fedorchuk et al., 2012; Leshcheniuk, 2014; Rakhmetov, 2015; Mazura et al., 2020; Mamchur et al., 2023). Inventory studies of species and cultivars used in floriculture and urban landscaping have primarily been local (Karmazin & Lyskovych, 1978; Mashtaler et al., 2011; Ishchuk, 2012; Shynder, 2022) or focused on specific aspects of landscaping (Kushnir, 2005). It should be noted separately that there is a controversial aspect in the study of ornamental plants – they are often not considered part of the group of cultivated (economically significant) plants (Vulf, 1987; Nechitaylo et al., 2005).

With the introduction of many new ergasiophytes, monitoring the spontaneous spread of ornamental ergasiophytes beyond cultivation has become increasingly

important (Chorna, 2006b; Náburga & Evarts-Bunders, 2019). Many new species appearing in the spontaneous flora of Ukraine are ergasiophytes, introduced initially as ornamentals (Mosyakin, 1991; Mosyakin & Yavorska, 2002; Protopopova & Shevera, 2014). Reports on the new findings of escapees ornamental plants appear annually (Zavialova, 2008; Shynder & Negrash, 2020; Biliavskiy, 2021; Kolomiychuk & Shynder, 2021; Moysiienko et al., 2023; Koniakin et al., 2023; von Raab-Straube & Raus, 2024; Shynder et al., 2024c) or highlight high acclimatization rates and potential for naturalization of ornamental ergasiophytes (Klymenko et al., 2019; Shynder, 2019).

Thus, as an essential element of Ukrainian culture, floriculture dates back to Kyivan Rus. Over time, it has evolved into a multifaceted field, deeply rooted in local traditions while embracing modern innovations and scientific advancements.

Material and methods

The study area is located in Central Ukraine and corresponds to the forest-steppe part of the historical-geographical region known as the Middle Dnipro region (in Ukrainian spelling – Serechnye Prydniprovyia). Administratively, this includes the Cherkasy Oblast and the southern districts (within the Forest-Steppe zone) of Kyiv City and Kyiv Oblast (Fig. 1). The physical-geographical boundary between Mixed Forest (better known as Polissya or Polesia natural region) and Forest-Steppe zones was determined following Marynych et al. (2003), with refinements for the territory of Kyiv and its surroundings (Shynder et al., 2024a; Davydov, 2025).

The study objects were ornamental herbaceous perennials and semi-woody plants recorded in municipal and private flower gardens, parks, and other landscaped areas. It is acknowledged that the diversity of ornamental plants lacks strict boundaries. However, the authors applied several constraints to ensure methodological consistency and minimize subjectivity. Scientific, amateur, and commercial (sales-oriented) plant collections, which are typically enclosed and focused more on taxonomic saturation than decorative effect, were excluded from the analysis.

From a biomorphological perspective, the list includes typical perennial herbs, including those that overwinter in protected locations as perennating storage organs (e.g., *Canna × hybrida*, *Chrysanthemum × morifolium*, *Ranunculus asiaticus*, species of *Dahlia*, *Eucomis*, *Oxalis*, etc.). The study also incorporates semi-woody plants belonging to transitional groups between herbaceous and woody plants, such as low and dwarf shrubs (the tallest plant analyzed in this group is *Elsholtzia stauntonii*), and low-growing bamboo (*Pleoblastus variegatus*), which are functionally treated as perennials due to their similar horticultural uses. The cultivation techniques and applications of these plants are identical, and they are not separated in practical landscaping (Brickell, 2011). Meanwhile, low-growing shrubs with winter-hardy and relatively long-lived skeletal branches (e.g., species of *Cotoneaster*, *Dasiphora*, and *Opuntia*) were excluded from this analysis, as were woody vines and tall-growing bamboo species (Kokhno & Trofymenko, 2005). According to the Raunkiaer's (1907) classification, the study objects encompass the following eco-biomorphs: nanophanerophytes (lowest shrubs), chamaephytes (herbaceous and semi-woody plants), hemicryptophytes, and cryptophytes (polycarpic perennials). However, a detailed analysis of these biomorphs has not been conducted.

Perennial aquatic plants, which are increasingly popular in gardens (e.g., *Pontederia cordata*, *Thalia dealbata*, species and cultivars of *Nuphar*, *Nymphaea*, etc.), were not considered in this study (Mazur, 2000; Golub & Golub, 2002; Didukh & Mazur, 2013; Chikov, 2016). These plants are primarily classified as a distinct life form (Chorna, 2006a), specifically hydrophytes, following Raunkiaer's (1907) classification, making their diversity a separate research matter. Short-lived ornamental plants and perennials cultivated as annuals or biennials (e.g., *Bellis perennis*, *Dianthus barbatus*, and *Verbena bonariensis*) were addressed in a separate publication (Kostruba, 2024a).

To compile the annotated checklist (Appendix), we utilized data from our field surveys, some of which have been already previously published (Kostruba & Chorna, 2021b; Shynder, 2022; Didenko et al., 2024;



Figure 1. Study area mapped within Ukraine.

Kostruba, 2024a, 2024b; Shynder et al., 2024c). Additional sources included observation aggregators such as iNaturalist (2025) and UkrBin (2025), as well as fragmentary literature on the topic (Shabarova et al., 2002; Tatarchuk et al., 2012; Mazura et al., 2020; Boiko, 2024). We used taxonomic guides on cultivated ornamental plants (Kosenko, 2000; Philip & Lord, 2003; Berezkina et al., 2007; Gorobets et al., 2008; Doiko et al., 2013) and identification keys (Grossheim, 1949; Fedorov, 1974–1987; Tzvelev, 1989–1994, 1996–2004; Flora of North America Editorial Committee, 1993–2023; Cullen et al., 2011). Some taxonomic groups were further examined using specialized publications on *Allium* (Vvedensky, 1935; Khassanov & Fritsch, 1994; Fritsch & Abbasi, 2013), *Artemisia* (Boiko, 2011), Crassulaceae (Gallo & Zika, 2014; Bomble, 2016), *Paeonia* (Shiyan, 2011), Poaceae (Tzvelev & Probatova, 2019), *Symphyotrichum* (Hoffmann, 1996), *Tulipa* (Vvedensky, 1971), among others. We also consulted atlases and photographic albums (Bonnier et al., 1990; Gorobets, 2009; Brickell, 2011; Rothmaler, 2017; Onuk et al., 2021) and other reference materials, along with herbarium collections from KWHa and UM and expert consultations.

Applied nomenclature follows the World Checklist of Vascular Plants (Govaerts, 2023) cross-verified using Plants of the World Online database (POWO, 2025). Specific taxonomic groups were checked against specialized databases like the International Crassulaceae Network (ICN, 2025) or Hosta Library (Brashear & Meyer, 2025). Complex hybrids are listed as distinct units under the generic name with the designation ‘× *hybridum hort.*’ or another similar identifier in case of homonymy.

The study includes cultivated (and escaped from cultivation) plants species categorized into two major immigration groups: (1) **hemerophytes** – especially introduced (for cultivation) alien plants outside their natural ranges (Holub & Jirásek, 1967; Pyšek et al., 2004); and (2) **native plants** that have long been present in introduction populations, spreading primarily through gardeners and garden centers rather than direct transplantation from natural habitats (e.g., *Alkekengi officinarum*, *Galanthus nivalis*, and *Sempervivum ruthenicum*). Additionally, species of native flora cultivated as introduced cultivars (e.g., *Ranunculus repens* ‘Flore Pleno’ and *Sedum acre* ‘Golden Carpet’) were included.

To assess the tendency of hemerophytes to naturalize, the study employed the key terms of [Naegeli & Thellung \(1905\)](#): **ergasiophyte** – a cultivated alien plant that is cared for, and **ergasiophygophyte** – an escaped plant that spontaneously grows in locations where it was not planted. Acclimatization levels were evaluated using a simplified version of the introduction success scale for woody plants ([Kokhno, 1983](#)), with three levels: low (weak acclimatization, up to 40 points, characterized by poor winter and drought resistance), medium (satisfactory to good acclimatization, 41–80 points, with sufficient winter and drought resistance and flowering), and high (complete acclimatization, 81–100 points, exhibiting winter and drought resistance, viable seed production, and self-seeding). Highly acclimatized alien plants are classified as ‘**acclimatized ergasiophytes**’ ([Shynder, 2019](#); [Chorna et al., 2021](#); [Shynder et al., 2024b](#)). These are cultivated plants that have reached a high stage of acclimatization and are capable of local reproduction (by seed or vegetatively) in the area where they were planted and cared for but in new places, away from the place of primary cultivation (approximately the entire site where homogeneous maintained conditions are created), new diaspores have not yet been recorded. Similar to this group of ergasiophytes are **ergasiolipophytes** or **cultural relics** in the sense of [Naegeli & Thellung \(1905\)](#), not in the sense of [Holub & Jirásek \(1967\)](#) or [Pyšek et al. \(2004\)](#). Monitoring these plants is essential in studying floristic diversity, given their potential to escape from cultivation ([Doiko et al., 2021](#); [Kolomiychuk & Shynder, 2021](#); [Shynder et al., 2022](#)).

Ergasiophygophytes are part of the adventive fraction of flora and can be classified according to naturalization degrees ([Schroeder, 1969](#); [Kornaś, 1978](#); [Pyšek et al., 2004](#)), with the addition of ‘colonophytes’ group. The term ‘colonophytes’ was introduced by [Rikli \(1903\)](#), and is currently used as one of the stages of naturalization of alien plants ([Mosyakin, 1996](#); [Mosyakin & Yavorska, 2002](#)). These are further divided into (1) **casual alien plants** or **unstable elements** (or non-naturalized alien plants) of the adventive fraction (subdivided into **ephemerophytes** and **colonophytes**, both included in this study); and (2) **naturalized alien plants** or **stable elements** of the adventive fraction of flora (subdivided

into epecophytes and agriophytes though not distinguished here due to methodological limitations). **Epecophytes** are the plants spreading within transformed vegetation and **agriophytes** – the plants spreading within natural and ruderal vegetation ([Schroeder, 1969](#); [Kornaś, 1978](#)). Among naturalized ergasiophygophytes, invasive species were identified primarily based on regional scientific publications ([Protopopova et al., 2002](#); [Burda et al., 2015](#); [Shevera, 2017](#); [Zavialova, 2017](#); [Protopopova & Shevera, 2019](#)).

Native plants were classified based on their botanical-geographical distribution ([Kleopov, 1990](#)), while alien plants were grouped by general geographic origin ([Protopopova, 1991](#); [Mosyakin & Yavorska, 2002](#)). Additional methodological guidelines ([Lunina et al., 2010](#); [Byalt et al., 2019](#); [Vasylyeva et al., 2019a, 2019b](#); [Yena, 2020](#)) and previously acquired experience in inventorying cultivated plants ([Glukhova et al., 2016](#); [Shynder, 2022](#)) were also applied.

Results and discussion

Taxonomic diversity and structure of flora

A total of 794 taxa (species, subspecies, and hybrids) of ornamental herbaceous perennials and semi-woody plants belonging to 301 genera from 70 families were recorded ([Appendix](#)). These included two species of horsetails, nine species of ferns, 233 taxa and hybrids of monocots, and 550 taxa and hybrids of dicots.

Together with previously published data on short-lived ornamental plants ([Kostruba, 2024a](#)), the total number of cultivated ornamental herbaceous perennials and semi-woody plants used in floriculture in the studied area reaches 961 units. Although ornamental plants represent the largest group among cultivated plants (e.g., [Shynder \(2022\)](#) reported that in the Rzhyschiv community of Kyiv Oblast, ornamental plants accounted for 68.9% of all cultivated species), their diversity is lower than that of the spontaneous flora. According to [Chopyk et al. \(1998\)](#), who provided conservative estimates, the total flora of the Middle Dnieper region comprises 2,009 species. Thus, the taxonomic diversity of cultivated plants is currently lower than natural ones (excluding scientific, commercial,

and other collections). Nevertheless, the detected quantity is still high. For comparison, in the floriculture of Belarus (Lunina, 2001; Lunina et al., 2010), the cultivated flora comprises about 500 species of herbaceous perennials, 35 of which are native and 435 – are ergasiophytes, with approximately 650 ornamental plant species and infraspecific taxa totally listed.

Among the recorded ornamental plants, 703 are full-fledged taxa (species and subspecies, along with several varieties), and at least 91 hybrids (including simple hybrids and heterogeneous hybrid cultivar complexes of various origins), many of which have accepted names. The high number of hybrids among cultivated plants complicates an objective analysis of their diversity compared to natural floras. However, this is a key feature of cultivated floras, and analyzing cultivated plants with the same methods as wild plants allows for an assessment of changes in the structure of domesticated species. One of the most significant differences is the predominance of hybrids among cultivated plants, 11.5% of which were counted. This figure is undoubtedly underestimated if one hypothetically considers all parental combinations used in breeding the cultivars in the study area (and thus the actual level of genetic diversity present), but it provides a comprehensible and standardized approach.

The dominant family in the studied dataset (Table 1) is Asteraceae, a trend that aligns with natural floras (Protopopova, 1991; Grechyshkina, 2010; Shynder et al., 2021). However, the ranking of subsequent families is quite similar to that reported for ornamental plants in Belarus (Lunina et al., 2010). The high number of cultivated species representing Crassulaceae and Saxifragaceae families, which are relatively small in the natural flora of Ukraine, is noteworthy. The increased overall proportion of monocots (29.1%) among ornamental plants also deserves attention. At the same time, large families such as Apiaceae, Brassicaceae, Cyperaceae, and Fabaceae contain relatively few ornamental species and infraspecies.

In most cases, dominant families are those rich in large-flowered, insect-pollinated species attractive for cultivation. Poaceae is an exception, valued for its distinctive growth habit, making it desirable for various

Table 1. Leading families of ornamental perennials in floriculture of Central Ukraine.

Family	Number of taxa	%
Asteraceae	92	11.6
Asparagaceae	52	6.5
Lamiaceae	52	6.5
Ranunculaceae	48	6.0
Crassulaceae	42	5.3
Liliaceae	35	4.4
Poaceae	35	4.4
Amarylidaceae	34	4.3
Rosaceae	32	4.0
Iridaceae	29	3.7
Saxifragaceae	29	3.7
Total	480	60.5

flower beds and gardens. At least 13 families represented in the dataset (including Aizoaceae, Mazaceae, and Saururaceae) are exotic to the flora of Ukraine.

Among cultivated ornamental perennials, the most species-rich genera are *Allium* (25 species), *Iris* (19 species and hybrids), *Primula* (14 species and hybrids), *Campanula*, *Salvia*, *Tulipa*, and *Viola* (each four with 13 species and hybrids), *Geranium* and *Hylotelephium* (11 species and hybrids each), and *Carex*, *Hosta*, and *Lilium* (each three with 10 taxa).

Among cultivated plants used in the floriculture of Central Ukraine, 743 taxa (77.5%) are herbaceous perennials, while 51 taxa (5.1%) are semi-woody plants. Additionally, 167 taxa (17.4%) are short-lived ornamental plants (Kostruba, 2024a). This ratio is generally characteristic of both natural flora (Grechyshkina, 2010; Shynder et al., 2021) and the cultivated flora of the region (Shynder, 2022). However, the disproportionately high share of subshrubs highlights their overall attractiveness and suitability for ornamental gardening. The study also revealed that a significant proportion of alien cultivated plants exhibit low acclimatization levels due to the region's temperate climate, which includes harsh winters (Osadchyi et al., 2010). As a result, many perennials and even shrubs introduced from warmer regions are grown

Table 2. Distribution of native ornamental perennials in floriculture of Central Ukraine by natural range types.

Range	Number of taxa	%
European	29	23.6
Eurasian	24	19.5
European-Mediterranean	17	13.9
Mediterranean	14	11.4
Holarctic	11	8.9
Eurasian steppe	9	7.3
Boreal	8	6.5
Palaearctic	6	4.9
European-Siberian	3	2.4
multiregional	2	1.6
Total	123	100.0

as annuals in Ukrainian temperate zones (Vasylyeva et al., 2019a; Kostruba, 2024a). However, 23 facultative perennial plants are also cultivated, which require winter protection, although more such plants are in specialized collections.

By immigration type, 671 species, subspecies, and hybrids (84.5%) are classified as ergasiophytes, while 123 species and subspecies (15.5%) are formally native to the study region. However, over half of these native taxa are represented by non-native cultivars. In practical floristics, it is generally not customary to consider the origin of intraspecific forms (including cultivars) separately from the species (or subspecies) when addressing typical research tasks. In general, a large number of native species are classified as ornamental plants (Moroz, 1970; Sydoruk, 1970; Zelinka & Shymanska, 1976; Antonyuk et al., 1977; Cherniak et al., 1998; Glukhov et al., 2010; Pereboichuk et al., 2021). Popovych et al. (2018) identified 2,982 species in the natural flora of Ukraine as possessing ornamental properties (65.9% of the entire Ukrainian flora), with 1,420 of these species naturally occurring in the Forest-Steppe zone. However, only a small fraction of these native plants are practically cultivated in gardens.

It has often been noted that many rare and endangered species possess high ornamental

value. In fact, the aesthetic appeal of these species has been one of the factors leading to the decline of natural populations and even their extinction (Sobko & Gaponenko, 1996; Didenko, 2000; Michailovich, 2011). Therefore, cultivating rare ornamental species of local origin is one of the measures for their conservation, provided that these domesticated populations have long been established in cultivation and are propagated in gardens without being supplemented with new plants from the wild, which would otherwise lead to further declines in natural populations (Pereboichuk, 2023; Kostruba, 2024b).

The distribution of cultivated plants by their natural ranges is highly diverse (Table 2). The geographical distribution of native flora taxa generally encompasses all major geographical elements of the natural flora (Shynder et al., 2021), and among native ornamental plants, there is no pronounced geographical specificity. The use of native species will remain relevant in landscaping, particularly through cultivating highly ornamental rare plants and simple (non-hybrid) varieties of local species (Antonyuk et al., 1977).

The geographical distribution of alien ornamental plants (Table 3) is even more diverse, particularly due to the presence of many ergasiophytes of African and Oceanian origin. However, the majority originate from Asia, the regions of the Ancient Mediterranean, and the Americas. Among Asian plants, 100 taxa (14.9%) have been introduced from East Asia, 17 (2.5%) from the Caucasus, and 13 (1.9%) from the Far East (Eastern Siberia). The largest proportion of the ergasiophytes of American origin is from North America, accounting for 122 taxa (18.2%). There is also a high percentage of cultivated plants of cultigenous (hybrid) origin and European (primarily Central and Western European) origin. This diverse spectrum with a high representation of these groups is generally characteristic of the flora of cultivated plants (Byalt et al., 2019; Shynder, 2022). The geographical origin of ornamental plants in Belarus (Lunina et al., 2010) closely resembles these data, indicating common patterns in the overall pool of introduced plants in regions of Eastern Europe. Interestingly, the geographical spectra of the adventive fractions of spontaneous floras (Protopopova, 1991; Mosyakin & Yavorska, 2002; Shynder

et al., 2021) are generally less diverse. However, they also predominantly consist of alien plants of American, Asian, and Mediterranean origin, whereas spontaneous floras in our region include almost no wild plants from the Southern Hemisphere. The proportion of non-native plants of hybrid (cultigenous) origin in the adventive fraction is significantly lower, primarily because many hybrids are sterile and do not tend to naturalize.

The overall geographical spectrum of cultivated herbaceous perennials and semi-woody plants is presented in Fig. 2. It illustrates the poly-regional nature and global diversity of species used for landscaping in Central Ukraine. It is anticipated that, with the continued warming of the local climate, the proportion of thermophilic perennials from tropical and subtropical regions in floriculture will increase, as they are already frequently used in landscaping in European countries with warmer climates (Cullen et al., 2011) and are commonly grown under greenhouses in our region (Vasylyeva et al., 2019a).

Acclimatization and naturalization of hemerophytes and their invasions

At the end of the 20th century, awareness of the issue of cultivated plants spreading beyond the boundaries of introduction

Table 3. Distribution of alien ornamental perennials plants by geographical origin.

Origin	Number of taxa	%
Asian	188	28.0
Mediterranean	130	19.4
American	128	19.1
cultigenous	75	11.2
European	71	10.6
European-Mediterranean	19	2.8
African	10	1.5
Eurasian steppe	10	1.5
Eurasian	9	1.3
Boreal	7	1.0
Mediterranean-Asian	7	1.0
Oceanic	5	0.7
Holarctic	4	0.6
European-Siberian	3	0.4
Paleotropic	2	0.3
Eurasian desert	1	0.2
Palaearctic	1	0.2
multiregional	1	0.2
Total	671	100.0

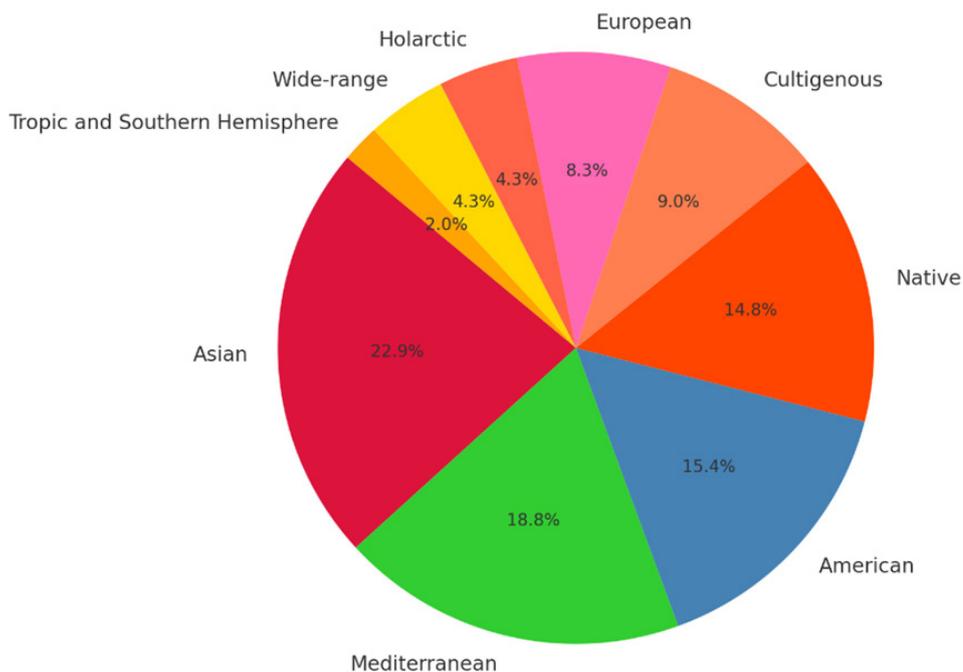


Figure 2. Geographical spectrum of ornamental perennials in floriculture of Central Ukraine.

facilities began to grow. Among the wild-growing plants, escaped ornamental cultivars were increasingly recorded (Mosyakin, 1991; Mosyakin & Yavorska, 2002; Burda, 2013; Orlov, 2019; Strgulc Krajšek et al., 2020). Over 60 species of ornamental short-life and perennial plants have already been discovered in the flora of the Middle Dnieper region (Chopyk et al., 1998). Subsequently, the number of ornamental ergasiophytes escaping from cultivation increased continuously (Koniakin et al., 2023; Shynder et al., 2024c). Among the ornamental plants promoted for landscaping in Ukraine, highly invasive species remain present. According to the monitoring study of Rusanova & Bengus (2020), 79 actively marketed ornamental species have already become invasive in Ukraine. The expanding diversity of plant nursery assortments and the import of new floricultural species drive this trend. The mass introduction of new ergasiophytes facilitates their naturalization and contributes to further plant invasions (Protopopova, 1988; Protopopova et al., 2002; Burda, 2013; Protopopova & Shevera, 2013, 2014; Burda et al., 2015; Zavialova, 2017). At present, these negative phenomena have been exacerbated by global climate change, which has accelerated the naturalization of many species, particularly those originating from warmer regions (Didukh & Chorney, 2016; Nāburga & Evarts-Bunders, 2019; Rakhmetov & Zaimenko, 2022).

The general process of naturalization of alien plants is multi-staged, beginning with their introduction into new environmental conditions. This study focuses on the naturalization of ergasiophytes that have escaped from cultivation after initially being introduced for horticulture. In the practice of targeted plant introduction in scientific research institutions in Eastern Europe, primarily botanical gardens, one of the main objectives is the acclimatization of ergasiophytes – defined as the process by which a species adapts to new ecological conditions. During the cultivation of plants in botanical gardens, the assessment of successful acclimatization has been a key issue, and a simple but effective yet universal methodology for this purpose was developed by Kokhno (1983). Within this framework, naturalization is considered the highest stage of acclimatization (Kharkevich, 1966;

Kokhno & Kurdyuk, 1994). However, regarding ergasiophytes, the concept of naturalization is not practically applicable, as these plants are deliberately planted and cultivated in specifically designed environments.

Richardson et al. (2000) analyzed various definitions of the term ‘naturalization’ in the context of plant invasions. Hence, wild alien plants (in this case, escapes from cultivation, i.e., ergasiophytes) are considered those in the process of naturalization. A commonly used classification of the degrees of naturalization of adventive plants is based on their level of adaptation to local conditions and their penetration into new ecosystems (Schroeder, 1969; Kornaś, 1978; Mosyakin, 1996; Mosyakin & Yavorska, 2002). At the stage of initial spontaneous introduction into a new environment, alien plants are considered accidental elements of the spontaneous flora. At this stage, they are classified as ephemerophytes (Schroeder, 1969) or colonophytes, as the next stage of naturalization (Mosyakin, 1996). Successful establishment in new habitats and subsequent expansion indicate that an alien plant has become naturalized and is now a stable element of the flora. At this stage, depending on the type of habitat into which these species have penetrated, they are divided into epecophytes (spreading within transformed vegetation) and agriophytes (spreading within natural and ruderal vegetation) (Schroeder, 1969; Kornaś, 1978). Naturalized plants with high reproductive capacity and spreading aggressively are classified as ‘invasive’, while those that significantly alter ecosystems are distinguished as ‘transformers’ (Richardson et al., 2000; Pyšek et al., 2004).

To analyze the set of ornamental ergasiophytes and assess their contribution to the adventive fraction of the flora, we accept the approach of Eastern European researchers, who claimed that acclimatization and naturalization of cultivated alien plants are closely linked and constitute stages of a single process (Kharkevich, 1966; Kokhno & Kurdyuk, 1994; Burda, 2013). However, these two stages have long been studied separately, hindering the formation of a unified conceptual approach for a standardized study of the entire process of cultivated plant acclimatization and their subsequent naturalization beyond cultivation. Notably, Richardson et al. (2000) developed a

scheme widely recognized today and unified for introducing, naturalizing, and invading alien plants, providing a detailed description of these categories. However, the authors did not give a standard single name for the long process of gradual overcoming by a species of many limiting barriers. In this scheme, naturalization begins after an alien plant spontaneously crosses the 'environmental barrier' and physically survives in the new conditions. The proposed model is primarily designed for the spontaneous progression of an alien species through various barriers. For example, the explanation states that the introduction of 'casual alien plants' (i.e., overcoming the 'geographical barrier' in the scheme) occurs through 'waifs' or 'persisting after cultivation'.

The scheme of Richardson et al. (2000) does not incorporate cultivated plants, but cultivation facilitates the process by which an alien plant overcomes geographical, environmental, and often reproductive barriers. This means that it undergoes acclimatization (and, in some cases, reaches the naturalization stage) under controlled conditions. Depending on the success of an ergasiophyte's acclimatization, its spontaneous spread beyond cultivation may signify either the return to initial geographical barrier A or the immediate transition to overcoming higher barriers (Fig. 3). This explains the high invasive potential of many ergasiophytes, as they can skip the initial barriers (after escaping from cultivation). Essentially, the acclimatization of ergasiophytes should be considered a controlled process (as it occurs under cultivation), which runs parallel to the spontaneous introduction and naturalization of alien plants. We illustrate how this process unfolds in the modified scheme (Fig. 3) based on Richardson et al. (2000). Importantly, this scheme is universal to extend its application to both spontaneously introduced species and cultivated plants undergoing acclimatization. Ergasiophytes with low acclimatization potential may be inadvertently introduced into spontaneous habitats (e.g., through plant debris), effectively crossing the geographical barrier A. However, it is most likely that these plants will disappear at the stage of ephemerophytes, failing to survive the first adverse conditions of drought or winter. An example of this phenomenon includes certain

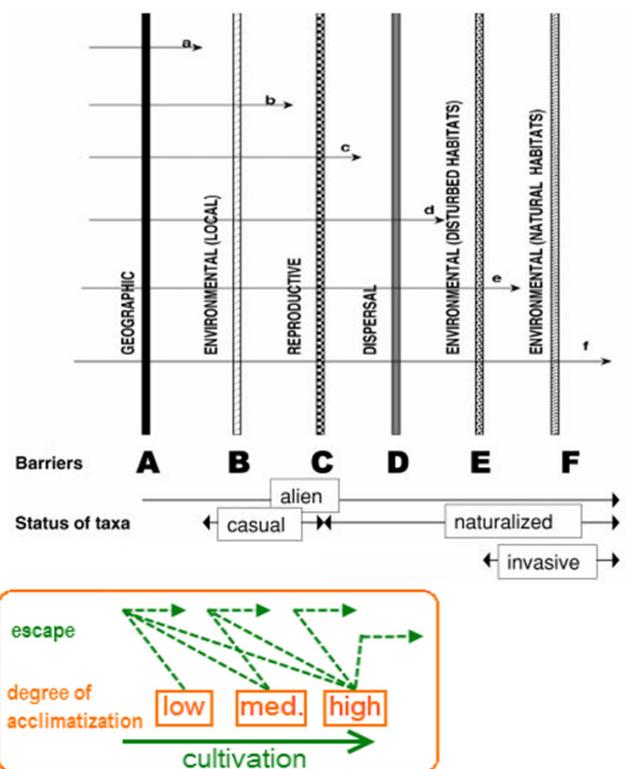


Figure 3. Acclimatization and naturalization of ornamental perennials concerning their potential ability to overcome key limiting barriers. The original scheme of Richardson et al. (2000) supplemented with an additional insert (see explanation in the text).

tropical plants whose rhizomes or shoots were discarded from greenhouses and managed to take root in plant waste disposal sites.

Ergasiophytes with medium acclimatization have already overcome the environmental barrier B under cultivation conditions. However, if cultivation ceases, they will have to struggle for survival again at the ephemerophyte stage, making further naturalization unlikely. In contrast, fully acclimatized ergasiophytes, in our view, are capable of spontaneously crossing not only the initial geographical barrier A, environmental barrier B, and reproductive barrier C but also the dispersal barrier D (Fig. 3). Examples include *Clematis vitalba* and *Solidago canadensis*. In most cases, the acclimatized ergasiophytes have a high potential to escape from cultivation and undergo further naturalization, which is why monitoring this group is crucial. It is also important to note that the formation of self-seeding and vegetative reproduction at the cultivation site is not considered an escape from cultivation

(Shynder, 2019). This understanding aligns with the definition of the term 'ergasiophygyte' – a foreign plant transitions into this category when it establishes itself in a new location, not at the site of intentional introduction, where it remains classified as an 'ergasiophyte' (Naegeli & Thellung, 1905).

Hence, based on the assessment of acclimatization levels among the studied sample of ergasiophytes, 26 taxa (3.9%) were found to have low acclimatization, 344 taxa (51.2%) had moderate acclimatization, and 301 taxa (44.9%) exhibited high acclimatization. Among the highly acclimatized ergasiophytes, 193 taxa and hybrids were recorded as self-seeding, 48 as self-seeding (in some cases, with probable vegetative reproduction), and 60 as reproducing vegetatively.

From a total number, 103 taxa (15.4%) of ergasiophygoephytes were recorded beyond cultivation within the study area. Of these, 101 taxa were acclimatized ergasiophytes in cultivation; one had moderate acclimatization (*Hylotelephium* × *mottramianum*), and one species exhibited low acclimatization (*Albuca bracteata*). Among the ergasiophygoephytes, based on their degree of naturalization, 85 taxa (12.7%) were identified as casual species and hybrids, including 34 ephemerophytes (5.1%) and 51 colonophytes (7.4%). Additionally, 18 taxa (2.7%) were classified as naturalized species.

Among the naturalized plants in the study area, seven invasive have been identified as such by experts (Zavialova, 2017; Protopopova & Shevera, 2019; Didenko et al., 2022): *Asclepias syriaca*, *Helianthus tuberosus*, *Lupinus polyphyllus*, *Reynoutria japonica*, *Saponaria officinalis*, *Solidago canadensis*, and *Zizania latifolia*, as well as *Rudbeckia laciniata* and *Symphyotrichum* × *salignum*. However, according to our data, the latter two species do not exhibit expansion within the studied region. Additionally, *Acorus calamus* and *Arrhenatherum elatius* were classified as invasive species for Ukraine (Protopopova & Shevera, 2019). However, *Acorus calamus* naturalized in Ukraine long before the cultivation of its ornamental cultivars began, while *Arrhenatherum elatius* is native to the study area in frames of the Right-Bank Forest-Steppe natural region (Prokudin et al., 1977). Therefore, there is no reason to consider these species as invasive in this

study. Moreover, the nothospecies *Reynoutria* × *bohemica* has been considered a potentially invasive species (Zavialova, 2017; Shevera, 2017). However, according to recent data, it behaves as a naturalized expansive species in the study area and is more widely distributed than the already established invasive species *R. japonica*. For this reason, we also classify *R. × bohemica* as an invasive plant. Thus, the total number of invasive plants among the ornamental herbaceous ergasiophygytes in the study area is 10, accounting for 10.7% of their total number and 1.5% of the overall diversity of ornamental herbaceous perennials and semi-woody plants.

Based on expert assessments (Zavialova, 2017), the following species have been classified as potentially invasive: *Helianthus* × *laetiflorus*, *Mirabilis nyctaginea*, *Silphium perfoliatum*, *Solidago gigantea*, *Symphyotrichum novae-angliae*, and *S. novi-belgii*. We fully agree with this classification for the mentioned species. Additionally, based on our research, we also consider the following species to be potentially invasive: *Corydalis caucasica*, *Petrosedum orientale*, *Symphyotrichum* × *versicolor*, and *Thladiantha dubia*, which are currently undergoing expansion (Kostruba et al., 2021; Shynder et al., 2023b). Furthermore, a gradual increase in the occurrence of certain colonophytes (i.e., *Allium tuberosum*, *Lathyrus latifolius*, and *Symphytum caucasicum*) has been observed, indicating their progressive naturalization and the possibility of classifying them as potentially invasive species.

Thus, ornamental perennials serve as one of the sources of invasive plant enrichment in the flora. However, considering they represent the largest group among cultivated plants, their overall contribution to the group of invasive species remains relatively small. For instance, among the 64 highly invasive plant species in Ukraine (Protopopova & Shevera, 2019), 33 are ergasiophygytes, but only seven of them are ornamental perennials. Among the 17 transformer species recorded in protected areas of the Forest-Steppe of Ukraine (Burda et al., 2015), only one species (i.e., *Solidago canadensis*) belongs to the group of ornamental perennials. As shown in Fig. 4, the proportion of different groups of the studied plants, based on acclimatization and naturalization levels, aligns well with the ecological 'rule of ten' (Williamson, 1993). According to this rule, 1 in 10

of those alien appears in the wild (introduced or casual), 1 in 10 of those introduced becomes established, and 1 in 10 of those established becomes a pest (Williamson, 1993; Williamson & Fitter, 1996), particularly when considering some adjustments previously noted for the population of escaped plants (Williamson & Fitter, 1996).

Conclusions

For the first time in Ukraine, the taxonomic composition of ornamental herbaceous perennials and subshrubs used in floriculture of a particular region (Central Ukraine) has been studied. The annotated flora includes 794 species and infraspecies of herbaceous perennials and semi-woody plants from 301 genera and 70 families used in floriculture. Among them, 84.5% are ergasiophytes, while 15.5% belong to native flora. Overall, perennials (77.5%) represent the largest biomorphological group among ornamental herbs and subshrubs. In the geographic spectrum of native ornamental plants, European (23.6%), Eurasian (19.5%), and European-Mediterranean (13.9%) species and infraspecies dominate. Among ergasiophytes, Asian (28.0%), Mediterranean (19.4%), and American (19.1%) representatives are most prevalent. The proportion of hybrids and cultigenous species in the overall floriculture flora reaches 11.2%, indicating an active use of hybrid-origin cultivars in floriculture.

For the first time, the essence of the acclimatization process of ergasiophytes and their escape from cultivation has been analyzed within the framework of the limiting barrier model for alien species. The acclimatization of cultivated plants is considered a controlled process that occurs parallel to spontaneous naturalization. It was found that among the studied decorative ergasiophytes, 44.9% are fully acclimatized, 51.2% have moderate or low acclimatization, which restricts their spread without care, and 3.9% exhibit weak or unstable acclimatization. Overall, 15.4% of ergasiophytes have escaped cultivation and become ergasiophygoephytes. Among them, 2.7% of taxa have already naturalized, and 1.5% have become invasive, including *Asclepias syriaca*, *Helianthus tuberosus*, *Reynoutria japonica*, *Solidago canadensis*,

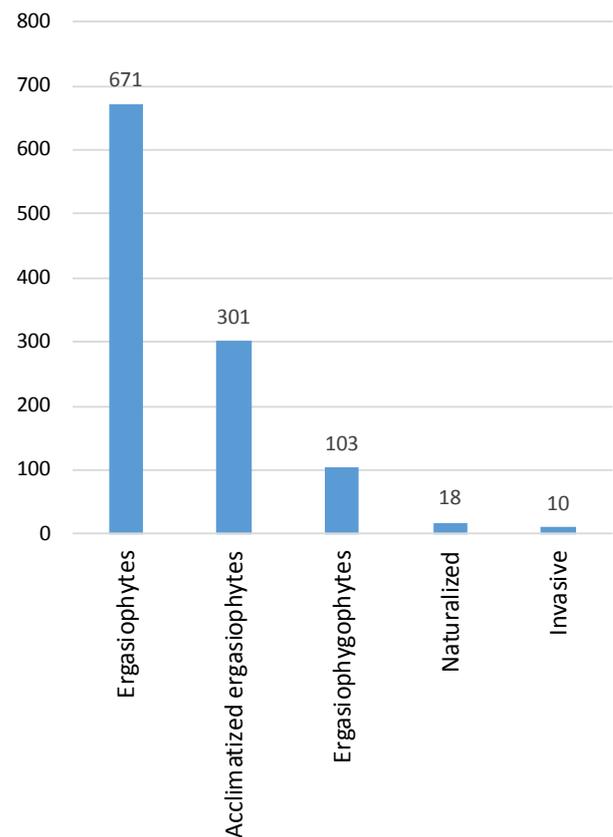


Figure 4. Distribution of ornamental perennials by acclimatization and naturalization stages in Central Ukraine.

Zizania latifolia, etc. However, while ornamental plants are a significant source of plant invasions, their relative proportion of invasive species remains comparatively low. Based on this study, several naturalized and casual species have been identified as expanding and potentially invasive, including *Allium tuberosum*, *Corydalis caucasica*, *Lathyrus latifolius*, *Petrosedum orientale*, *Symphyotrichum* × *versicolor*, *Symphytum caucasicum*, and *Thladiantha dubia*.

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Appendix. Annotated list of ornamental herbaceous perennial and semi-woody plants in floriculture of Central Ukraine (Kyiv City, Cherkasy Oblast and Kyiv Oblast).

Designations:

Imm – immigration element of the flora:

hemerophyte

native

(cv.) – represented by cultivars

Accl. – degree of acclimatization:

low

med. – medium

high

self-seed. – self-seeding

abund. self-seed. – abundant self-seeding

veg. spread. – vegetative spread

pot. prop. cutt. – potentially propagates by cuttings

Spont. – spontaneous spread:

casual (ephemerophyte, colonophyte)

naturalized

invasive

potent. invas. – potentially invasive

L.f. – life form:

herb. perennial

subshrub

Range – natural area (for native plants):

Boreal

Euras – Eurasian

Euro – European

Euro-Med – European-Mediterranean

Euro-Sib – European-Siberian

Holarct – Holarctic

Med – Mediterranean (in a broad sense, see [Kleopov, 1990](#))

Multi – multiregional (incl. cosmopolitan)

PARct – Palearctic

Steppe – Eurasian steppe

Origin (for hemerophytes):

Afr – African

Am – American

As – Asian

Boreal

Desert – Eurasian desert

Euras – Eurasian

Euro – European

Euro-Med – European-Mediterranean

Euro-Sib – European-Siberian

Holarct – Holarctic

Med – Mediterranean (in a broad sense, see [Kleopov, 1990](#)),

Med-As – Mediterranean-Asian

Multi – multiregional

Oc – Oceanic

PARct – Palearctic

Ptrop – Paleotropic

Steppe – Eurasian steppe

cult. – cultigenous:

(NZ) – New Zealand

(Caucas) – Caucasus

(Sib) – Siberia

(fe) – far east

(c) – central

(e) – eastern

(s) – southern

(w) – western.

Horsetails

Equisetaceae

1. *Equisetum hyemale* L. – Imm.: native. – L.f.: herb. perennial. – Range: Multi

2. *Equisetum telmateia* Ehrh. – Imm.: native. – L.f.: herb. perennial. – Range: Euro-Med

Ferns

Aspleniaceae

3. *Asplenium ceterach* L. (= *Ceterach officinarum* Willd.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro-Med

4. *Asplenium scolopendrium* L. (= *Phyllitis scolopendrium* (L.) Newman). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med

Athyriaceae

5. *Athyrium niponicum* (Mett.) Hance. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)

Dryopteridaceae

6. *Dryopteris dilatata* (Hoffm.) A.Gray. – Imm.: native. – L.f.: herb. perennial. – Range: Euro
 7. *Dryopteris filix-mas* (L.) Schott. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Holarct

Onocleaceae

8. *Onoclea sensibilis* L. – Imm.: native. – L.f.: herb. perennial. – Range: Holarct
 9. *Onoclea struthiopteris* (L.) Roth (= *Matteuccia struthiopteris* (L.) Tod.). – Imm.: native. – L.f.: herb. perennial. – Range: Boreal

Osmundaceae

10. *Osmunda regalis* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Multi (Euro-Med-Afr)

Polypodiaceae

11. *Polystichum setiferum* (Forssk.) T.Moore ex Woynar. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro-Med

Angiospermae

Monocots

Acoraceae

12. *Acorus calamus* L. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – Spont.: naturalized, invasive. – L.f.: herb. perennial. – Origin: As(s)
 13. *Acorus gramineus* Aiton. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)

Alismataceae

14. *Alisma plantago-aquatica* L. – Imm.: native. – L.f.: herb. perennial. – Range: PARct

Amaryllidaceae

15. *Allium aflatunense* B.Fedtsch. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: As(c)
 16. *Allium altissimum* Regel. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(c)
 17. *Allium ascalonicum* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
 18. *Allium caeruleum* Pall. – Imm.: hemerophyte. – Accl.: high (self-seed, veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(c)
 19. *Allium carinatum* L. subsp. *pulchellum* (G.Don) Bonnier & Layens. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
 20. *Allium cristophii* Trautv. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(c)
 21. *Allium giganteum* Regel. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(c)
 22. *Allium grande* Lipsky. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(c)
 23. *Allium karataviense* Regel. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(c)
 24. *Allium lusitanicum* Lam. (= *A. montanum* Schmidt). – Imm.: native. – L.f.: herb. perennial. – Range: Euro
 25. *Allium moly* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
 26. *Allium narcissiflorum* Vill. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 27. *Allium nutans* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(Sib.)
 28. *Allium oreophilum* C.A.Mey. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(c)
 29. *Allium paradoxum* (M.Bieb.) G.Don. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(w)
 30. *Allium pervestitum* Klokov. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Steppe
 31. *Allium porrum* L. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(w)
 32. *Allium rosenorum* R.M.Fritsch (= *A. rosenbachianum* auct. non Regel). – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(c)
 33. *Allium schoenoprasum* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Boreal
 34. *Allium siculum* (Ucria) Lindl subsp. *dioscoridis* (Sm.) K.Richt. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
 35. *Allium sphaerocephalon* L. – Imm.: native. – L.f.: herb. perennial. – Range: Med
 36. *Allium stipitatum* Regel. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(c)
 37. *Allium strictum* Schrad. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euras
 38. *Allium tuberosum* Rottler ex Spreng. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(e)
 39. *Allium ursinum* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euro
 40. *Galanthus elwesii* Hook. f. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 41. *Galanthus nivalis* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euro
 42. *Galanthus plicatus* M.Bieb. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Med(e)

43. *Leucojum aestivum* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro-Med
 44. *Leucojum vernum* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
 45. *Narcissus assoanus* Dufour ex Schult. & Schult.f. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
 46. *Narcissus poeticus* L. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Euro
 47. *Narcissus tazetta* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med-As(s)
 48. *Narcissus × hybridus* hort. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: cult.

Araceae

49. *Arisaema triphyllum* (L.) Schott s.l. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: Am(n)

Asparagaceae

50. *Agave amica* (Medik.) Thiede & Govaerts (= *Polianthes tuberosa* L.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 51. *Albuca bracteata* (Thunb.) J.C.Manning & Goldblatt (= *Ornithogalum caudatum* Aiton). – Imm.: hemerophyte. – Accl.: low. – Spont.: , casual? (hemerophyte). – L.f.: perennial (facult.). – Origin: Afr. – Note. The species was recorded in the territory of Cherkasy Oblast (Hulyaygorodok village) as an escapee from amateur cultivation, collected in 1895 (Montresor, 1898). Apparently, it was an casual plant, likely introduced beyond cultivation with plant waste.
 52. *Anthericum liliago* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 53. *Asparagus tenuifolius* Lam. – Imm.: native. – L.f.: herb. perennial. – Range: Med
 54. *Camassia cusickii* S.Wats. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 55. *Camassia leichtlinii* (Baker) S.Watson. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 56. *Convallaria majalis* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Holarct
 57. *Dichelostemma ida-maia* (Alph.Wood) Greene. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 58. *Disporopsis pernyi* (Hua) Diels. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 59. *Eucomis autumnalis* (Mill.) Chitt. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: Afr
 60. *Eucomis vandermerwei* I.Verd. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: Afr
 61. *Hosta × lancifolia* hort. (= *H. × lancifolia* (Thunb.) Engl.). – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(e). – Note. A sterile plant, which is also considered a cultivar ‘Lanceolata’, is likely derived from *H. sieboldii* (Brashear & Meyer, 2025).
 62. *Hosta longipes* (Franch. & Sav.) Matsum. var. *gracillima* (F.Maek.) N.Fujita (= *H. gracillima* F.Maek.). – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(e)
 63. *Hosta minor* (Baker) Nakai. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 64. *Hosta plantaginea* (Lam.) Asch. (= *Funkia japonica* (Thunb.) Druce). – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(fe)
 65. *Hosta sieboldiana* (Hook.) Engl. (= *H. fortunei* (Baker) L.H.Bailey, *Hosta crispula* F.Maek. (cv.)). – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(e)
 66. *Hosta sieboldii* (Paxton) J.W.Ingram (= *H. albomarginata* (Hook.) Ohwi). – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(e)
 67. *Hosta × undulata* hort. (= *H. × undulata* (Otto & A.Dietr.) L.H.Bailey). – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(e). – Note. ‘Undulata’
 68. *Hosta ventricosa* Stearn. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 69. *Hosta venusta* F.Maek. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 70. *Hosta × hybrida* hort. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: cult.
 71. *Hyacinthoides hispanica* (Mill.) Roth. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
 72. *Hyacinthus orientalis* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(w)
 73. *Liriope muscari* (Decne.) L.H.Bailey. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 74. *Muscari armeniacum* H.J.Veitch. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Med
 75. *Muscari aucheri* (Boiss.) Baker. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med(e)
 76. *Muscari botryoides* (L.) Mill. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (hemerophyte). – L.f.: herb. perennial. – Origin: Euro-Med
 77. *Muscari comosum* (L.) Mill. (= *Leopoldia comosa* (L.) Parl.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 78. *Muscari latifolium* J.Kirk. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med(e)
 79. *Muscari neglectum* Guss. ex Ten. – Imm.: native. – L.f.: herb. perennial. – Range: Euro-Med
 80. *Muscari tenuiflorum* Tausch (= *Leopoldia tenuiflora* (Tausch) Heldr.). – Imm.: native. – L.f.: herb. perennial. – Range: Med
 81. *Muscarimia muscari* (L.) Losinsk. (= *M. moschatum* Willd.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(w)
 82. *Ophiopogon japonicus* (Thunb.) Ker Gawl. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 83. *Ophiopogon planiscapus* Nakai. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 84. *Ornithogalum boucheanum* (Kunth) Asch. – Imm.: native. – L.f.: herb. perennial. – Range: Med. – Note. Cultivated outside its natural range and easily propagated by self-sowing (Shynder et al., 2023a).
 85. *Ornithogalum fimbriatum* Willd. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med

86. *Ornithogalum nutans* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
 87. *Ornithogalum orthophyllum* Ten. subsp. *kochii* (Parl.) Zahar. (= *O. gussonii* auct. non Ten.). – Imm.: native. – L.f.: herb. perennial. – Range: Med
 88. *Ornithogalum umbellatum* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
 89. *Polygonatum humile* Fisch. ex Maxim. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 90. *Polygonatum latifolium* (Jacq.) Desf. – Imm.: native. – L.f.: herb. perennial. – Range: Euro
 91. *Polygonatum multiflorum* (L.) All. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Holarct
 92. *Polygonatum odoratum* (Mill.) Druce. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euras. – Note. 'Variegatum'
 93. *Puschkinia scilloides* Adams. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Med
 94. *Scilla luciliae* (Boiss.) Speta (= *Chionodoxa luciliae* Boiss.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med(w)
 95. *Scilla monanthos* K.Koch. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 96. *Scilla siberica* Andrews. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Med
 97. *Triteleia laxa* Benth. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 98. *Yucca filamentosa* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Am(n)
 99. *Yucca flaccida* Haw. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Am(n)
 100. *Yucca glauca* Nutt. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Am(n)
 101. *Yucca gloriosa* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Am(n)

Asphodeliaceae

102. *Eremurus fuscus* (O.Fedtsch.) Vved. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(c)
 103. *Eremurus × isabellinus* R.Vilm. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 104. *Eremurus spectabilis* M.Bieb. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 105. *Eremurus stenophyllus* (Boiss. & Buhse) Baker subsp. *stenophyllus*. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(c)
 106. *Eremurus stenophyllus* subsp. *aurantiacus* (Baker) Wendelbo (= *E. aurantiacus* Baker). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(cs)
 107. *Hemerocallis citrina* Baroni. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 108. *Hemerocallis fulva* (L.) L. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(e)
 109. *Hemerocallis × hybrida* Bergmans. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: cult.
 110. *Hemerocallis lilioasphodelus* L. (= *H. flava* L.). – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(e)
 111. *Hemerocallis middendorffii* Trautv. & C.A.Mey. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 112. *Kniphofia × hybrida* Gumbel. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 113. *Kniphofia uvaria* (L.) Oken. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Afr

Cannaceae

114. *Canna × hybrida* Rodigas (= *C. × generalis* L.H.Bailey). – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: cult.

Colchicaceae

115. *Colchicum autumnale* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Euro
 116. *Colchicum speciosum* Steven. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med

Commelinaceae

117. *Tradescantia × andersoniana* W.Ludw. & Rohweder hort. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: cult.
 118. *Tradescantia virginiana* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)

Cyperaceae

119. *Carex brevicollis* DC. – Imm.: native. – L.f.: herb. perennial. – Range: Med
 120. *Carex buechananii* Berggr. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Oc(NZ)
 121. *Carex comans* Berggr. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Oc(NZ)
 122. *Carex grayi* J.Carey. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 123. *Carex morrowii* Boott. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 124. *Carex muskingumensis* Schwein. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 125. *Carex oshimensis* Nakai. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 126. *Carex pendula* Huds. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 127. *Carex pseudocyperus* L. – Imm.: native. – L.f.: herb. perennial. – Range: Holarct
 128. *Carex talbotii* Kottaim. (= *C. berggrenii* Petrie). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Oc(NZ)
 129. *Eleocharis acicularis* (L.) Roem. & Schult. – Imm.: native. – L.f.: herb. perennial. – Range: Holarct

Dioscoreaceae

130. *Dioscorea nipponica* Makino. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)

Iridaceae

131. *Crocospia × crocosmiiflora* (Lemoine) N.E.Br. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
132. *Crocus angustifolius* Weston. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
133. *Crocus banaticus* J.Gay. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
134. *Crocus chrysanthus* (Herb.) Herb. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
135. *Crocus flavus* Weston. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
136. *Crocus heuffelianus* Herb. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
137. *Crocus sieberi* J.Gay. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
138. *Crocus speciosus* M.Bieb. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
139. *Crocus vernus* (L.) Hill. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
140. *Crocus × hybridus* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
141. *Gladiolus × colvillei* Sweet. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: cult.
142. *Gladiolus × hybridus* C.Morren. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: cult.
143. *Gladiolus × garden* hybrid hort. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: cult.
144. *Iris aphylla* L. var. *hungarica* (Waldst. & Kit.) D.Dubovik (= *I. hungarica* Waldst. & Kit.). – Imm.: native. – L.f.: herb. perennial. – Range: Med
145. *Iris bucharica* Foster (= *Juno bucharica* (Foster) Vved.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(c)
146. *Iris domestica* (L.) Goldblatt & Mabb. (= *Belamcanda chinensis* (L.) DC.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(e)
147. *Iris ensata* Thunb. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(fe)
148. *Iris × germanica* L. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Euro
149. *Iris graminea* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euro
150. *Iris × hollandica* H.R.Wehrh. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: cult.
151. *Iris × hybrida* Retz. – Imm.: hemerophyte. – Accl.: high (self-seed.?, veg. spread.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: cult.
152. *Iris lactea* Pall. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(e)
153. *Iris orientalis* Mill. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Med
154. *Iris pseudacorus* L. – Imm.: native. – L.f.: herb. perennial. – Range: PArct
155. *Iris pumila* L. – Imm.: native. – L.f.: herb. perennial. – Range: Steppe
156. *Iris reticulata* M.Bieb. (= *Iridodictyum reticulatum* (M.Bieb.) Rodion.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
157. *Iris sanguinea* Hornem. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
158. *Iris sibirica* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro-Sib
159. *Iris spuria* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro-Med
160. *Iris variegata* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
161. *Iris versicolor* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
162. *Iris × garden* hybrid hort. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: cult.
163. *Ixia × hybrida* hort. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: cult.
164. *Sisyrinchium angustifolium* Mill. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
165. *Sisyrinchium montanum* Greene. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Am(n)
166. *Sisyrinchium septentrionale* E.P.Bicknell. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
167. *Sparaxis tricolor* (Schneev.) Ker Gawl. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Afr
168. *Tigridia pavonia* (L.f.) Redouté. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(c)

Juncaceae

169. *Juncus effusus* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Holarct
170. *Luzula pilosa* (L.) Willd. – Imm.: native. – L.f.: herb. perennial. – Range: Euro-Sib

Liliaceae

171. *Erythronium californicum* Purdy. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
172. *Erythronium dens-canis* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
173. *Erythronium tuolumnense* Applegate. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
174. *Fritillaria acmopetala* Boiss. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
175. *Fritillaria imperialis* L. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(c)
176. *Fritillaria meleagris* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro
177. *Fritillaria michailovskyi* Fomin. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med(e)
178. *Fritillaria uva-vulpis* Rix. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
179. *Lilium bulbiferum* L. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Med

180. *Lilium candidum* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 181. *Lilium henryi* Baker. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 182. *Lilium* × *hollandicum* Bergmans. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 183. *Lilium lancifolium* Thunb. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 184. *Lilium martagon* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro-Sib
 185. *Lilium pensylvanicum* Ker Gawl. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 186. *Lilium regale* E.H.Wilson. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 187. *Lilium speciosum* Thunb. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 188. *Lilium* × *hybridum* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 189. *Tricyrtis hirta* (Thunb.) Hook. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(e)
 190. *Tricyrtis latifolia* Maxim. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(e)
 191. *Tricyrtis macropoda* Miq. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 192. *Tricyrtis* × *hybrida* hort. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: cult.
 193. *Tulipa biflora* Pall. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Desert
 194. *Tulipa bifloriformis* Vved. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(c)
 195. *Tulipa fosteriana* W.Irving. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(c)
 196. *Tulipa gesneriana* L. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Med(e)
 197. *Tulipa greigii* Regel. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(c)
 198. *Tulipa humilis* Herb. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 199. *Tulipa kaufmanniana* Regel. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(c)
 200. *Tulipa orphanidea* Boiss. ex Heldr. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 201. *Tulipa saxatilis* Sieber ex Spreng. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med(e)
 202. *Tulipa suaveolens* Roth (= *T. schrenkii* Regel). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Steppe
 203. *Tulipa sylvestris* L. subsp. *australis* (Link) Pamp. (= *T. biebersteiniana* Schult. & Schult., *T. quercetorum* Klokov & Zoz). – Imm.: native. – L.f.: herb. perennial. – Range: Med
 204. *Tulipa tarda* Stapf. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(c)
 205. *Tulipa* × *hybrida* hort. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: cult.

Melanthiaceae

206. *Trillium luteum* (Muhl.) Harb. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)

Orchidaceae

207. *Bletilla striata* (Thunb.) Rehb.f. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 208. *Cypripedium macranthos* Sw. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euras
 209. *Cypripedium parviflorum* Salisb. var. *pubescens* (Willd.) O.W.Knight (= *C. pubescens* Willd.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)

Poaceae

210. *Achnatherum bromoides* (L.) P.Beauv. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 211. *Agrostis stolonifera* L. – Imm.: native. – L.f.: herb. perennial. – Range: PARct
 212. *Arrhenatherum elatius* (L.) P.Beauv. ex J.Presl & C.Presl. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro-Med. – Note. This species is classified as invasive in Ukraine (Protopopova & Shevera, 2019). However, in the studied region, it is native (Prokudin et al., 1977).
 213. *Bouteloua curtipendula* (Michx.) Torr. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 214. *Bouteloua gracilis* (Kunth) Lag. ex Griffiths. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 215. *Calamagrostis* × *acutiflora* (Schrud.) DC. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: cult.
 216. *Cenchrus alopecuroides* (L.) Thunb. (= *Pennisetum alopecuroides* (L.) Spreng.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 217. *Cenchrus orientalis* (Rich.) Morrone (= *Pennisetum orientale* Rich.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med-As(s)
 218. *Chasmanthium latifolium* (Michx.) H.O.Yates. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 219. *Cortaderia selloana* (Schult. & Schult.f.) Asch. & Graebn. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: Am(n). – Note. It is not a winter-hardy plant in our region, but it can nevertheless occasionally be found in collections, store offers, and private and municipal flower gardens.
 220. *Deschampsia cespitosa* (L.) P.Beauv. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Holarct
 221. *Festuca cinerea* Vill. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 222. *Festuca cretacea* T.I.Popov ex Proskor. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Steppe
 223. *Festuca gautieri* (Hack.) K.Richt. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 224. *Festuca glauca* Vill. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 225. *Festuca pallens* Host. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
 226. *Hakonechloa macra* (Munro) Honda. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 227. *Helictotrichon sempervirens* (Vill.) Pilg. – Imm.: hemerophyte. – Accl.: med (veg. spread.). – L.f.: herb. perennial. – Origin: Euro(w)
 228. *Holcus mollis* L. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Euro

229. *Imperata cylindrica* (L.) P.Beauv. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: PTrop
 230. *Leymus arenarius* (L.) Hochst. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Boreal(Euro)
 231. *Leymus racemosus* (Lam.) Tzvelev. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – Spont.: casual (ephemerophyte).
 – L.f.: herb. perennial. – Origin: Steppe
 232. *Lolium multiflorum* Lam. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.:
 perennial (short-life). – Origin: Med-As(c)
 233. *Melica altissima* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Steppe. – Note. ‘Atropurpurea’
 234. *Miscanthus × longiberbis* (Hack.) Nakai (= *M. giganteus* J.M.Greef & Deuter ex Hodk. & Renvoize). – Imm.:
 hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 235. *Miscanthus sacchariflorus* (Maxim.) Benth. & Hook.f. ex Franch. – Imm.: hemerophyte. – Accl.: high (self-seed, veg.
 spread.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: As(e)
 236. *Miscanthus sinensis* Andersson. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin:
 As(e)
 237. *Nassella tenuissima* (Trin.) Barkworth (= *Stipa tenuissima* Trin.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb.
 perennial. – Origin: Am(n)
 238. *Panicum virgatum* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
 239. *Phalaris arundinacea* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Holarct
 240. *Phragmites australis* (Cav.) Trin. ex Steud. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Multi. – Note.
 ‘Variegatus’
 241. *Pleioblastus variegatus* (J.Dix) Makino. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: subshrub. – Origin:
 As(e)
 242. *Sporobolus michauxianus* (Hitcch.) P.M.Peterson & Saarela. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb.
 perennial. – Origin: Am(n)
 243. *Tripidium ravennae* (L.) H.Scholz. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. –
 Origin: Med-As(ws)
 244. *Zizania latifolia* (Griseb.) Hance ex F.Muell. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: naturalized,
 invasive. – L.f.: herb. perennial. – Origin: As(e)

Eudicots

Acanthaceae

245. *Acanthus hungaricus* (Borbás) Baen. (= *A. balcanicus* Heywood & I.Richardson). – Imm.: hemerophyte. – Accl.: high
 (self-seed.). – L.f.: herb. perennial. – Origin: Med
 246. *Acanthus mollis* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med

Aizoaceae

247. *Delosperma cooperi* (Hook.f.) L.Bolus. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Afr
 248. *Delosperma nubigenum* (Schltr.) L.Bolus. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Afr

Apiaceae

249. *Aegopodium podagraria* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro. – Note. ‘Variegatum’
 250. *Astrantia major* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
 251. *Eryngium planum* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euras
 252. *Levisticum officinale* W.D.J.Koch. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). –
 L.f.: herb. perennial. – Origin: As(w)
 253. *Heracleum lehmannianum* Bunge. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(cs)

Apocynaceae

254. *Amsonia tabernaemontana* Walter. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 255. *Apocynum cannabinum* L. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual
 (colonophyte). – L.f.: herb. perennial. – Origin: Am(n)
 256. *Asclepias syriaca* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: naturalized, invasive. – L.f.: herb.
 perennial. – Origin: Am(n)
 257. *Asclepias tuberosa* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
 258. *Vinca herbacea* Waldst. & Kit. – Imm.: native. – L.f.: herb. perennial. – Range: Med
 259. *Vinca major* L. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Med
 260. *Vinca minor* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro-Med

Asteraceae

261. *Achillea filipendulina* Lam. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med-As(c)
 262. *Achillea millefolium* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Boreal
 263. *Achillea ptarmica* L. (= *Ptarmica vulgaris* Blakw. ex DC.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial.
 – Origin: Boreal. – Note. This species in its natural habitat was recorded in the northern part of Kyiv Oblast, within
 the Polissya zone (Sytnik, 1984). In the studied region, it is not native.
 264. *Achillea tomentosa* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 265. *Antennaria dioica* (L.) Gaertn. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Boreal

266. *Archanthemis marschalliana* (Willd.) Lo Presti & Oberpr. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
267. *Artemisia abrotanum* L. – Imm.: native (cv.). – L.f.: subshrub. – Range: Euras
268. *Artemisia dracuncululus* L. – Imm.: hemerophyte. – Accl.: high (self-seed.?). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Euras
269. *Artemisia genipi* Stechm. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Med
270. *Artemisia ludoviciana* Nutt. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
271. *Artemisia schmidtiana* Maxim. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: As(e)
272. *Artemisia vulgaris* agg. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(e). – Note. ‘Janlim’
273. *Aster alpinus* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Holarct
274. *Aster tongolensis* Franch. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
275. *Centaurea fuscomarginata* (K.Koch) Juz. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Steppe
276. *Centaurea macrocephala* Muss.Puschk. ex Willd. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
277. *Centaurea mollis* Waldst. & Kit. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Euro
278. *Centaurea montana* L. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Euro
279. *Centaurea scabiosa* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euras
280. *Chrysanthemum indicum* L. (= *C. koraiense* Nakai). – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: As(e). – Note. It is possible that the pure species (rather than hybrids) is absent in our area.
281. *Chrysanthemum × morifolium* (Ramat.) Hemsl. (= *Dendranthema × hortorum* Bailey). – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: As(e)
282. *Coreopsis auriculata* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
283. *Coreopsis lanceolata* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Am(n)
284. *Coreopsis verticillata* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
285. *Dahlia × cultorum* Thorsrud & Reisaeter. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: cult.
286. *Dahlia imperialis* Roez. ex Ortgies. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: Am(n)
287. *Doronicum caucasicum* M.Bieb. (= *D. orientale* Hoffm.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
288. *Doronicum × excelsum* (N.E.Br.) Stace. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
289. *Doronicum pardalianches* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro-Med
290. *Echinacea angustifolia* DC. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
291. *Echinacea pallida* (Nutt.) Nutt. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
292. *Echinacea paradoxa* Britton × E. sp. garden hybrid hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
293. *Echinacea purpurea* (L.) Moench. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Am(n)
294. *Echinacea × hybrida* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
295. *Echinops bannaticus* Rochel ex Schrad. – Imm.: hemerophyte. – Accl.: high (abund. self-seed.). – L.f.: herb. perennial. – Origin: Med
296. *Echinops sphaerocephalus* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euras
297. *Emilia coccinea* (Sims) G.Don. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Afr
298. *Erigeron speciosus* (Lindl.) DC. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
299. *Erigeron × hybridus* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
300. *Eupatorium cannabinum* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro-Med
301. *Eutrochium maculatum* (L.) E.E.Lamont. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
302. *Farfugium japonicum* (L.) Kitam. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: As(e)
303. *Felicia amelloides* (L.) Voss. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: Afr
304. *Gaillardia aristata* Pursh. – Imm.: hemerophyte. – Accl.: high (abund. self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
305. *Helenium autumnale* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
306. *Helianthus × laetiflorus* Pers. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Am(n)
307. *Helianthus tuberosus* L. var. *subcanescens* A.Gray (= *H. subcanescens* (A.Gray) E.Watson). – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: naturalized, invasive. – L.f.: herb. perennial. – Origin: Am(n). – Note. As an independent species, *H. subcanescens* was classified as potentially invasive (Zavialova, 2017).
308. *Heliopsis helianthoides* (L.) Sweet var. *scabra* (Dunal) Fernald (= *Heliopsis scabra* Dunal). – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Am(n)
309. *Hieracium bifidum* Kit. ex Hornem. s.l. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
310. *Hieracium maculatum* Schrank. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro-Med
311. *Inula helenium* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euras

312. *Leontopodium nivale* (Ten.) A.Huet ex Hand.-Mazz. subsp. *alpinum* (Cass.) Greuter (= *L. alpinum* Cass.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
313. *Leucanthemum maximum* (Ramond) DC. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Euro
314. *Leucanthemum* × *superbum* (Bergmans ex J.W.Ingram) D.H.Kent. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
315. *Leucanthemum vulgare* Lam. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro
316. *Liatris spicata* (L.) Willd. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
317. *Ligularia dentata* (A.Gray) H.Hara. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(e)
318. *Ligularia macrophylla* (Ledeb.) DC. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(c)
319. *Ligularia przewalskii* (Maxim.) Diels. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
320. *Ligularia sibirica* (L.) Cass. (= *L. bucovinensis* Nakai). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro-Sib
321. *Ligularia stenocephala* (Maxim.) Matsum. & Koidz. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
322. *Petasites albus* (L.) Gaertn. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Euro-Med
323. *Petasites hybridus* (L.) G.Gaertn., B.Mey. & Scherb. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro-Med
324. *Pilosella aurantiaca* (L.) F.W.Schultz & Sch.Bip. (= *Hieracium aurantiacum* L.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
325. *Psephellus dealbatus* (Willd.) K.Koch (= *Centaurea dealbata* Willd.). – Imm.: hemerophyte. – Accl.: high (self-seed.?, veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(Cauc.)
326. *Rhaponticoides ruthenica* (Lam.) M.V.Agab. & Greuter (= *Centaurea ruthenica* Lam.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Steppe
327. *Rudbeckia laciniata* L. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte), invasive. – L.f.: herb. perennial. – Origin: Am(n)
328. *Santolina chamaecyparissus* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
329. *Santolina virens* Mill. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Med
330. *Senecio nemorensis* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euras
331. *Senecio ovatus* (G.Gaertn., B.Mey. & Scherb.) Willd. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
332. *Serratula coronata* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euras
333. *Silphium perfoliatum* L. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Am(n)
334. *Silphium terebinthinaceum* Jacq. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
335. *Solidago canadensis* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: naturalized, invasive. – L.f.: herb. perennial. – Origin: Am(n)
336. *Solidago gigantea* Aiton (= *Solidago serotina* Aiton). – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte), potent. invas. – L.f.: herb. perennial. – Origin: Am(n)
337. *Solidago* × *hybrida* hort. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: cult.
338. *Symphytotrichum* × *salignum* (Willd.) G.L.Nesom (= *Aster salignus* Willd.). – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte), invasive. – L.f.: herb. perennial. – Origin: cult.
339. *Symphytotrichum* × *versicolor* (Willd.) G.L.Nesom (= *Aster versicolor* Willd.). – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: naturalized. – L.f.: herb. perennial. – Origin: cult.
340. *Symphytotrichum dumosum* (L.) G.L.Nesom × *S. sp.* hybrid hort. (= *Aster dumosus* auct. non Hoffm.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: cult.
341. *Symphytotrichum ericoides* (L.) G.L.Nesom. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
342. *Symphytotrichum lanceolatum* (Willd.) G.L.Nesom (= *Aster lanceolatus* Willd.). – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – L.f.: herb. perennial. – Origin: Am(n)
343. *Symphytotrichum novae-angliae* (L.) G.L.Nesom (= *Aster novae-angliae* L.). – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Am(n)
344. *Symphytotrichum novi-belgii* (L.) G.L.Nesom (= *Aster novi-belgii* L.). – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Am(n)
345. *Symphytotrichum* × *hybridum* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
346. *Tanacetum balsamita* L. (= *Pyrethrum majus* (Desf.) Tzvelev). – Imm.: hemerophyte. – Accl.: high (self-seed.?, veg. spread.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Med(e)
347. *Tanacetum coccineum* (Willd.) Grierson (= *Pyrethrum roseum* (Adams) M.Bieb.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med(e)-As(c)
348. *Tanacetum macrophyllum* (Waldst. & Kit.) Sch.Bip. (= *Pyrethrum macrophyllum* (Waldst. & Kit.) Willd.). – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(Cauc.)
349. *Tanacetum partheniifolium* (Willd.) Sch.Bip. (= *Pyrethrum partheniifolium* Willd.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Med
350. *Tanacetum parthenium* (L.) Sch.Bip. (= *Pyrethrum parthenium* (L.) Sm.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Med
351. *Telekia speciosa* (Schreb.) Baumg. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med(e)
352. *Vernonia gigantea* (Walter) Trel. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)

Berberidaceae

353. *Epimedium grandiflorum* C.Morren. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 354. *Epimedium pinnatum* Fisch. ex DC. subsp. *colchicum* (Boiss.) N.Busch. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(Cauc.)
 355. *Epimedium* × *rubrum* C.Morren. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 356. *Epimedium* × *youngianum* Fisch. & C.A.Mey. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 357. *Epimedium* × *hybridum* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.

Bignoniaceae

358. *Incarvillea delavayi* Bureau & Franch. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)

Boraginaceae

359. *Aegonychon purpureocaeruleum* (L.) Holub (= *Lithospermum purpureo-coeruleum* L.). – Imm.: native. – L.f.: herb. perennial. – Range: Euro-Med
 360. *Brunnera macrophylla* (Adams) I.M.Johnst. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(Cauc.)
 361. *Brunnera sibirica* Steven. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(Sib.)
 362. *Myosotis alpestris* F.W.Schmidt. – Imm.: hemerophyte. – Accl.: high (abund. self-seed.). – L.f.: herb. perennial. – Origin: Euras
 363. *Omphalodes verna* Moench. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 364. *Pulmonaria longifolia* (Bastard) Boreau. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
 365. *Pulmonaria officinalis* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
 366. *Pulmonaria rubra* Schott. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
 367. *Pulmonaria saccharata* Mill. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
 368. *Pulmonaria* × *hybrida* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 369. *Symphytum asperum* Lepech. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(Cauc.)
 370. *Symphytum caucasicum* M.Bieb. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(Cauc.)

Brassicaceae

371. *Aethionema grandiflorum* Boiss. & Hohen. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: subshrub. – Origin: Med
 372. *Alyssum montanum* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: subshrub. – Origin: Euro
 373. *Arabis alpina* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Holarct
 374. *Arabis caucasica* Willd. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: subshrub. – Origin: Med
 375. *Arabis procurrens* Waldst. & Kit. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
 376. *Aubrieta* × *cultorum* Bergmans. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: subshrub. – Origin: cult.
 377. *Aubrieta deltoidea* (L.) DC. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
 378. *Aurinia saxatilis* (L.) Desv. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro-Med
 379. *Crambe maritima* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro-Med
 380. *Draba aizoides* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Euro
 381. *Draba bruniifolia* Steven. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Med
 382. *Hornungia alpina* (L.) O.Appel subsp. *brevicaulis* (Spreng.) O.Appel (= *Hutchinsia alpina* R.Br. subsp. *brevicaulis* (Hoppe) Arcangeli). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 383. *Iberis saxatilis* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: subshrub. – Origin: Med
 384. *Iberis sempervirens* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Med
 385. *Lunaria rediviva* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Euro
 386. *Pachyphragma macrophyllum* (Hoffm.) N.Busch. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(Cauc.)

Buxaceae

387. *Pachysandra terminalis* Siebold & Zucc. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)

Campanulaceae

388. *Campanula alliariifolia* Willd. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
 389. *Campanula bononiensis* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euras
 390. *Campanula carpatica* Jacq. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
 391. *Campanula glomerata* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euras
 392. *Campanula lactiflora* M.Bieb. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 393. *Campanula latifolia* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro-Med
 394. *Campanula persicifolia* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro
 395. *Campanula portenschlagiana* Schult. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 396. *Campanula poscharskyana* Degen. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 397. *Campanula punctata* Lam. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 398. *Campanula tatrae* Borbás. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro

399. *Campanula zangezura* (Lipsky) Kolak. & Serdyuk. (= *Symphyanthra zangezura* Lipsky). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(w)
 400. *Campanula* × *hybrida* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult. – Note. ‘Pink Octopus’, etc.
 401. *Lobelia siphilitica* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
 402. *Platycodon grandiflorus* (Jacq.) A.DC. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(e)

Caprifoliaceae

403. *Lomelosia caucasica* (M.Bieb.) Greuter & Burdet. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(w)
 404. *Valeriana rubra* L. (= *Centranthus ruber* (L.) DC.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med

Caryophyllaceae

405. *Cerastium arvense* L. – Imm.: native. – L.f.: herb. perennial. – Range: Holarct
 406. *Cerastium biebersteinii* DC. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Med
 407. *Cerastium tomentosum* L. – Imm.: hemerophyte. – Accl.: high (veg. spread., self-seed.?). – L.f.: herb. perennial. – Origin: Med
 408. *Dianthus deltoides* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro
 409. *Dianthus gratianopolitanus* Vill. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Euro
 410. *Dianthus plumarius* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 411. *Dianthus superbus* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Euras
 412. *Gypsophila paniculata* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euras
 413. *Gypsophila repens* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
 414. *Petrorhagia saxifraga* (L.) Link. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: subshrub. – Origin: Med
 415. *Sagina hawaiiensis* Pax (= *S. subulata* (Sw.) C.Presl). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
 416. *Saponaria ocymoides* L. – Imm.: hemerophyte. – Accl.: high (abund. self-seed.). – L.f.: subshrub. – Origin: Euro
 417. *Saponaria officinalis* L. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: naturalized, invasive. – L.f.: herb. perennial. – Origin: Med
 418. *Silene chalcedonica* (L.) E.H.L.Krause (= *Lychnis chalcedonica* L.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: perennial (short-life). – Origin: Euro-Sib
 419. *Silene uniflora* Roth. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Boreal
 420. *Viscaria vulgaris* Bernh. (= *Steris viscaria* (L.) Raf.). – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro

Cistaceae

421. *Helianthemum apenninum* (L.) Mill. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: subshrub. – Origin: Euro
 422. *Helianthemum nummularium* (L.) Mill. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: subshrub. – Origin: Euro-Med
 423. *Helianthemum* × *hybridum* hort. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: subshrub. – Origin: cult.

Convolvulaceae

424. *Ipomoea batatas* (L.) Lam. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: Am(c)

Crassulaceae

425. *Hylotelephium cauticola* (Praeger) H.Ohba. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(fe)
 426. *Hylotelephium* × *cordifolium* (Baker) J. Uher (= *H. maximum* × *H. spectabile*, *Sedum cordifolium* Baker). – Imm.: hemerophyte. – Accl.: high (self-seed., pot. prop. cutt.). – L.f.: herb. perennial. – Origin: cult.
 427. *Hylotelephium cyaneum* (Rudolph) H.Ohba. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(fe)
 428. *Hylotelephium erythrostickum* (Miq.) H.Ohba. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(fe)
 429. *Hylotelephium ewersii* (Ledeb.) H.Ohba. – Imm.: hemerophyte. – Accl.: med. (pot. prop. cutt.). – L.f.: herb. perennial. – Origin: As(c)
 430. *Hylotelephium maximum* (L.) J.Holub subsp. *maximum*. – Imm.: native. – L.f.: herb. perennial. – Range: Euro-Med
 431. *Hylotelephium* × *mottramianum* J.M.H.Shaw & R.Stephenson. – Imm.: hemerophyte. – Accl.: med. (pot. prop. cutt.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: cult. – Note. ‘Herbstfreude’
 432. *Hylotelephium pluricaule* (Maxim.) H.Ohba. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 433. *Hylotelephium spectabile* (Boreau) H.Ohba. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 434. *Hylotelephium vulgare* (Haw.) Holub (= *Sedum fabaria* W.D.J.Koch). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro. – Note. The type species of the genus, *Hylotelephium telephium* (L.) H.Ohba (= *Sedum purpureum* (L.) Schult.), is unstable and not cultivated under local conditions, though it is one of the parents of several cultivars.
 435. *Hylotelephium* × *hybridum* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 436. *Petrosedum forsterianum* (Sm.) Grulich. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
 437. *Petrosedum ochroleucum* (Chaix) Niederle. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro

438. *Petrosedum orientale* (‘t Hart) Grulich. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: naturalized, potent. invas. – L.f.: herb. perennial. – Origin: Euro
439. *Petrosedum rupestre* (L.) P.V.Heath (= *Sedum reflexum* L., *Petrosedum reflexum* (L.) Grulich). – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – L.f.: herb. perennial. – Origin: Euro
440. *Petrosedum sediforme* (Jacq.) Grulich. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
441. *Phedimus aizoon* (L.) ‘t Hart (= *Sedum aizoon* L.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(fe)
442. *Phedimus ellacombeanus* (Praeger) ‘t Hart. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(e)
443. *Phedimus hybridus* (L.) ‘t Hart (= *Sedum hybridum* L.). – Imm.: hemerophyte. – Accl.: high (self-seed.?, veg. spread.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: As(fe)
444. *Phedimus kamtschaticus* (Fisch. & C.A.Mey.) ‘t Hart. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(fe)
445. *Phedimus middendorffianus* (Maxim.) ‘t Hart. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(e)
446. *Phedimus spurium* (M.Bieb.) ‘t Hart (= *Sedum spurium* M.Bieb.). – Imm.: hemerophyte. – Accl.: high (veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(Cauc.)
447. *Phedimus spurium* subsp. *oppositifolius* (Sims) L.Gallo (= *Sedum oppositifolium* Sims., *Phedimus crenatus* (Desf.) V.V.Byalt). – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(Cauc.). – Note. The taxon is no longer recognized as an independent species (POWO, 2025).
448. *Phedimus stolonifer* (S.G.Gmel.) ‘t Hart. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(Cauc.)
449. *Rhodiola pachyclados* (Aitch. ex Hemsl.) H.Ohba. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(s)
450. *Sedum acre* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro
451. *Sedum album* L. – Imm.: hemerophyte. – Accl.: high (self-seed.?, veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Euro
452. *Sedum anglicum* Huds. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
453. *Sedum dasyphyllum* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
454. *Sedum mexicanum* Britton. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: Am(n)
455. *Sedum pallidum* M.Bieb. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: naturalized. – L.f.: herb. perennial. – Origin: Med
456. *Sedum sarmentosum* Bunge. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(e)
457. *Sedum sexangulare* L. – Imm.: hemerophyte. – Accl.: high (self-seed, veg. spread.). – Spont.: naturalized. – L.f.: herb. perennial. – Origin: Euro-Med. – Note. No natural habitats are known in the studied territory. It was first reported for Uman city (Rogovich, 1855; Andrzejowski, 1861), likely originating from “Sofiyivka” Park as an hemerophyte.
458. *Sempervivum* × *alatum* Scheele nothosubsp. *alatum* (= *Sempervivum* × *funkii* Le Jol. ex Nyman). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
459. *Sempervivum arachnoideum* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
460. *Sempervivum calcareum* Jord. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
461. *Sempervivum* × *comollii* Rota. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
462. *Sempervivum globiferum* L. subsp. *globiferum*. – Imm.: native. – L.f.: herb. perennial. – Range: Euro
463. *Sempervivum globiferum* subsp. *hirtum* (L.) ‘t Hart & Bleij (= *Jovibarba hirta* (L.) Opiz). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
464. *Sempervivum ruthenicum* Koch ex Schnittsp. & Lehm. – Imm.: native. – L.f.: herb. perennial. – Range: Euro
465. *Sempervivum tectorum* L. – Imm.: hemerophyte. – Accl.: high (pot. prop. cutt.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Euro
466. *Sempervivum* × *hybridum* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.

Cucurbitaceae

467. *Thladiantha dubia* Bunge. – Imm.: hemerophyte. – Accl.: high (self-seed.?, veg. spread.). – Spont.: casual (colonophyte), potent. invas. – L.f.: herb. perennial. – Origin: As(e)

Euphorbiaceae

468. *Euphorbia cyparissias* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euro-Med
469. *Euphorbia epithymoides* L. (= *E. polychroma* A.Kern.). – Imm.: native. – L.f.: herb. perennial. – Range: Euro
470. *Euphorbia mesembryanthemifolia* Jacq. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Am(s)
471. *Euphorbia myrsinites* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med

Fabaceae

472. *Baptisia australis* (L.) R.Br. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
473. *Desmodium canadense* (L.) DC. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
474. *Galega orientalis* Lam. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(Cauc.)
475. *Glycyrrhiza glabra* L. – Imm.: hemerophyte. – Accl.: high (self-seed.?, veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Med

476. *Lathyrus latifolius* L. (= *Lathyrus megalanthus* Stendel.). – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Med
 477. *Lathyrus tuberosus* L. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: naturalized. – L.f.: herb. perennial. – Origin: As(c)
 478. *Lupinus perennis* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Am(n)
 479. *Lupinus polyphyllus* Lindl. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: naturalized, invasive. – L.f.: herb. perennial. – Origin: Am(n)
 480. *Trifolium repens* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: PARct
 481. *Trifolium rubens* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Euro

Geraniaceae

482. *Geranium* × *cantabrigiense* P.F.Yeo. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 483. *Geranium dalmaticum* (Beck) Rech.f. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 484. *Geranium himalayense* Klotzsch – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(s)
 485. *Geranium macrorrhizum* L. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Med
 486. *Geranium maculatum* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 487. *Geranium nepalense* Sweet. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(e)
 488. *Geranium phaeum* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euro-Med
 489. *Geranium pyrenaicum* Burm.f. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: perennial (short-life). – Origin: Med
 490. *Geranium ruprechtii* (Woronow) Grossh. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(Cauc.)
 491. *Geranium sanguineum* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro
 492. *Geranium wallichianum* D.Don ex Sweet. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(s)

Hypericaceae

493. *Hypericum androsaemum* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Med
 494. *Hypericum ascyron* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Holarct
 495. *Hypericum calycinum* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Med
 496. *Hypericum olympicum* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
 497. *Hypericum patulum* Thumb. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)

Lamiaceae

498. *Agastache foeniculum* (Pursh) Kuntze (= *Lophanthus anisatus* (Nutt.) Benth.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
 499. *Agastache rugosa* (Fisch. & C.A.Mey.) Kuntze. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(s)
 500. *Ajuga pyramidalis* L. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Euro
 501. *Ajuga reptans* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro-Med
 502. *Betonica macrantha* K.Koch. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 503. *Clinopodium menthifolium* (Host) Merino subsp. *ascendens* (Jord.) Govaerts (= *Calamintha menthifolia* Host.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Euro-Med
 504. *Clinopodium nepeta* (L.) Kuntze (= *Calamintha nepeta* (L.) Savi). – Imm.: native. – L.f.: herb. perennial. – Range: Euro-Med
 505. *Elsholtzia stauntonii* Benth. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: As(e)
 506. *Hyssopus officinalis* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: subshrub. – Origin: Med
 507. *Lamium galeobdolon* L. subsp. *argentatum* (Smejkal) J.Duvign. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
 508. *Lamium maculatum* (L.) L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro
 509. *Lavandula angustifolia* Mill. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: subshrub. – Origin: Med
 510. *Lavandula* × *intermedia* Emeric ex Loisel. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Med
 511. *Melissa officinalis* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Med
 512. *Mentha* × *piperita* L. – Imm.: hemerophyte. – Accl.: high (self-seed.?, veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: cult.
 513. *Mentha spicata* L. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Med
 514. *Mentha suaveolens* Ehrh. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro-Med
 515. *Monarda didyma* L. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Am(n)
 516. *Monarda fistulosa* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 517. *Monarda* × *hybrida* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 518. *Nepeta cataria* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: perennial (short-life). – Origin: Med
 519. *Nepeta* × *faassenii* Bergmans ex Stearn. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.

520. *Nepeta grandiflora* M.Bieb. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(Cauc.)
521. *Nepeta racemosa* Lam. (= *N. transcaucasica* Grossh.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(w)
522. *Origanum laevigatum* Boiss. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
523. *Origanum rotundifolium* Boiss. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
524. *Origanum vulgare* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euras
525. *Phlomis tuberosa* (L.) Moench. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Steppe
526. *Phlomis russeliana* (Sims) Lag. ex Benth. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med(e)
527. *Physostegia virginiana* (L.) Benth. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
528. *Prunella grandiflora* (L.) Turra. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro
529. *Salvia abrotanoides* (Kar.) Sytsma (= *Perovskia abrotanoides* Kar.). – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: As(cs)
530. *Salvia* × *floriferior* Dolat. & Ziel. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: cult.
531. *Salvia glutinosa* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro-Med
532. *Salvia nemorosa* L. subsp. *nemorosa*. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Steppe
533. *Salvia nutans* L. – Imm.: native. – L.f.: herb. perennial. – Range: Steppe
534. *Salvia officinalis* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Med
535. *Salvia rosmarinus* Spenn. (= *Rosmarinus officinalis* L.). – Imm.: hemerophyte. – Accl.: low. – L.f.: subshrub. – Origin: Med
536. *Salvia scrophulariifolia* (Bunge) B.T.Drew (= *Perovskia scrophulariifolia* Bunge). – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: As(c)
537. *Salvia* × *sylvestris* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro-Med
538. *Salvia tomentosa* Mill. (= *S. grandiflora* Etl.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med. – Note. In the Uman city (Cherkasy Oblast) the species has acclimatized and is self-seeding.
539. *Salvia verbenaca* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
540. *Salvia virgata* Jacq. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med-As(c)
541. *Salvia yangii* B.T.Drew (= *Perovskia atriplicifolia* Benth.). – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: As(s)
542. *Satureja montana* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Med
543. *Stachys byzantina* K.Koch (= *S. lanata* Jacq.). – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(w)
544. *Teucrium chamaedrys* L. – Imm.: native (cv.). – L.f.: subshrub. – Range: Med
545. *Teucrium orientale* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
546. *Thymus* × *citriodorus* (Pers.) Schreb. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Euro
547. *Thymus pulegioides* L. – Imm.: native (cv.). – L.f.: subshrub. – Range: Euro
548. *Thymus serpyllum* L. – Imm.: native (cv.). – L.f.: subshrub. – Range: Boreal
549. *Thymus vulgaris* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Euro

Linaceae

550. *Linum austriacum* L. – Imm.: native. – L.f.: herb. perennial. – Range: Med
551. *Linum perenne* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euras

Malvaceae

552. *Althaea cannabina* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro-Med
553. *Althaea officinalis* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: naturalized. – L.f.: herb. perennial. – Origin: As(c)
554. *Hibiscus hybridus* F.Dietr. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Ptrop
555. *Hibiscus moscheutos* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
556. *Kitaibelia vitifolia* Willd. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
557. *Malva thuringiaca* (L.) Vis. (= *Lavatera thuringiaca* L.). – Imm.: native. – L.f.: herb. perennial. – Range: Euras
558. *Ripariosida hermaphrodita* (L.) Weakley & D.B.Poind. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Am(n)

Mazaceae

559. *Mazus miquelii* Makino. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)

Nyctaginaceae

560. *Mirabilis nyctaginea* (Michx.) MacMill. (= *Oxybaphus nyctagineus* (Michx.) Sweet). – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: naturalized, potent. invas. – L.f.: herb. perennial. – Origin: Am(n)

Onagraceae

561. *Oenothera fruticosa* L. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Am(n)
562. *Oenothera lindheimeri* (Engelm. & A.Gray) W.L.Wagner & Hoch (= *Gaura lindheimeri* Engelm. & A.Gray). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
563. *Oenothera longissima* Rydb. – Imm.: hemerophyte. – Accl.: med. – L.f.: perennial (short-life). – Origin: Am(n)

564. *Oenothera macrocarpa* Nutt. (= *O. missouriensis* Sims). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 565. *Oenothera pilosella* Raf. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Am(n)
 566. *Oenothera speciosa* Nutt. – Imm.: hemerophyte. – Accl.: high (abund. self-seed.). – L.f.: herb. perennial. – Origin: Am(n)

Oxalidaceae

567. *Oxalis corniculata* L. var. *atropurpurea* Planch. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: naturalized. – L.f.: herb. perennial. – Origin: Am(c)
 568. *Oxalis lasiandra* Zucc. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: Am(n)
 569. *Oxalis tetraphylla* Cav. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: Am(n)
 570. *Oxalis triangularis* A.St.-Hil. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: Am(s)
 571. *Oxalis violacea* L. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: Am(n)

Paeoniaceae

572. *Paeonia anomala* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(Sib.)
 573. *Paeonia lactiflora* Pall. (= *P. albiflora* Pall.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(e)
 574. *Paeonia officinalis* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 575. *Paeonia tenuifolia* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Steppe
 576. *Paeonia* × *hybrida* hort. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: cult.

Papaveraceae

577. *Corydalis caucasica* DC. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: naturalized, potent. invas. – L.f.: herb. perennial. – Origin: As(Cauc.)
 578. *Corydalis cava* (L.) Schweigg. & Körte subsp. *marschalliana* (Willd.) Hayek (= *C. marschalliana* (Pall. ex Willd.) Pers.). – Imm.: native. – L.f.: herb. perennial. – Range: Med
 579. *Corydalis nobilis* (L.) Pers. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(Sib.)
 580. *Dicentra formosa* (Andrews) Walp. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 581. *Dicentra* × *hybrida* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 582. *Lamprocapnos spectabilis* (L.) Fukuhara (= *Dicentra spectabilis* (L.) Lem.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(e)
 583. *Macleaya cordata* (Willd.) R.Br. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(e)
 584. *Macleaya microcarpa* (Maxim.) Fedde. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 585. *Papaver atlanticum* (Ball) Coss. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
 586. *Papaver lateritium* K.Koch × *P. orientale* hybrid hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 587. *Papaver orientale* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: As(w)
 588. *Papaver setiferum* Goldblatt (= *P. orientale* auct. non L., *P. pseudo-orientale* (Fedde) Medw.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: As(w)
 589. *Pseudo-fumaria lutea* (L.) Borkh. (= *Corydalis lutea* (L.) DC.). – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – L.f.: herb. perennial. – Origin: Med
 590. *Sanguinaria canadensis* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)

Phytolaccaceae

591. *Phytolacca acinosa* Roxb. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: naturalized. – L.f.: herb. perennial. – Origin: As(e)
 592. *Phytolacca americana* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Am(n)

Phrymaceae

593. *Erythranthe guttata* (DC.) G.L.Nesom. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)

Plantaginaceae

594. *Chelone glabra* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 595. *Chelone lyonii* Pursh. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 596. *Chelone obliqua* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 597. *Cymbalaria muralis* G.Gaertn., B.Mey. & Scherb. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Med
 598. *Digitalis grandiflora* Mill. – Imm.: native. – L.f.: herb. perennial. – Range: Euro
 599. *Globularia bisnagarica* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro-Med
 600. *Globularia cordifolia* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
 601. *Globularia trichosantha* Fisch. & C.A.Mey. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med

602. *Penstemon barbatus* (Cav.) Roth. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 603. *Penstemon campanulatus* (Cav.) Willd. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
 604. *Penstemon cobaea* Nutt. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
 605. *Penstemon digitalis* Nutt. ex Sims. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
 606. *Penstemon hirsutus* (L.) Willd. – Imm.: hemerophyte. – Accl.: high (abund. self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
 607. *Penstemon pinifolius* Greene. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 608. *Penstemon* × *hybridus* hort. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
 609. *Plantago major* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: PARct. – Note: ‘Rubrifolia’
 610. *Veronica armena* Boiss. & A.Huet. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
 611. *Veronica austriaca* L. s.l. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro-Med
 612. *Veronica gentianoides* Vahl. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 613. *Veronica incana* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euras
 614. *Veronica longifolia* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Boreal
 615. *Veronica officinalis* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euro
 616. *Veronica prostrata* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euras
 617. *Veronica spicata* L. subsp. *spicata*. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euras
 618. *Veronica teucrium* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euras
 619. *Veronicastrum sibiricum* (L.) Pennell. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 620. *Veronicastrum virginicum* (L.) Farw. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)

Plumbaginaceae

621. *Armeria maritima* (Mill.) Willd. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Boreal
 622. *Armeria pseudarmeria* (Murray) Mansf. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Euro
 623. *Ceratostigma plumbaginoides* Bunge. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 624. *Goniolimon tataricum* (L.) Boiss. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Steppe
 625. *Limonium platyphyllum* Lincz. – Imm.: native. – L.f.: herb. perennial. – Range: Steppe
 626. *Limonium sareptanum* (A.K.Becker) Gams. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Steppe

Polemoniaceae

627. *Phlox amoena* Sims. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 628. *Phlox divaricata* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 629. *Phlox paniculata* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Am(n)
 630. *Phlox* × *procumbens* Lehm. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 631. *Phlox subulata* L. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Am(n)
 632. *Polemonium caeruleum* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Boreal
 633. *Polemonium reptans* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)

Polygonaceae

634. *Bistorta affinis* (D.Don) Greene (= *Polygonum affine* D.Don). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(s)
 635. *Bistorta amplexicaulis* (D.Don) Greene. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(s)
 636. *Reynoutria* × *bohémica* Chrtek & Chrtková. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: naturalized, invasive. – L.f.: herb. perennial. – Origin: cult.
 637. *Reynoutria japonica* Houtt. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte), invasive. – L.f.: herb. perennial. – Origin: As(fe)
 638. *Reynoutria sachalinensis* (F.Schmidt) Nakai. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(fe)
 639. *Rheum palmatum* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 640. *Rumex sanguineus* L. var. *sanguineus*. – Imm.: hemerophyte. – Accl.: high (abund. self-seed.). – L.f.: herb. perennial. – Origin: Euro

Primulaceae

641. *Cyclamen coum* Mill. – Imm.: hemerophyte. – Accl.: low. – L.f.: herb. perennial. – Origin: Med
 642. *Cyclamen purpurascens* Mill. (= *C. europaeum* L.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
 643. *Lysimachia atropurpurea* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
 644. *Lysimachia ciliata* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 645. *Lysimachia clethroides* Duby. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 646. *Lysimachia nummularia* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro
 647. *Lysimachia punctata* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Euro

648. *Lysimachia verticillaris* Biehler (= *L. verticillata* M.Bieb.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
649. *Lysimachia vulgaris* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euras
650. *Primula auricula* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
651. *Primula × bullesiana* Bees. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: cult.
652. *Primula denticulata* Sm. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(s)
653. *Primula elatior* (L.) Hill. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
654. *Primula japonica* A.Gray. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(e)
655. *Primula juliae* Kusn. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(Cauc.)
656. *Primula meadia* (L.) A.R.Mast & Reveal. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
657. *Primula × polyantha* Mill. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: cult.
658. *Primula × pubescens* (Wulfen) Loisel. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
659. *Primula sieboldii* É.Morren. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
660. *Primula veris* L. subsp. *veris*. – Imm.: native. – L.f.: herb. perennial. – Range: Euro
661. *Primula veris* subsp. *macrocalyx* (Bunge) Lüdi (= *P. macrocalyx* Bunge). – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Euras
662. *Primula vulgaris* Huds. (= *P. acaulis* (L.) Hill). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med. – Note. An isolated natural locality exists in the northwestern part of Kyiv Oblast, within the Polissya zone (Melnyk et al., 2015); but in the studied region, it is not natural.
663. *Primula × hybrida* hort. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: cult.

Ranunculaceae

664. *Aconitum carmichaelii* Debeaux. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
665. *Aconitum napellus* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
666. *Actaea simplex* (DC.) Wormsk. ex Prantl. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
667. *Actaea spicata* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euro
668. *Adonis vernalis* L. – Imm.: native. – L.f.: herb. perennial. – Range: Steppe
669. *Anemonastrum canadense* (L.) Mosyakin. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Am(n)
670. *Anemonastrum dichotomum* (L.) Mosyakin (= *Anemone dichotoma* L.). – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(e)
671. *Anemone coronaria* L. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: Med
672. *Anemone nemorosa* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro
673. *Anemone ranunculoides* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro
674. *Anemone sylvestris* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euras. – Note. ‘Plena’
675. *Anemonoides blanda* (Schott & Kotschy) Holub (= *Anemone blanda* Schott & Kotschy). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
676. *Aquilegia atrata* W.D.J.Koch. – Imm.: hemerophyte. – Accl.: high (abund. self-seed.). – L.f.: herb. perennial. – Origin: Euro
677. *Aquilegia chrysantha* A.Gray. – Imm.: hemerophyte. – Accl.: high (abund. self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
678. *Aquilegia flabellata* Siebold & Zucc. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(fe)
679. *Aquilegia olympica* Boiss. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(w)
680. *Aquilegia vulgaris* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Euro
681. *Aquilegia × hybrida* hort. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: cult.
682. *Caltha palustris* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Boreal
683. *Clematis heracleifolia* DC. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
684. *Clematis hexapetala* Pall. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(s)
685. *Clematis integrifolia* L. – Imm.: native. – L.f.: herb. perennial. – Range: Steppe
686. *Delphinium × cultorum* Voss. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: cult.
687. *Delphinium cuneatum* Spreng. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Steppe
688. *Delphinium elatum* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euras
689. *Delphinium grandiflorum* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(e)
690. *Eranthis hyemalis* (L.) Salisb. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
691. *Eriocapitella hupehensis* (Lemoine) Christenh. & Byng (= *Anemone hupehensis* (Lemoine) Lemoine). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
692. *Eriocapitella × hybrida* (L.H.Bailey) Christenh. & Byng (= *Anemone japonica* auct. non (Thunb.) Siebold & Zucc.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
693. *Eriocapitella japonica* (Thunb.) Nakai (= *Anemone japonica* (Thunb.) Siebold & Zucc.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
694. *Helleborus argutifolius* Viv. (= *H. corsicus* Willd. ex Mabilie). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
695. *Helleborus foetidus* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
696. *Helleborus × hybridus* Voss. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: cult.
697. *Helleborus niger* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
698. *Helleborus odoratus* Waldst. & Kit. ex Willd. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
699. *Helleborus orientalis* Lam. (= *H. caucasicus* A.Braun). – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: As(Cauc.)

700. *Helleborus purpurascens* Waldst. & Kit. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
701. *Hepatica nobilis* Schreb. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
702. *Pulsatilla vulgaris* Mill. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
703. *Ranunculus asiaticus* L. – Imm.: hemerophyte. – Accl.: low. – L.f.: perennial (facult.). – Origin: Med
704. *Ranunculus illyricus* L. – Imm.: native. – L.f.: herb. perennial. – Range: Steppe
705. *Ranunculus repens* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euras. – Note. ‘Plena’
706. *Thalictrum aquilegifolium* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro
707. *Thalictrum delavayi* Franch. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
708. *Thalictrum flavum* L. – Imm.: native. – L.f.: herb. perennial. – Range: Boreal
709. *Thalictrum lucidum* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euro
710. *Trollius asiaticus* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euras
711. *Trollius × hybrida* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.

Rosaceae

712. *Acaena buchananii* Hook.f. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Oc(NZ)
713. *Acaena microphylla* Hook.f. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Oc(NZ)
714. *Alchemilla alpina* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Boreal
715. *Alchemilla mollis* (Buser) Rothm. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Med
716. *Aruncus dioicus* (Walter) Fernald. – Imm.: hemerophyte. – Accl.: high (self-seed?. veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Euro
717. *Aruncus sylvester* Kostel. ex Maxim. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(fe)
718. *Aruncus × hybridus* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
719. *×Comagaria rosea* (Mabb.) Büscher & G.H.Loos. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: cult.
720. *Drymocallis rupestris* (L.) Soják (= *Potentilla rupestris* L.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: PARct
721. *Filipendula digitata* (Willd.) Bergmans (= *F. palmata* (Pall.) Maxim.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(fe)
722. *Filipendula ulmaria* (L.) Maxim. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euras. – Note. ‘Variegata’
723. *Filipendula vulgaris* Moench. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: PARct
724. *Fragaria × ananassa* (Duchesne ex Weston) Duchesne ex Rozier. – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: cult.
725. *Fragaria moschata* Duchesne ex Weston. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Euro-Sib
726. *Fragaria vesca* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Boreal
727. *Fragaria viridis* Weston. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euras
728. *Geum coccineum* Sm. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Med
729. *Geum quellyon* Sweet (= *G. chilense* Balbis.). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(s)
730. *Geum × hybridum* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
731. *Potentilla alba* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euras
732. *Potentilla atrosanguinea* G.Lodd. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(s)
733. *Potentilla gracilis* Douglas ex Hook. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
734. *Potentilla indica* (Andrews) Th.Wolf (= *Duchesnea indica* (Andrews) Focke). – Imm.: hemerophyte. – Accl.: high (self-seed., veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: As(e)
735. *Potentilla nepalensis* Hook. – Imm.: hemerophyte. – Accl.: high (abund. self-seed.). – L.f.: herb. perennial. – Origin: Afr
736. *Potentilla recta* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Med
737. *Potentilla × hybrida* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
738. *Sanguisorba albiflora* (Makino) Makino. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
739. *Sanguisorba canadensis* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
740. *Sanguisorba minor* Scop. subsp. *minor* (= *Poterium sanguisorba* L.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (ephemerophyte). – L.f.: herb. perennial. – Origin: Euro-Med
741. *Sanguisorba officinalis* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Holarct
742. *Sanguisorba tenuifolia* Fisch. ex Link. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
743. *Sanguisorba × hybrida* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.

Rubiaceae

744. *Galium rubioides* L. – Imm.: native. – L.f.: herb. perennial. – Range: Euras
745. *Phuopsis stylosa* (Trin.) G.Nicholson. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: As(w)

Rutaceae

746. *Ruta graveolens* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: subshrub. – Origin: Med

Saururaceae

747. *Houttuynia cordata* Thunb. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(e)

Saxifragaceae

748. *Astilbe × arendsii* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 749. *Astilbe chinensis* (Maxim.) Franch. & Sav. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 750. *Astilbe × rosea* Van Waveren & Kruijff (= *A. × arendsii* Arends). – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 751. *Astilbe rubra* Hook.f. & Thomson. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(s)
 752. *Astilbe × hybrida* hort. ex Ievinya & Lusinya. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 753. *Bergenia crassifolia* (L.) Fritsch. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(Sib.)
 754. *Bergenia stracheyi* (Hook.fil. & Thomson) Engl. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(s)
 755. *Darmera peltata* (Torr. ex Benth.) Voss (= *Peltiphyllum peltatum* (Torr. ex Benth.) Engl.). – Imm.: hemerophyte. – Accl.: low. – L.f.: herb. perennial. – Origin: Am(n)
 756. *Heuchera americana* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 757. *Heuchera cylindrica* Douglas. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 758. *Heuchera maxima* Greene. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 759. *Heuchera micrantha* Douglas. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 760. *Heuchera sanguinea* Engelm. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 761. *Heuchera villosa* Michx. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 762. *Heuchera × hybrida* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 763. *×Heucherella alba* (Lemoine) Stearn. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 764. *Rodgersia aesculifolia* Batalin. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 765. *Rodgersia podophylla* A.Gray. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 766. *Rodgersia sambucifolia* Hemsl. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 767. *Rodgersia × hybrida* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 768. *Saxifraga × arendsii* Engl. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 769. *Saxifraga crustata* Vest. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Med
 770. *Saxifraga hostii* Tausch. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Med
 771. *Saxifraga paniculata* Mill. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Holarct
 772. *Saxifraga rosacea* Moench. – Imm.: hemerophyte. – Accl.: med. – L.f.: subshrub. – Origin: Euro
 773. *Saxifraga umbrosa* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Euro
 774. *Saxifraga × hybrida* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.
 775. *Tiarella cordifolia* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 776. *Tiarella × hybrida* hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult.

Solanaceae

777. *Alkekengi officinarum* Moench (= *Physalis alkekengi* L.). – Imm.: native. – L.f.: herb. perennial. – Range: Euro-Med
 778. *Alkekengi officinarum* var. *franchetii* (Mast.) R.J.Wang. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 779. *Physochlaina orientalis* (M.Bieb.) G.Don. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: As(Cauc.)
 780. *Physochlaina physaloides* (L.) G.Don. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(e)

Verbenaceae

781. *Verbena macdougallii* A.Heller. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)

Violaceae

782. *Viola acuminata* Ledeb. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(e)
 783. *Viola alba* Besser. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – L.f.: herb. perennial. – Origin: Euro-Med
 784. *Viola canadensis* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: Am(n)
 785. *Viola coreana* × *V. spp.* hybrid hort. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: cult. – Note. 'Mars'
 786. *Viola cornuta* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Euro
 787. *Viola grypoceras* A.Gray. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(e)
 788. *Viola labradorica* Schrank. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
 789. *Viola odorata* L. – Imm.: native (cv.). – L.f.: herb. perennial. – Range: Euro-Med
 790. *Viola odorata* × *V. spp.* hybrid hort. – Imm.: hemerophyte. – Accl.: high (veg. spread.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: cult.
 791. *Viola palmata* L. – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: Am(n)
 792. *Viola prionantha* Bunge s.l. (= *Viola hissarica* Juz.). – Imm.: hemerophyte. – Accl.: high (self-seed.). – L.f.: herb. perennial. – Origin: As(c)
 793. *Viola sororia* Willd. – Imm.: hemerophyte. – Accl.: high (self-seed.). – Spont.: casual (colonophyte). – L.f.: herb. perennial. – Origin: Am(n)
 794. *Viola uniflora* L. – Imm.: hemerophyte. – Accl.: med. – L.f.: herb. perennial. – Origin: As(Sib.)

Декоративні багаторічники у квітникарстві Центральної України: таксономічне різноманіття, структурний аналіз, успішність натуралізації чужорідних видів

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Це дослідження містить комплексний аналіз таксономічної різноманітності та процесів акліматизації і натуралізації багаторічних декоративних трав'яних і напівдерев'янистих рослин Центральної України. Розглянуто роль цих рослин у регіональному квітникарстві та екологічні ризики, пов'язані з їх інтродукцією. За низкою джерел простежена історія розвитку квітникарства у регіоні. Відзначено, що воно має досить давню історію, але перші конкретні відомості про об'єкт дослідження з'явилися у кінці 18 ст. Виявлено, що у квітникарстві на території південних районів м. Київ і Київської області та Черкаської області культивується 794 видів, підвидів і гібридів із 301 роду та 70 родин. Найбільше таксонів відносяться до родин: Asteraceae (11,6%), Asparagaceae (6,5%), Lamiaceae (6,5%), Ranunculaceae (6,0%) та Crassulaceae (5,3%). Найбільше зустрічається представників родів: *Allium* (25 видів), *Iris* (19 видів і гібридів) та *Primula* (14 видів і гібридів). Було встановлено, що 84,5% досліджених таксонів є ергазіофітами, а 15,5% – місцеві види, які часто представлені сортами, що відображає переважання інтродукованих видів і сортів у асортименті декоративних рослин. Серед рослин, які використовуються у квітникарстві Центральної України, багаторічні трав'яні рослини є найбільшою групою (77,5%), а частки напівдерев'янистих рослин (5,1%) та одно- і малорічних рослин (17,4%) значно менші. Розподіл місцевих рослин за типами їх ареалів охоплює всі основні елементи природної флори, але найчастіше культивуються види з європейським (23,6%), євразійським (19,5%) та європейсько-середземноморським (13,9%) типами ареалів. Серед ергазіофітів найбільше мають азійське (28,0%), середземноморське (19,4%) та американське (19,1%) походження, а також досить висока частка гібридів і видів культивованого походження (11,2%). А в цілому, у квітникарстві представлені види із усіх регіонів, у тому числі тропічних та океанічного.

Важливим аспектом дослідження була оцінка ступеня акліматизації та натуралізації декоративних чужорідних рослин. Було доповнено схему подолання чужорідними видами лімітуючих бар'єрів схемою акліматизації ергазіофітів та їх втечею за межі культури. Акліматизація ергазіофітів розглядається як контрольований процес, паралельний спонтанній натуралізації. Виявлено, що 44,9% ергазіофітів досягли ступенів повної акліматизації, 15,4% проникли за межі ділянок культивування, ставши ергазіофітами, 2,7% стали натуралізованими, а 1,5% набули інвазійного статусу. Прикладами інвазійних видів є *Helianthus tuberosus*, *Reynoutria japonica* та *Solidago canadensis*. До потенційно інвазійних видів, які потребують моніторингу та додаткового вивчення належать *Corydalis caucasica*, *Petrosedum orientale*, *Symphyotrichum* × *versicolor*, *Thladiantha dubia* та деякі інші.

Ключові слова: біорізноманіття, гемерофіти, культивовані рослини, флора, інтродукція, ергазіофіти, фітоінвазії, Київ, Черкаська область, зміни клімату, екологічні ризики