Inventory of the alien flora of Slovakia

Přehled nepůvodní flóry Slovenska

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This is the first complete inventory of alien vascular plant taxa for the Slovak Republic. The presented database contains information on family affiliation, residence status, invasion status, time of introduction, mode of introduction, planting purpose, abundance and distribution within phytogeographic regions, types of invaded habitats and syntaxa, and life forms and geographical origin of the alien taxa. In total, 21.5% of the total flora is made of up of alien taxa, comprised of 282 archaeophytes that make up 6.6% and 634 neophytes 14.9% of the total number of taxa, respectively. The majority of the alien taxa are casuals (57.6%), 39.1% are naturalized and 3.3% invasive. Most of them come from Europe (32.8%) and Asia (32.8%), followed by Africa (12.2%) and North America (10.8%). The database contains members of 98 families of which the *Asteraceae*, *Brassicaceae*, *Fabaceae*, *Poaceae*, *Amaranthaceae* and *Rosaceae* are the most represented. Almost 50% of the alien taxa are therophytes. Hemicryptophytes (26.3%) and phanerophytes (15.6%) are also abundant. More of the alien taxa were introduced deliberately (49.0%) than unintentionally (43.9%), and the majority were introduced as ornamental plants (55.9%). Of the total number of alien taxa, 45.2% are recorded from less than five localities. Most of them prefer human-made habitats; they are found in 137 phytosociological alliances, with those richest in alien taxa categorized as synanthropic vegetation.

K e y w o r d s: adventive taxa, archaeophyte, invaded syntaxa, invasion status, land use, life form, mode of introduction, neophyte, pattern of distribution, planting purpose, residence status, Slovak Republic, time of introduction

Introduction

Along with the vast global changes that have resulted from the dramatic increase in numbers of people worldwide over the last few centuries and decades, there has been an increasing concern about the consequences of the introduction and spread of alien species. As numerous studies have shown, both intentionally and accidentally introduced alien species of plants may have huge environmental effects on native biodiversity, through changes in community structure, nutrient cycles, trophic levels, hydrology, fire regimes, allelopathy, competition, hybridization and others, and may even cause high economic

losses by reducing yields in crops and pastures, promoting allergic reactions and altering the natural environment (Abbott 1992, Mack et al. 2000, Manchester & Bullock 2000, Pimentel et al. 2001, Levine et al. 2003, Muńoz & Cavieres 2008, Kettunen et al. 2009, Winter et al. 2009, Pyšek & Richardson 2010, Vilà et al. 2010, 2011, Stohlgren et al. 2011, Pyšek et al. 2012b).

Therefore, numerous studies have been devoted to finding answers to a few basic questions about the patterns of invasions of alien species, in particular, why some species are more invasive than others (e.g. Mack 1996, Rejmánek 1996, Rejmánek & Richardson 1996, Williamson 1996, Hamilton et al. 2005, Richardson & Pyšek 2006, Pyšek et al. 2009, Kubešová et al. 2010, Moravcová et al. 2010, Van Kleunen et al. 2010; see Pyšek & Richardson 2007 for a review) and why some habitats are more invaded than others (e.g. Tilman 1997, Lonsdale 1999, Stohlgren et al. 1999, 2006, Chytrý et al. 2005, 2008a, b, Herben 2005, Pyšek et al. 2005, Sanz-Elorza et al. 2006, Vilà et al. 2007, Simonová & Lososová 2008, Carranza et al. 2011, Pinke et al. 2011).

Complete lists of alien floras are a very helpful tool for addressing the above-mentioned questions and enable us to perform macroecological studies on invasion patterns and trends at both national (e.g. Deutschewitz et al. 2003, Kühn et al. 2003, Chytrý et al. 2005, 2009a, Williamson et al. 2005, Brändle et al. 2008, Küster et al. 2008, Arianoutsou et al. 2010, Pyšek et al. 2011) and continental levels (e.g. Weber 1997, Chytrý et al. 2008b, 2009b, Hulme et al. 2008, 2009, Lambdon et al. 2008, Winter et al. 2009, Phillips et al. 2010, Pyšek et al. 2010a, b, Essl et al. 2011), with the progress on the latter stimulated by the EU funded DAISIE project that resulted in major progress in the knowledge of the state of the art of biological invasions in Europe (DAISIE 2009, Hulme & Weser 2011). As a result, detailed catalogues of the alien plants in various European countries were produced during the last decade (e.g. Preston et al. 2004 for UK, Celesti-Grapow et al. 2009 for Italy, Arianoutsou et al. 2010 for Greece). Although there are such catalogues for several neighbouring countries (Protopopova 1991 for Ukraine, and Pyšek et al. 2012a for the Czech Republic) or partial lists of archaeophytes (Zając & Zając 1975, Zając 1979, 1987a, b, 1988 for Poland, Terpó et al. 1999 for Hungary, Protopopova & Shevera 2005 for Ukraine), neophytes (Zając et al. 1998 for Poland, Essl & Rabitsch 2002 for Austria, Balogh et al. 2004 for Hungary) or invasive species (Protopopova et al. 2006 for Ukraine), these catalogues only have regional validity, and they are of limited value for addressing the above questions in Slovakia.

History of botanical research in Slovakia on alien species

Botanical research in the region of the current Slovak Republic has a long tradition. The first floristic work from this region, by Lumnitzer (1791), was on the flora of the city of Bratislava and its surroundings. The work contained a complete list of all of the taxa present, often including detailed information on their distribution, habitat preferences and even naturalization status, and stating whether the species was only cultivated or already spreading spontaneously. Because Bratislava was one of the most important centres of transport, trade and industry at that time and is located in the most invaded southern part of the country, we may presume that the work included most of the alien species that were present in the region of current Slovakia at that time.

Lumnitzer's Flora Posoniensis (1791) was followed by the work of Endlicher (1830), again from the region of Bratislava and its surroundings, which increased the knowledge of the process of naturalization of new taxa by including more alien species that were introduced after 1791 and stating that some species, which were reported as only cultivated by Lumnitzer, were already spreading spontaneously.

The first flora for the whole region of Slovakia was prepared by Reuss (1853); his work mentions naturalization status as well, often stating that a given species was both cultivated and found at ruderal sites. The studies of other botanists in the second half of the 19th century focused especially on regional floras, such as the flora of Bratislava and its surroundings (e.g. Bolla 1856, Richter 1863, Wiesbaur 1865) or the counties of Gemer (e.g. Fábry 1867), Trenčín (e.g. Holuby 1896) and Nitra (e.g. Pantocsek 1899); a more detailed overview of the work prior to 1975 is presented by Krippelová (1975). After the formation of Czechoslovakia, a request for a new national flora emerged and was completed by Domin et al. (1928) and Dostál (1948–1950). Together with an increasing scientific knowledge about alien species, the number of works dedicated to the taxonomy, spread, distribution and ecology of alien taxa increased, e.g. *Oxalis* (Smejkal 1965), *Oenothera* (Jehlík & Rostański 1979) and *Chenopodium* (Schwarzová 1999). The volumes of the Flora of Slovakia, published since 1966, also contain information on many alien taxa. The knowledge of the taxonomy, ecology and distribution of the most important alien species of the former Czechoslovakia is summarized by Hejný et al. (1973) and Jehlík (1998). Information on neophytes is included in the work of Dostál & Červenka (1991–1992); however, the value of that data is limited because it was for all Czechoslovakia, and many of the taxa mentioned as neophytes were absent in Slovakia. Additionally, some records of the species given in that work are now considered to be doubtful, such as those of *Aster cordifolius* L. (M. Slovák, pers. comm.), *Hainardia cylindrica* (Willd.) Greuter (P. Eliáš jun., pers. comm.) and *Trifolium squarrosum* L. (Kubát in Slavík 1995). Although lists of archaeophytes (Halada 1997) and the most important alien, invasive and expansive species (Gojdičová et al. 2002) in the region of Slovakia were compiled, and some information on alien species was included in Marhold (1998), there was a growing need for the preparation of a complete inventory of all of the alien vascular taxa in Slovakia, which summarizes all of the data published on certain alien taxa recorded in Slovakia to date. Therefore, the present study was designed to report the current state of the alien vascular flora of Slovakia and it is believed that the results of this study will have many scientific and practical applications.

Characteristics of the region studied

History of the effects of humans on the regional flora

The first archaeological evidence of the presence of early humans and human ancestors (*Homo erectus* and *H. neanderthalensis*) in the region of Slovakia are from 1,000,000–250,000 BC (Škvarna et al. 2002). At that time, the region was inhabited by hunter-gatherers, who obtained their food from wild plants and animals, and had a negligible effect on the surrounding countryside. More significant changes came at the beginning of the Neolithic era (around 5700 BC), which was characterized by the beginning and expansion of the planting of cultivated crops, such as *Hordeum*, *Lens*, *Panicum*, *Pisum*

and *Triticum*, accompanied by the first alien weeds (archaeophytes), such as *Asperula arvensis*, *Chenopodium hybridum*, *Echinochloa crus-galli*, *Fallopia convolvulus*, *Galium tricornutum* and *Solanum nigrum* (Hajnalová 1993). Archaeological finds demonstrate that Neolithic man raised cows, sheep, pigs and goats (Škvarna et al. 2002). Further development included the mining and processing of metals such as copper, gold and iron, the increase in the concentration of people into larger settlements and the exchange of goods. The territory of Slovakia has played an important role as a crossroad of commercial and cultural paths (The Amber Road, Via Bohemica, Via Magna) since the Early Bronze Age (Škvarna et al. 2002).

All of these changes in land use, together with an increased need for arable land, resulted in the increased use of wood and subsequent deforestation. The process of settlement started in the lowlands and on terraces of large rivers; however, the mountainous regions were settled during the final phase of the Bronze Age (Čaplovič 1987). In the Early Iron Age, during the Hallstatt culture (around 700 BC), the exploitation of forest increased (Krippel 1986). The native plant cover was completely removed in many parts of central Europe prior to the Roman period. The forest communities, which have re-established on the same sites later, could be considered anthropogenic from the historical point of view (Ralska-Jasiewiczova 1982). Deforestation continued during the Roman period (0–375 AD) due to the timber requirements of the Romans and use of iron saws. During the Great Moravian Empire (833–907 AD), the exploitation of forests decreased, and the forests partially naturally regenerated, mainly because the Slavic tribes required less timber, did not use iron saws and developed agricultural systems that resulted in a more efficient use of arable land, which resulted in a decrease in deforestation. Moreover, the forests were protected both for religious reasons and as a food source (Krippel 1986). The lower human pressure on forests over a large area was typical in this period. Kostrowicki (1982) states that in Europe more than half of the formerly cultivated land returned to a more natural state during the early Middle Ages (5th to the 11th century AD). From the 12th to the 17th century, many sparsely inhabited and less-fertile regions of current Slovakia were colonized and cultivated under German, Walachian and mountain farmer law, resulting in further changes in the land use (Škvarna et al. 2002). Arrival of Turks, Tartars, Croatians and other Balkan ethnic groups, together with the establishment of vineyards and medieval monastery gardens represented other important sources of alien species during the Middle Ages.

The development of modern society brought new technologies, means of manufacture and population growth as well as an expanding local, international and even intercontinental exchange of goods. These changes led to a new wave of introductions of alien plants, both accidental and deliberate. A greater knowledge of agriculture and forestry motivated and encouraged people to introduce foreign species of crops, ornamentals and trees. In forestry for example, the 18th and 19th century represented an era of numerous introductions of new species of trees, mostly from North America and Asia, both to parks and natural forests (Benčať 1982). The 19th century was also the era of the Industrial Revolution in this region, leading to vast changes in the society, economy and land use. From 1945 to 1989, the region was under a communist regime, which enormously affected the whole country: the transport of people and goods through the Iron Curtain was limited, there were vast changes in land use and agricultural technologies due to collectivization and the formation of cooperative farms, and people were motivated to move from villages to

towns, leading to the depopulation of rural areas and the abandonment of less productive or remote sites, among other changes. In contrast, there was a massive exchange of goods between the former Czechoslovakia and former USSR, which were carried via the railways and waterways, leading to numerous accidental introductions of alien species from Asia and Eastern Europe (Jehlík & Hejný 1974). After the revolution in 1989, the limitations on the transport of goods and people were removed and this country underwent many of the same changes as occurred in the surrounding countries.

Geography and climate

The southern part of the Slovak Republic forms part of the province of Pannonia and has a minimum altitude of 94 m. The rest of the country is predominantly mountainous and forms part of the Western and also Eastern Carpathians, where the maximum altitude is 2655 m (Šucha 2011). Slovakia is in central Europe, located on the transition line between a temperate oceanic and temperate continental climate. The average annual precipitation is 807.5 mm (arithmetic mean for the years 2000–2009, Slovak Hydrometeorological Institute 2011), ranging from 500 mm in the lowlands of southern Slovakia to 2000 mm in the High Tatras in the north, and 40% of the precipitation falls in summer (June-August). The average annual temperatures range from 9 to 11 °C in the lowlands of southern Slovakia to –3 °C at the peaks of the High Tatras in the north. July is the warmest month, while January is the coldest month. Average number of frost days (period of 24 hours in which the minimum temperature in a thermometer screen is equal to or below 0 °C) varies from 90 in the south of Slovakia to 160 in the mountain valleys in the north of Slovakia (Slovak Hydrometeorological Institute 2011).

Land use

Almost half of the total area of Slovakia is used for agriculture (49.3%). The remaining surface area is composed of forests (41.0%), water bodies (1.9%), built-on land (4.7%) and other land uses (3.1%) (Statistical Office of the Slovak Republic 2010). Most of the agricultural land is arable (69.9%), with the remainder composed of grasslands (27.1%), vineyards (0.8%), orchards (0.5%), home gardens (1.7%) and other types of agriculture (0.04%) (Rozborilová & Bašteková 2010). A total of 69.8% of the forests are commercial, 17.1% are protected, and 13.1% have a special purpose. Almost one fifth (19.1%) of the land area is protected (Statistical Office of the Slovak Republic 2010).

The infrastructure of the region consists of a relatively dense transportation network (roads, railways, navigable rivers and airports). Few important international motorways pass through the country from the Czech Republic, Austria and Hungary. The railway stations Čierna nad Tisou and Dobrá were important international transhipment points for goods traded between the former USSR and central Europe and served as important sources of propagules of alien species from the east (Jehlík & Dostálek 2008). There are two important international ports on the Danube River on the Rhine-Main-Danube waterway in Bratislava and Komárno, which serve as important transhipment points for both the transport of goods (coal, ore, crops and other agricultural products, etc.) and passengers (Jehlík 1998).

Methodology and terminology

To characterize the residence and invasion status of a taxon, we use the definitions proposed by Richardson et al. (2000), further elaborated in Pyšek et al. (2004) and Blackburn et al. (2011), because their terms are clearly defined. Their terminology is also widely accepted in the current literature, enabling a more efficient comparison of our results with those for other countries. The presented database consists of all taxa of vascular plants (including nothotaxa) that are not considered to be natives of the Slovak Republic and were recorded in the wild (not cultivated) at least in one locality. We consider a taxon native if it evolved in the territory, arrived there before the beginning of the Neolithic era or came to the region afterwards but through methods entirely independent of human activity (Webb 1985, Pyšek et al. 2004). We therefore consider as alien all taxa that arrived in Slovakia after the beginning of the Neolithic era, were introduced either directly by man or as a result of human activity or the activity of domestic animals and were recorded growing wild at least once. If the taxon is considered to be native at any locality within the territory, it is not included in the list (e.g. *Telekia speciosa*). Hybrids with non-native taxa are considered to be alien because they would not occur without the presence of their exotic parent (Pyšek et al. 2004). The hybrids that are cultivated and do not have any recorded locality outside of the cultivation area were excluded from the list. The hybrids of two archaeophytes or of an archaeophyte and a native taxon are considered to be archaeophytes, even if they were recently recorded because it is possible that the nothotaxon might have also hybridized in the past. The hybrids with one neophyte parent, regardless of the residence status of the other parent, are considered to be neophytes (Pyšek et al. 2002). The taxa are mostly reported at the species level; the only exceptions are the species with subspecies that have different residence statuses. Some of the taxonomically problematic taxa were included in aggregates, namely *Aster novi-belgii* agg. (*A. laevis*, *A. lanceolatus*, *A. novi-belgii*, *A. parviflorus*, *A.* ×*salignus*, *A.* ×*versicolor* Willd.) and *Xanthium orientale* agg. (*X. albinum*, *X. italicum*, *X. ripicola*, *X. saccharatum*). The nomenclature of the taxa follows Marhold et al. (2007). Taxa that are not included in Marhold et al. (2007) are associated with a particular author in the text or marked by asterisks in Appendix 1.

Data sources

We have collated data from all of the main publications on the floristics of the region of Slovakia, namely, the Flora of Slovakia (Futák 1966, Futák & Bertová 1982, Bertová 1984, 1985, 1988, 1992, Bertová & Goliašová 1993, Goliašová 1997, Goliašová & Šípošová 2002, 2008, Goliašová & Michalková 2006, 2012), studies of Dostál & Červenka (1991–1992), a book on the alien invasive species in the Czech and Slovak Republics (Jehlík 1998), information in accessible journals, unpublished data of our colleagues and our own personal knowledge. We also consulted the works of Halada (1997) on archaeophytes and Gojdičová et al. (2002) on the alien, invasive and expansive vascular plants in Slovakia. The paleobotanical works of Tempír (1969), E. Hajnalová (Hajnalová 1975, 1985, 1989, 1993, 1999, 2001, Hajnalová et al. 1993), M. Hajnalová (Hajnalová 1994) and Opravil (1978) were also consulted. The historical botanical works of Lumnitzer (1791), Endlicher (1830), Reuss (1853), Richter (1863), Fábry (1867), Holuby (1896) and Dostál (1948–1950) and others were also studied. We have critically reviewed the opinions of all of the above mentioned authors, taking into consideration the criteria

suggested by Webb (1985), namely the fossil evidence, historical evidence, habitat, geographical distribution, ease of known naturalization elsewhere, genetic diversity, reproductive pattern and supposed means of introduction. The complete list of references employed in producing the database is given in Electronic Appendix 1.

During the determination of residence time and invasion status of alien taxa in Slovakia, we have taken into consideration the relevant data from the surrounding countries – Austria (Essl & Rabitsch 2002, Fischer et al. 2008), Czech Republic (Pyšek et al. 2002), Hungary (Priszter 1997, Terpó et al. 1999), Poland (Zając & Zając 1975, Zając 1979, 1987a, b, 1988, Rostański & Sowa 1986–1987, Zając et al. 1998, Mirek et al. 2002), Ukraine (Protopopova 1991, Prototopova & Shevera 2005, Prototopova et al. 2006) and central Europe as a whole (Lohmeyer & Sukopp 1992, Sukopp 2006).

For the evaluation of taxon abundance, distribution in phytogeographic regions and occurrence in plant communities attributed to various syntaxa of the phytosociological classification, as well as in various types of habitats, we have used published data and our own unpublished data of field research and that of our colleagues, together with the Central Database of Phytosociological Relevés (CDF, http://ibot.sav.sk/cdf/) and the Database of Floristic Data, which are both administered by the Institute of Botany of the Slovak Academy of Sciences, and the Informational System on Taxa and Biotopes (ISTB, http://www.sopsr.sk/istb/), which is maintained by the State Nature Conservancy of the Slovak Republic. The CDF consists of more than 50,000 phytosociological relevés carried out in Slovakia. To increase the credibility of the results, we have excluded doubtful records and those of cultivated taxa from the relevés. The use of a geographical stratification (Chytrý et al. 2005) was inconvenient because it led to the exclusion of rare casual taxa and rare syntaxa, and the pattern of distribution within the phytogeographic regions of the frequent taxa in the stratified database was very similar to that of the unstratified database. The resulting output of the CDF database consisted of 51,523 relevés. The ISTB database contained 5,872 records.

All of the data collected are stored in the newly created Database of the Alien Species of Slovakia (DASS), which served as a source for the preparation of Appendix 1 and of the analyses presented.

Evaluated categories

To indicate the residence time of taxa, we have used the terms archaeophyte and neophyte. The term archaeophyte refers to alien taxon introduced to the region from the beginning of Neolithic agriculture up to the year 1500, and neophyte for those introduced after this date (sensu Pyšek et al. 2004). To indicate the invasion status of a taxon, we have used the terms casual, naturalized and invasive, following the definition of Richardson et al. (2000). Casual taxa are defined as alien taxa that may flourish and eventually reproduce in an area but do not form self-reproducing populations and therefore are dependent on repeated introductions. Naturalized aliens reproduce regularly, forming stable populations lasting for many life cycles. Invasive taxa are naturalized aliens whose propagules are able to spread over a considerable area. If a taxon appeared to be invasive in the past or was present at many more localities in the past and now has stable or decreasing populations, we have indicated this by means of an octothorpe (#) in the residence time column of the table in Appendix 1.

The time of introduction of neophytes refers to the year of its first reported occurrence in the region from which the so-called minimum residence time can be inferred (Rejmánek 2000, Pyšek & Jarošík 2005). The taxon might have occurred in the region before this date; however, we have no published record of its presence. For some of the taxa, we did not have precise information about the year of introduction, and therefore, we have stated the century of the known introduction. The years of the first known occurrence in the wild (that is, at a place where the taxon was not deliberately planted) for the taxa that were introduced deliberately are included in brackets in Appendix 1. For the taxa that were introduced unintentionally, the year of introduction is the same as the year of the first documented occurrence in the wild. For the archaeophytes, we have stated the era for which we have the first archaeological evidence of the taxon's occurrence within the region, namely the Neolithic and Aeneolithic era (5000–1900 BC), Bronze Age (1900–700 BC), Iron Age (700–0 BC), Roman period and Migration period (0–565 AD) or Medieval period (565–1500 AD). The paleobotanical works of Tempír (1969), Opravil (1978), E. Hajnalová (Hajnalová 1975, 1985, 1989, 1993, 1999, 2001, Hajnalová et al. 1993) and M. Hajnalová (Hajnalová 1994) were the main sources of data for the archaeophytes. The historical botanical works of Lumnitzer (1791), Endlicher (1830), Reuss (1853), Richter (1863), Fábry (1867), Holuby (1896) and Dostál (1948–1950) were the main sources for the neophytes. The work by Benčaťˇ (1982) was the main source for the time of introduction of most of the trees.

The introduction mode is the main pathway of introduction of the taxa into the country. The taxon may have been introduced either deliberately by man or unintentionally as a result of human activity (Hulme et al. 2008). Some of the taxa were introduced by both means and it is hard to distinguish which mode was more important. In some cases, however, one of the modes is considerably more important; for example, *Prunus persica* both escapes from areas, where it is cultivated and accidentally spreads from ports, although plantations are considered to be a much more important source of its propagules.

The planting purpose was evaluated for the cultivated taxa. All of the possible uses were divided into several categories: fodder crops, food (cereals, fruit, legumes, vegetable, nuts, seeds, etc.), forestry (including trees planted for timber, landscaping and prevention of soil erosion), medicinal plants (including cosmetics), melliferous plants, oil crops, ornamentals (including garden ornamentals, park trees and aquarium plants), spices and technical crops (including fibres and dyes). If a taxon is cultivated for more than one reason, we have assigned it to each of its cultivation purposes.

The abundance in Slovakia was derived from the number of records in the CDF and ISTB and from other published and unpublished sources by using the semi-quantitative scale of Clement & Foster (1994 sec. Pyšek et al. 2002): 1 = 1–4 localities, 2 = 5–14, 3 = 15–49, 4 = 50–499, 5 = more than 500 localities. We attempted to avoid counting the same locality more than once by skipping the sources that were already included in the databases and by comparing the data extracted from different sources. If a taxon was found in one locality and its presence there was later confirmed by the same or other authors, we have counted this as one record for the locality. For the cultivated plants, we have taken into account only those localities where a taxon was not deliberately planted, including those where it was found as a remnant from previous cultivation (e.g. *Helianthus annuus* that was deliberately planted in one year and grew from seeds as a weed species in a *Zea mays* crop the following year). For deliberately planted trees, we have included only localities

where the taxa were self-reproducing. If a taxon is considered to be regionally extinct (i.e., not recorded in Slovakia for the last 50 years), we have indicated this information by placing a cross (†) in the abundance column of Appendix 1.

The existing phytogeographic division of Slovakia according to Futák (1980) was used to characterize the distribution of the taxa. The Eupannonicum region consists of lowlands in the south-eastern and south-western regions of the country and Matricum region in the centre of southern Slovakia. The majority of the highlands are part of the Praecarpaticum region whereas the flysch-based mountains in the north-western region of the country are part of Beschidicum occidentale and those in the north-eastern region of the Beschidicum orientale. The Eucarpaticum region includes the highest mountain ranges in the north of Slovakia. The Intercarpaticum region consists of the large basins between these mountain ranges. The small region in the north-eastern corner of the territory, which is part of the Eastern Carpathians, is the Carpathicum orientale region. The distribution of the taxa within the phytogeographic regions was evaluated using records from the literature, CDF, ISTB and unpublished data.

The category of land use represents the type of habitat invaded, which is either natural, semi-natural or human-made, based on the types of syntaxa invaded (based on the CDF data) and other records. Built-up areas, parks, gardens, orchards, agricultural land, all the types of ruderal vegetation and the other types of habitats that are seriously altered by human activity, e.g. the cooling ponds of thermal spas are categorized as human-made. The semi-natural habitats include cultural landscapes that are moderately affected by man (excluding human-made habitats), such as pastures, regularly mown grasslands and quarries. The forests and naturally treeless vegetation (alpine vegetation, wetlands, etc.) are natural habitats. If a taxon was found in more than one type of habitat, it was considered as occurring in each of the habitats in which it was found. If a taxon was found in more than one type of habitat, but the majority of the records were for one type of habitat, the most important type of habitat was highlighted by the use of bold letters in the land-use column of Appendix 1.

The association of taxa with various phytosociological syntaxa was determined using the CDF database at the alliance level. The classification and nomenclature of the syntaxa are based on Jarolímek & Šibík (2008). If a taxon was found in more than one syntaxon, it was considered as occurring in each of the syntaxa in which it was found. The most important syntaxa were highlighted by the use of bold letters in the table (Appendix 1). For the taxa found in a wide spectrum of various syntaxa, only the most important syntaxa were used (Appendix 1). Some (usually rare) taxa have no record in the CDF database and therefore their association with phytosociological syntaxa was not evaluated.

The life forms were determined according to the Flora of Slovakia and other cited literature using a Raunkiær life-form classification: therophyte, hemicryptophyte, chamaephyte, phanerophyte, geophyte and hydrophyte. If there was no information on the life form in Slovakia, data for climatically similar European countries were used: Austria (Fischer et al. 2008), Czech Republic (Hejný & Slavík 1988–1992, Slavík 1995–2000, Kubát et al. 2002, Slavík & Štěpánková 2004, Štěpánková 2010) and Germany (Oberdorfer 1979, Frank & Klotz 1990). If the taxon has more than one life form, it was considered as representative of each of its life forms.

In the category of origin, we have listed the continents of which the taxon is considered to be native. Because some of the taxa have arisen through cultivation (anecophytes sensu

Kühn & Klotz 2002) or hybridization, we have also included a cultivation category and hybrid category. If a taxon is considered to be native of more than one continent, it was considered as occurring on each of the continents. The online plant databases NPGS/GRIN (http://www.ars-grin.gov/cgi-bin/npgs/html/taxgenform.pl) and Euro+Med Plantbase (http://www.emplantbase.org/home.html) were used as the main sources of information, especially for neophytes because archaeophytes are considered as native in these databases. The data were compared to other sources, primarily the Flora of Slovakia (Futák 1966, Futák & Bertová 1982, Bertová 1984, 1985, 1988, 1992, Bertová & Goliašová 1993, Goliašová 1997, Goliašová & Šípošová 2002, 2008, Goliašová & Michalková 2006), Flora of the Czech Republic (Hejný & Slavík 1988–1992, Slavík 1995–2000, Slavík & Štěpánková 2004, Štěpánková 2010) and other cited literature.

Results and discussion

Number of alien taxa and their residence time

To obtain the number of taxa in Slovakia we used the list of taxa in the CD version of the book Chromosome Number Survey of the Ferns and Flowering Plants of Slovakia (Marhold et al. 2007). From the original list we excluded varieties, alien and cultivated taxa. Resulting dataset of native taxa consisted of 3337 species and subspecies, including hybrids and microspecies. Slovak alien flora consists of 282 archaeophytes and 634 neophytes including subspecies and hybrids. Therefore, in total there are 4253 taxa in the Slovak flora including subspecies, microspecies and hybrids of both native and alien species. Archaeophytes make up 6.6% and neophytes 14.9% of the total number of taxa in the Slovak flora. In total, there are 916 alien taxa, making up 21.5% of the total flora.

In the database presented (Appendix 1), we have considered taxa at the species level. The only exceptions were species with subspecies that had a different residence status. As a result of the methodology applied, Appendix 1 includes 880 alien taxa, of which 256 are archaeophytes and 624 neophytes.

The DASS contains 54 hybrids (Appendix 1). Of the total number of hybrids 22 are between two neophytes, two between a neophyte and an archaeophyte, 12 between a neophyte and a native taxon, five between two archaeophytes and 13 between an archaeophyte and a native taxon. Eleven of the hybrids between two neophytes were intentionally planted or garden cultivars that have escaped (e.g. *Fragaria* ×*ananassa*, *Platanus* ×*hispanica*) and eleven of the hybrids hybridize naturally (e.g. *Amaranthus* ×*ozanonii*, *Oenothera* ×*slovaca*). Four of the hybrids between a neophyte and a native taxon are also cultivated (e.g. *Medicago* ×*varia*, *Mentha* ×*piperita*, *Populus* ×*canadensis*). Spontaneous hybridization is most frequent between archaeophytes and native taxa (e.g. *Arctium* ×*cimbricum*, *Centaurea* ×*extranea*, *Silene* ×*hampeana*, *Viola* ×*scabra*). Pooling across the two categories of residence time, archaeophytes and neophytes, there are 29 hybrids between two or more alien taxa and 25 between alien and native taxa. Results of surveys in other parts of the world indicate that hybridization with introduced species may negatively affect the gene pool of native species (e.g. Abbott 1992, Daehler & Carino 2001, Bleeker et al. 2007).

There are 33 species of uncertain residence status, because there is more or less equally convincing evidence of both their alien and native origin. List of these species is attached in Appendix 2.

The number and percentage of alien taxa is much lower than in the neighbouring Czech Republic, a country of similar size, climate and human activities, where alien taxa make up 33.4% of the 4132 taxa in the Czech flora (Pyšek et al. 2002). The observed discrepancy might be caused by the fact that many taxa that are considered to be alien in the Czech Republic are considered to be native in some localities in Slovakia. This is the case for many Pannonian taxa (e.g. *Marrubium peregrinum*, *Melampyrum barbatum*, *Trifolium pannonicum*), montane taxa native to the Tatra and Fatra mountain ranges (e.g. *Angelica archangelica*, *Hesperis matronalis*, *Rumex alpinus*) and Eastern Carpathian taxa (e.g. *Telekia speciosa*, *Rumex confertus*). Furthermore, some alien species, e.g. *Anoda cristata* (L.) Schldl., *Artemisia biennis* Willd., *Echinochloa muricata* (P. B.) Fernald and *Sida spinosa* L., were introduced into the Czech Republic via the Elbe route (Jehlík & Hejný 1974) and have not reached Slovakia.

Invasion status

The majority of the alien taxa are casual (507 taxa, 57.6%), 344 (39.1%) are naturalized but not invasive and 29 (3.3%) are invasive. Regarding the process of invasion, 42.4% of all of the recorded introduced taxa became naturalized and 7.8% of the naturalized taxa are invasive.

The majority (78.9%) of the archaeophytes in Slovakia are naturalized, i.e. they have already ceased spreading and have relatively stable populations (Fig. 1). Only a few of the archaeophytes are cultivated taxa, dependent on deliberate reintroduction for their survival, e.g. *Avena sativa*, *Brassica rapa*, *Hordeum vulgare*, *Morus nigra* and *Prunus persica*. Only four (1.6%) of the archaeophytes in Slovakia are considered to be invasive and spreading rapidly, namely *Apera spica-venti*, *Atriplex tatarica*, *Cardaria draba* and *Echinochloa crus-galli*. Most of the neophytes (73.2%) are casual and 22.8% of them have already successfully naturalized. Of the naturalized neophytes 15% are invasive.

Origin and taxonomical classification

Most of the alien plants in Slovakia came from Europe (32.8%) and Asia (32.8%), followed by Africa (12.2%) and North America (10.8%), and relatively few originated from South (3.3%) and Central America (1.9%) or Australia (0.3%). In total 3.8% originated from hybridization and 2.1% are anecophytes (Fig. 2).

The recorded taxa belong to 98 families (Appendix 1), with most belonging to the *Asteraceae*, followed by *Brassicaceae*, *Fabaceae*, *Poaceae*, *Amaranthaceae* and *Rosaceae* (Table 1). Most of the abovementioned families are large, cosmopolitan families and well represented in the native flora, with the exception of the *Amaranthaceae*, of which there are few species in the native flora. There is a high diversity of alien taxa belonging to all of theses families also in other European (Weber 1997, Pyšek et al. 2012a, Lambdon et al. 2008, Celesti-Grapow et al. 2009, Arianoutsou et al. 2010, Hyvönen & Jalli 2011) and Asian countries (Jiang et al. 2011), and even globally (Daehler 1998, Pyšek 1998, Stohlgren et al. 2011). In contrast, the families *Orobanchaceae*, *Cyperaceae*, *Salicaceae* and *Orchidaceae* are relatively abundant in the native flora but are almost absent in the alien flora; indeed, there are no alien *Orchidaceae*. This is attributed to their dependence

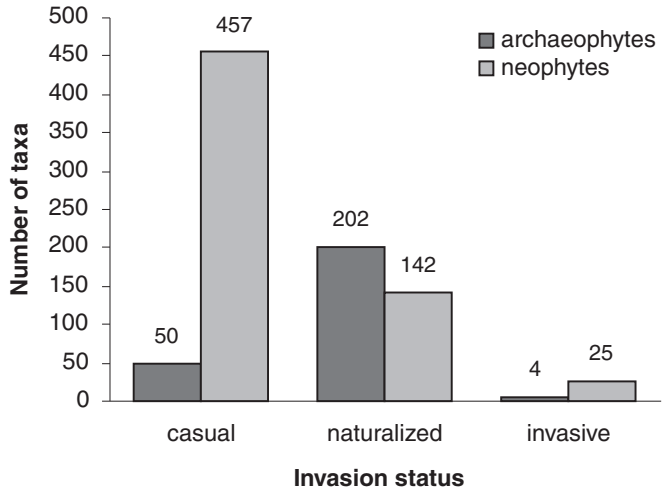

Fig. 1. – Number of casual, naturalized and invasive archaeophytes and neophytes in the flora of Slovakia. 'Naturalized' category includes taxa that are naturalized but not invasive, and the total number of naturalized taxa is the sum of this category and that of invasive species. Numbers of taxa in each category are indicated above the bars. Note that the number of alien taxa in the analyses differs from the total number of alien taxa mentioned in the results, because in the analyses we have considered taxa at the species level. The only exceptions were species with subspecies that had a different residence status.

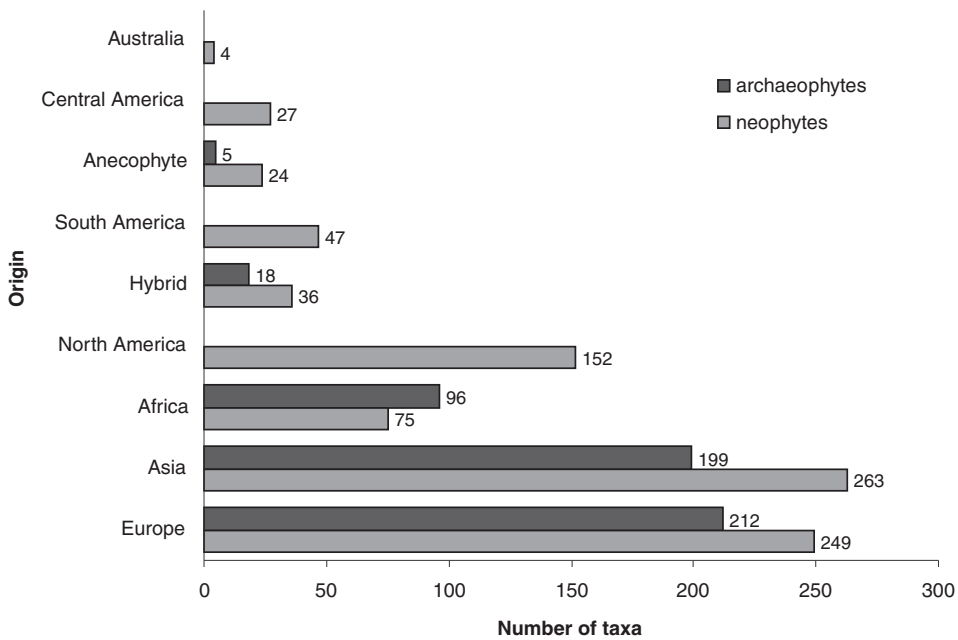

Fig. 2. – Origin of the archaeophytes and neophytes in the Slovak flora. Numbers of taxa in each category are indicated next to the bars. If a taxon is considered to be native of more than one continent, the taxon was considered as occurring on each of the continents.

on specialized pollinators and mycorrhizae (Daehler 1998). The alien taxa in 59 of the families are represented solely by neophytes, as in *Onagraceae* (20 taxa), *Pinaceae* (10), *Alliaceae* (8), *Oxalidaceae* (7) and *Crassulaceae* (6). The alien taxa of the families *Linaceae* (1 taxon), *Verbenaceae* (1) and *Zygophyllaceae* (1) are all archaeophytes. Only one alien taxon was identified in 23 of the families.

There are 147 genera and 364 genera represented by archaeophytes and neophytes, respectively, in the Slovak flora, recorded in the DASS database. The most represented genera within the archaeophytes are *Chenopodium* (12), *Prunus* (7), *Arctium* (6), *Carduus* (6), *Veronica* (6) and *Vicia* (6) and within the neophytes *Amaranthus* (19 taxa), *Oenothera* (15), *Chenopodium* (10), *Allium* (8) and *Solanum* (8). Regardless of the residence time, the database contains 447 genera, some of which are represented by both archaeophytes and neophytes. The genera *Chenopodium* (22), *Amaranthus* (19), *Oenothera* (15), *Prunus* (12), *Euphorbia* (10), *Vicia* (10) and *Viola* (10) are the most represented. There are greater diversities of aliens in these genera also elsewhere in Europe (Pyšek et al. 2002, Lambdon et al. 2008, Arianoutsou et al. 2010).

Table 1. – Comparison of the number and percentage of the alien and native taxa in selected families of the Slovak flora. See Methods for sources of data on native flora.

Family	Number of alien taxa	% of all alien taxa	Number of native taxa	% of native taxa
Asteraceae	110	12.5	548	16.4
Brassicaceae	66	7.5	130	3.9
Fabaceae	59	6.7	137	4.1
Poaceae	58	6.6	232	7.0
Amaranthaceae	53	6.0	24	0.7
Rosaceae	44	5.0	331	9.9
Lamiaceae	32	3.6	106	3.2
Caryophyllaceae	30	3.4	125	3.7
Apiaceae	24	2.7	78	2.3
Plantaginaceae	24	2.7	68	2.0
Solanaceae	23	2.6	5	0.1
Boraginaceae	20	2.3	49	1.5
Onagraceae	20	2.3	43	1.3
Malvaceae	15	1.7	12	0.4
Ranunculaceae	13	1.5	101	3.0

Life forms

Almost half (48.0%) of the alien taxa in Slovakia are therophytes. Hemicryptophytes (26.3%) and phanerophytes (15.6%) are well represented and geophytes (5.9%), chamaephytes (2.8%) and hydrophytes (1.4%) are less frequent (Fig. 3). The majority of the archaeophytes (67.3%) are therophytes, 24.6% hemicryptophytes, 5.3% phanerophytes, 2.1% geophytes and 0.7% chamaephytes. The high percentage of therophytes is because a significant percentage of archaeophytes are annual weeds of arable land. The neophytes have a rather different spectrum composed of 39.2% therophytes, approximately the same percentage of hemicryptophytes (27.0%), a much higher percentage of phanerophytes (20.4%) and a slightly higher percentage of geophytes (7.6%) and chamaephytes (3.7%). The higher percentage of phanerophytes is likely to have resulted from the enthusiastic introductions of alien trees, both for forestry and as park ornamentals, during the last three centuries, because

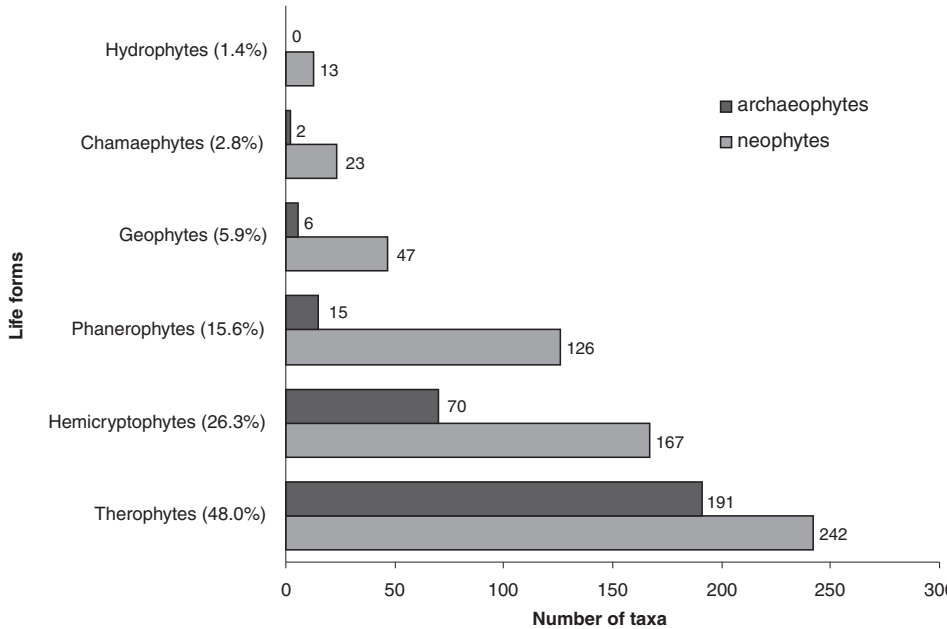

Fig. 3. – Spectrum of the Raunkiær life forms of archaeophytes and neophytes in the Slovak flora. Numbers of taxa in each category are indicated next to the bars. The numbers in parentheses following the life forms indicate the total percentage pooled across archaeophytes and neophytes. If the taxon has more than one life form, it was considered as representative of each of its life forms.

all of the recorded taxa of trees were deliberately introduced. All of the hydrophytes are neophytes and eight hydrophytes were deliberately introduced, mainly as aquatic ornamentals, which then escaped from aquaria.

Mode of introduction and purpose of planting

Almost half (49.0%) of the taxa were introduced deliberately, 43.9% accidentally and 7.1% both accidentally and deliberately. The majority of the deliberately introduced taxa are ornamentals (55.9%). Other important purposes for planting were for use as food (14.2%), medicine (9.5%), fodder (6.0%), forestry (3.8%) and spices (3.8%) (Fig. 4). Similar results are recorded for other European countries (Pyšek et al. 2002, Arianoutsou et al. 2010). Lambdon et al. (2008) show the largest group of plant species imported to Europe is ornamentals. According to Lambdon & Hulme (2006), the majority of garden ornamentals, despite frequent introductions, usually are at low risk of becoming invasive as they are poorly adaptated for survival in the wild (but see Hulme 2011).

Abundance

A total of 225 (25.6%) of all of the alien taxa were present at only one locality in Slovakia, 45.2% at less than five localities, and smaller percentages at 5 to 14 localities (15.7%), 15 to 49 localities (12.0%), 50 to 499 localities (20.3%) or more than 500 localities (6.7%). Although there seems to be no pattern in the distribution among the five categories, from

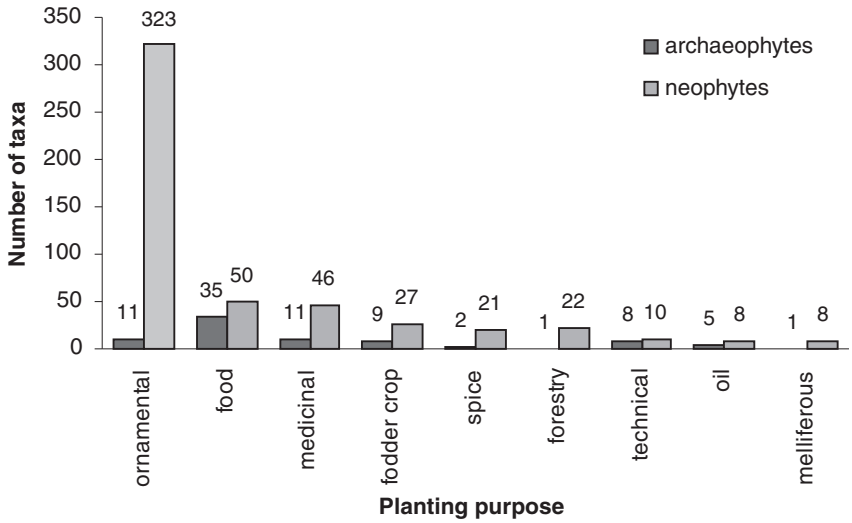

Fig. 4. – Composition of the Slovak alien flora with respect to the purpose of planting. Numbers of taxa in each category are indicated above the bars. Taxa attributed to multiple categories were assigned to each of them.

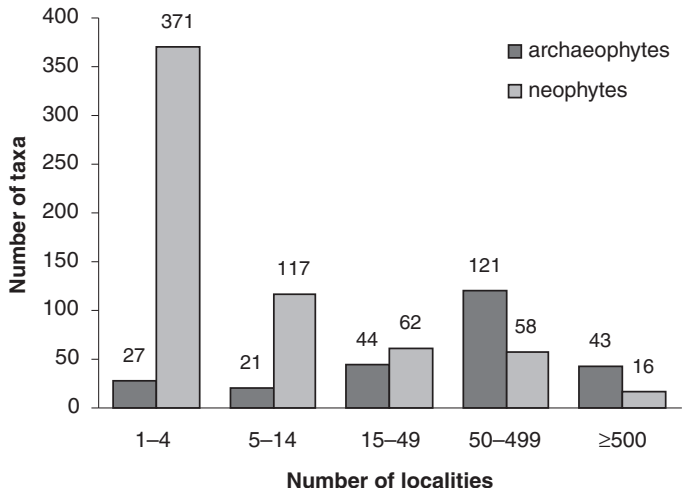

Fig. 5. – Distribution of the archaeophytes and neophytes in the Slovak alien flora with respect to the number of localities at which a given taxon was found. Numbers of taxa in each category are indicated above the bars. Note that the number of alien taxa in the analyses differs from the total number of alien taxa mentioned in the results, because in the analyses we have considered taxa at the species level. The only exceptions were species with subspecies that had a different residence status.

Fig. 5 it is apparent that it is important to analyse the archaeophytes and neophytes separately. Most of the archaeophytes are naturalized within the region and already reached their optimal distribution, with the majority of the taxa found at 15 or more localities. In contrast, the number of taxa of neophytes, the majority of which are casuals, decreases almost exponentially from the first abundance category to the last. A total of 45 alien taxa were not recorded over the last 50 years and are considered to be extinct in Slovakia.

Although there is little data on many of the hybrids (e.g. *Arctium* ×*ambiguum*, *Fallopia* ×*bohemica*) it is likely that they are much more frequent than is reported. The lack of data must be taken into account in the interpretation of the abundance and distribution of these hybrids.

Phytogeographic regions

Slovakia is divided into eight phytogeographic regions. A total of 327 (37.2%) alien taxa are restricted to just one region (Fig. 6) and the majority to a single locality. In contrast, 112 (12.8%) of the taxa are found in all eight phytogeographic regions. A total of 13.8% and 13.3% are found only in two and three phytogeograpic regions, respectively, and usually only in the southern parts of Slovakia.

The composition of the alien flora in certain phytogeographic regions is shown on the map depicted in Fig. 7. The richest alien floras are recorded in the Eupannonicum and Praecarpaticum regions, however, it is noteworthy that the phytogeographic regions are not all similar in area and the abovementioned regions are the largest.

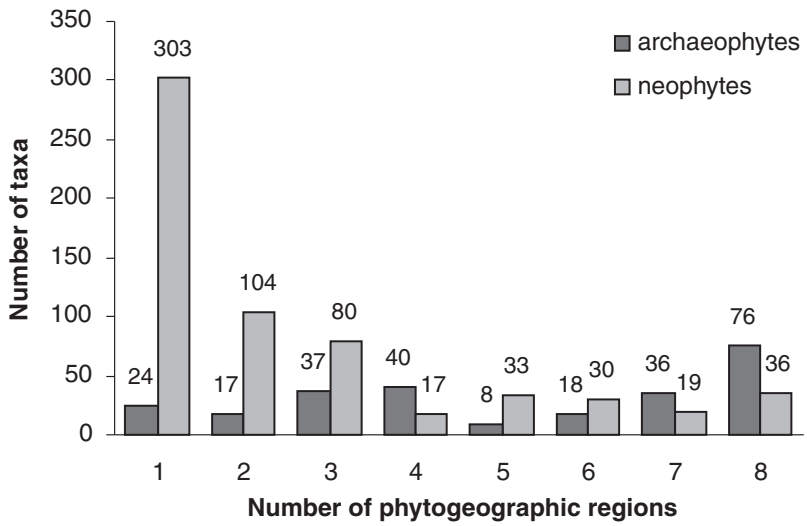

Fig. 6. – Relationship between the alien taxa and the number of phytogeographic regions in which they are recorded. Numbers of taxa in each category are indicated above the bars. Note that the number of alien taxa in the analyses differs from the total number of alien taxa mentioned in the results, because in the analyses we have considered taxa at the species level. The only exceptions were species with subspecies that had a different residence status.

Type of habitat

Most alien taxa are associated with human-made habitats. While the number of taxa per habitat linearly decreases from human-made through semi-natural to natural habitats for archaeophytes, for neophytes, the pattern of decrease is very close to the curve of a power function (Fig. 8), indicating that a higher percentage of neophytes are found in human-made habitats. Human-made habitats also tend to host the highest numbers of alien taxa in other European regions (e.g. Pyšek et al. 2002, 2010a, Chytrý et al. 2005, 2008b, Lambdon et al. 2008, Arianoutsou et al. 2010).

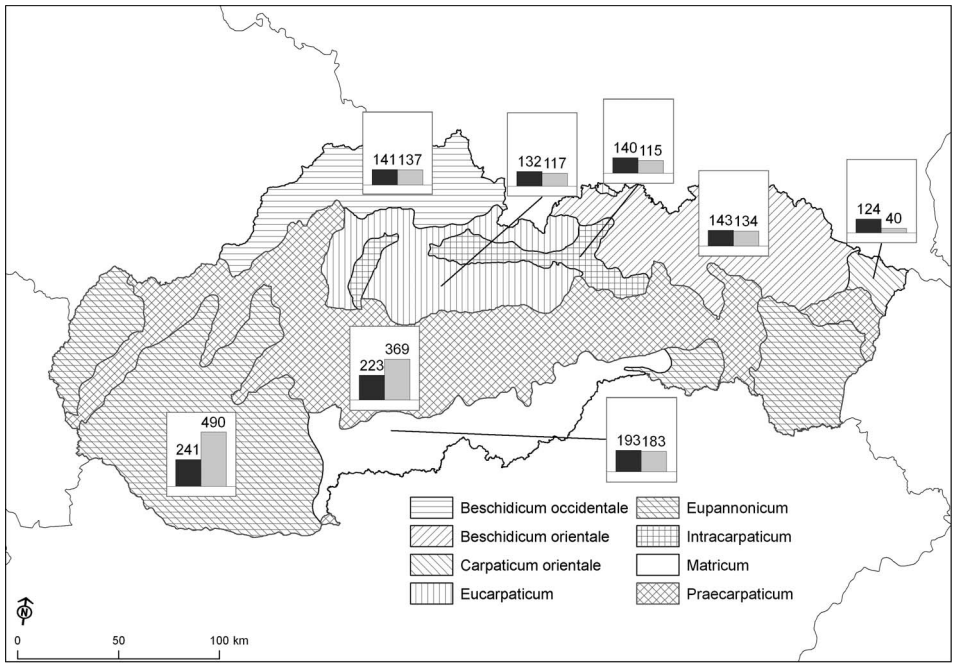

Fig. 7. – Number of archaeophytes (dark grey) and neophytes (light grey) and their distribution within the phytogeographic regions of Slovakia. Numbers of taxa in each category are indicated above the bars.

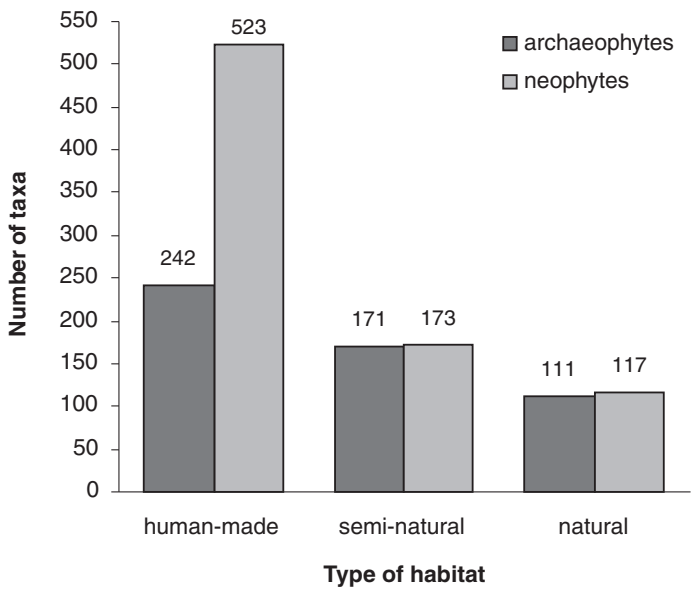

Fig. 8. – Distribution of archaeophytes and neophytes in the Slovak alien flora with respect to the type of habitat in which they are recorded. Numbers of taxa in each category are indicated above the bars. If a taxon was found in more than one type of habitat, it was considered as occurring in each of the habitats in which it was found.

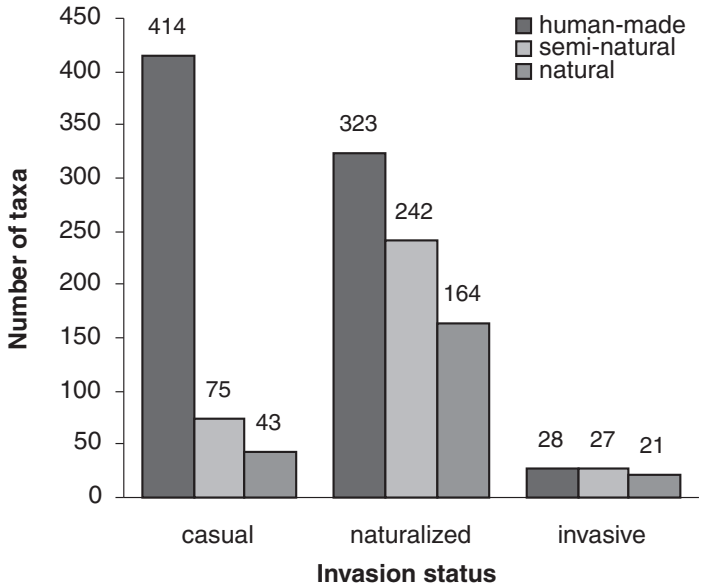

Fig. 9. – Distribution of casual, naturalized and invasive taxa in the Slovak alien flora with respect to the type of habitat in which they are recorded. Numbers of taxa in each category are indicated above the bars. The types of habitat include human-made, semi-natural or natural. If a taxon was found in more than one type of habitat, it was considered as occurring in each of the habitats in which it was found.

Regarding the invasion status, the majority of the casual taxa were found in human-made habitats (Fig. 9). A high percentage of naturalized taxa is found in all three types of habitat. Almost all invasive taxa are found in all three of the habitat types, indicating the extremely wide ecological niche of these taxa (Hejda et al. 2009).

Invaded syntaxa

The alien plant taxa, recorded in the CDF, were recorded in 137 phytosociological alliances. The majority of the alliances that harbour the highest diversity of alien taxa are of synanthropic vegetation (Table 2). In some of the alliances, alien taxa represent more than 50% of all the taxa growing in that type of vegetation. There are relatively high numbers of alien taxa in some of the alliances of semi-natural and natural vegetation, such as *Alnion incanae*, *Carpinion betuli*, *Festucion valesiacae* or *Cynosurion cristati*. However, the above alliances in general belong to species-rich syntaxa; therefore, alien taxa do not make up a large percentage of the total number of taxa.

Conclusions

This inventory is valuable tool not only for addressing scientific questions about the ecology and dynamics of species, plant communities and habitats relating to processes of introduction, spreading and invasion of alien species, but it has also numerous practical applications for nature conservancy. We are aware of a certain amount of uncertainty and subjectivness regarding the residence and invasion status of some alien and possibly alien

Table 2. – Phytosociological alliances that harbour the highest numbers of alien taxa. Bold letters are used for alliances with more than a 50% representation of alien taxa among all taxa occurring in the given type of vegetation. Level of synanthropization of the alliance: synanthropic (S), semi-natural (SN) and natural (N) is included in brackets.

Alliance	Number of alien taxa	% of alien taxa among all taxa
Dauco-Melilotion (S)	207	29.5
Atriplicion nitentis (S)	167	45.3
Sisymbrion officinalis (S)	164	42.8
Caucalidion lappulae (S)	159	43.3
Onopordion acanthii (S)	152	32.7
Panico-Setarion (S)	143	**50.7**
Arction lappae (S)	140	36.2
Malvion neglectae (S)	138	**52.1**
Galio-Alliarion (S)	135	24.9
Convolvulo-Agropyrion repentis (S)	133	33.1
Veronico-Euphorbion (S)	119	43.0
Eragrostion (S)	118	**50.9**
Scleranthion annui (S)	115	39.1
Potentillion anserinae (S)	114	23.9
Bidention tripartitae (SN)	112	26.2
Eragrostio-Polygonion arenastri (S)	110	42.3
Aegopodion podagrariae (SN)	106	22.6
Chenopodion glauci (SN)	104	34.3
Matricario matricarioidis-Polygonion arenastri (S)	104	40.9
Cynosurion cristati (SN)	97	10.9
Arrhenatherion elatioris (SN)	90	10.0
Senecionion fluviatilis (SN)	88	22.5
Salsolion ruthenicae (S)	86	39.8
Festucion valesiacae (SN)	82	9.8
Sherardion arvensis (S)	80	49.1
Spergulo-Oxalidion (S)	72	49.7
Alnion incanae (N)	68	9.6
Nanocyperion flavescentis (N)	56	25.7
Phragmition australis (N)	52	12.2
Carpinion betuli (N)	51	7.3

taxa, which is always associated with this type of list. To reduce the measure of subjectivness as far as possible, the information based on the criteria mentioned in the methods, especially fossil evidence, historical records, habitat, geographical distribution, ease of known naturalization elsewhere, especially in surrounding countries, supposed means of introduction, together with our own personal knowledge and that of other experts in the field of taxonomy and plant ecology was integrated. During the preparation of the inventory, it became clear that there was a low level of knowledge about the history, distribution or ecology of some, even widely distributed alien species. We hope that this inventory will stimulate and inspire other colleagues to fill in the blanks and publish additions to the list so that an updated version can be published in the future.

See http://www.preslia.cz for Electronic Appendix 1

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Souhrn

Práce přináší přehled nepůvodních taxonů cévnatých rostlin, které byly zaznamenány na Slovensku. V Apendixu 1 jsou pro všechny taxony uvedené údaje o jejich příslušnosti k čeledi, období jejich introdukce, invazním statusu, roku (období) jejich prvního záznamu na Slovensku, způsobu introdukce, účelu pěstování, početnosti a rozšíření ve fytogeografických okresech, typech invadovaných habitatů a invadovaných syntaxonech, životních formách a původu. Ze všech analyzovaných taxonů slovenské flóry je 916 (21,5 %) nepůvodních, z nich 282 (6,6 %) jsou archeofyty a 634 (14,9 %) neofyty. Většina nepůvodních taxonů se vyskytuje jen přechodně (57,6 %), 39,1% taxonů je naturalizováno a 3,3 % taxonů se chová invazně. Převážná většina nepůvodních taxonů pochází z Evropy (32,8 %) a Asie (32,8 %), méně pak z Afriky (12,2 %) a Severní Ameriky (10,8 %). V databázi nepůvodních taxonů jsou zastoupeny taxony 98 čeledí, nejčastější z nich jsou *Asteraceae*, *Brassicaceae*, *Fabaceae*, *Poaceae*, *Amaranthaceae* a *Rosaceae*. Téměr 50 % nepůvodních taxonů jsou terofyty. Hemikryptofyty (26,3 %) a fanerofyty (15,6 %) jsou také dost časté. Téměř polovina taxonů byla introdukována úmyslně (49,0 %) a většina z nich jako okrasné rostliny (55,9 %). Celkem 45,2 % všech nepůvodních taxonů bylo nalezeno na méně než pěti lokalitách. Většina nepůvodních taxonů upřednostňuje člověkem vytvořená nebo silně ovlivněná stanovište. Nepůvodní taxony byly zjištěny ve 137 svazech, přičemž největší spektrum taxonů bylo zaznamenáno ve svazech zahrnujících synantropní vegetaci.

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Appendix 1. – The list of the alien vascular plant taxa in the Slovak Republic. **Names of taxa** are arranged alphabetically (taxa not included in Marhold et al. 2007 are indicated by an asterisk), followed by the code for the **family (Fam)**: Aco – *Acoraceae*, Adi – *Adiantaceae*, Ado – *Adoxaceae*, Aga – *Agavaceae*, Aiz – *Aizoaceae*, Ali – *Alismataceae*, All – *Alliaceae*, Ama – *Amaranthaceae*, Amy – *Amaryllidaceae*, Ana – *Anacardiaceae*, Api – *Apiaceae*, Apo – *Apocynaceae*, Aqu – *Aquifoliaceae*, Ara – *Araceae,* Ast – *Asteraceae*, Bal – *Balsaminaceae*, Ber – *Berberidaceae*, Bet – *Betulaceae*, Big – *Bignoniaceae*, Bor – *Boraginaceae*, Bra – *Brassicaceae*, Bux – *Buxaceae*, Cac – *Cactaceae*, Cam – *Campanulaceae*, Can – *Cannabaceae*, Cap – *Caprifoliaceae*, Car – *Caryophyllaceae*, Cel – *Celastraceae*, Com – *Commelinaceae*, Con – *Convolvulaceae*, Cor – *Cornaceae*, Cra – *Crassulaceae*, Cuc – *Cucurbitaceae*, Cup – *Cupressaceae*, Cyp – *Cyperaceae*, Dip – *Dipsacaceae*, Ebe – *Ebenaceae*, Ela – *Elaeagnaceae*, Eup – *Euphorbiaceae*, Fab – *Fabaceae*, Fag – *Fagaceae*, Fum – *Fumariaceae*, Ger – *Geraniaceae*, Gro – *Grossulariaceae*, Hem – *Hemerocallidaceae*, Hya – *Hyacinthaceae*, Hyd – *Hydrangeaceae*, Hyo – *Hydrocharitaceae*, Iri – *Iridaceae*, Jug – *Juglandaceae*, Jun – *Juncaceae*, Lam – *Lamiaceae*, Len – *Lentibulariaceae*, Lil – *Liliaceae*, Lin – *Linaceae*, Mag – *Magnoliaceae*, Mal – *Malvaceae*, Mor – *Moraceae*, Nyc – *Nyctaginaceae*, Ole – *Oleaceae*, Ona – *Onagraceae*, Oro – *Orobanchaceae*, Oxa – *Oxalidaceae*, Pae – *Paeoniaceae*, Pap – *Papaveraceae*, Pau – *Paulowniaceae*, Phy – *Phytolaccaceae*, Pin – *Pinaceae*, Pla – *Plantaginaceae*, Plt – *Platanaceae*, Poa – *Poaceae*, Pog – *Polygonaceae*, Pol – *Polemoniaceae*, Pon –

Pontederiaceae, Por – *Portulacaceae*, Pri – *Primulaceae*, Ran – *Ranunculaceae*, Res – *Resedaceae*, Ros – *Rosaceae*, Rub – *Rubiaceae*, Rut – *Rutaceae*, Sal – *Salicaceae*, Sap – *Sapindaceae*, Sav – *Salviniaceae*, Sax – *Saxifragaceae*, Scr – *Scrophulariaceae*, Sim – *Simaroubaceae*, Sol – *Solanaceae*, Tam – *Tamaricaceae*, Tro – *Tropaeolaceae*, Typ – *Typhaceae*, Ulm – *Ulmaceae*, Urt – *Urticaceae*, Val – *Valerianaceae*, Ver – *Verbenaceae*, Vio – *Violaceae*, Vit – *Vitaceae*, Zyg – *Zygophyllaceae*. The **invasion status (IS)**: cas – casual, nat – naturalized, inv – invasive and **residence time (RT)**: arch – archaeophyte, neo – neophyte is given for each taxon. Octothorpe (#) behind the invasion status indicates that the taxon has been invasive or had much more localities in the past and now it has stable or decreasing populations. The **time of introduction (TI)** for neophytes refers to the year of the first known occurrence of the taxon within the Slovakia and the year of the first known occurrence in the wild (in brackets). Only one year is stated, if these years are the same. For the archaeophytes we state the era, from which we have the first archaeological evidence of the occurrence within the region: N – Neolithic and Aeneolithic era (5700–1900 BC), B – Bronze Age (1900–700 BC), I – Iron Age (700–0 BC), R – Roman and Migration period (0–565 AD), M – Medieval period (565–1500 AD). The **introduction mode (IM)** represents the main source of introduction of the taxon to the country: a – accidental, d – deliberate, ad – both means. The **abundance (AB)** within the region is expressed using the semi-quantitative scale of Clement & Foster (1994 sec. Pyšek et al. 2002): 1 = 1–4 localities, 2 = 5–14 localities, 3 = 15–49 localities, 4 = 50–499 localities, 5 = more than 500 localities. Cross sign (†) indicates that the taxon is considered to be extinct (not recorded for the last 50 years). The **distribution of taxon within the phytogeograpic regions (PR):** Bc – Beschidicum occidentale, Br – Beschidicum orientale, C – Carpaticum orientale, Ec – Eucarpaticum, Ep – Eupannonicum, I – Intracarpaticum, M – Matricum, Pr – Praecarpaticum. The category **land-use (LU)** represents the type of invaded habitat: H – human-made, S – semi-natural, N – natural. The most important type of habitat is highlighted by the use of bold letters. The **alliances**, in which the taxon occurs the most frequently, are arranged according to the decreasing number of the records. If the number of the records for several alliances is the same, the codes of alliances are arranged alphabetically. The alliances, in which the taxon occurs significantly more than elsewhere, are written with bold letters. The codes of alliances: AA – *Androsacion alpinae*, AC – *Alchemillo-Poion supinae*, AE – *Arrhenatherion elatioris*, AF – *Asplenio septentrionalis-Festucion pallentis*, AG – *Alnion glutinosae*, AH – *Arabidopsidion thalianae*, AI – *Alnion incanae*, AL – *Arction lappae*, AN – *Atriplicion nitentis*, AO – *Alopecurion pratensis*, AP – *Aegopodion podagrariae*, AQ – *Aceri tatarici-Quercion*, AR – *Arabidion alpinae*, AS – *Arctio-Sambucion nigrae*, AY – *Alysso alyssoidis-Sedion albi*, BE – *Bromion erecti*, BF – *Bromo pannonici-Festucion pallentis*, BR – *Balloto nigrae-Robinion*, BT – *Bidention tripartitae*, BV – *Berberidion vulgaris*, CA – *Convolvulo-Agropyrion repentis*, CB – *Carpinion betuli*, CC – *Corynephorion canescentis*, CD – *Caricion davallianae*, CE – *Carici piluliferae-Epilobion angustifolii*, CF – *Charion fragilis*, CG – *Chenopodion glauci*, CH – *Chelidonio-Robinion*, CI – *Cirsio brachycephali-Bolboschoenion compacti*, CL – *Caucalidion lappulae*, CM – *Cymbalario-Asplenion*, CN – *Cynosurion cristati*, CO – *Cratoneurion commutati*, CP – *Calthion palustris*, CR – *Caricion remotae*, CS – *Caricion fuscae*, CT – *Cirsio-Brachypodion pinnati*, CU – *Carduo-Urticion dioicae*, CV – *Cnidion venosi*, CY – *Cypero-Spergularion salinae*, DM – *Dauco-Melilotion*, DS – *Diantho lumnitzeri-Seslerion albicantis*, EE – *Elatini-Eleocharition ovatae*, EH – *Erysimo witmannii-Hackelion deflexae*, EP – *Eragrostio-Polygonion arenastri*, ER – *Eragrostion*, FA – *Fagion*, FE – *Festucion vaginatae*, FP – *Festucion pseudovinae*, FV – *Festucion valesiacae*, GA – *Galio-Alliarion*, GE – *Geranion sanguinei*, GP – *Genistion pilosae*, GQ – *Genisto germanicae-Quercion*, GS – *Galeopsion segetum*, IS – *Impatienti noli-tangere-Stachyion sylvaticae*, JE – *Juncion effusi*, JG – *Juncion gerardii*, KA – *Koelerion arenariae*, LM – *Lemnion minoris*, ME – *Magnocaricion elatae*, MN – *Malvion neglectae*, MO – *Molinion*, MP – *Matricario matricarioidis-Polygonion arenastri*, NA – *Nymphaeion albae*, NF – *Nanocyperion flavescentis*, OA – *Onopordion acanthii*, OQ – *Oenanthion aquaticae*, PA – *Phragmition australis*, PC – *Papaverion tatrici*, PE – *Piceion excelsae*, PF – *Prunion fruticosae*, PH – *Phalaridion arundinaceae*, PI – *Pulsatillo slavicae-Pinion*, PL – *Potamion lucentis*, PM – *Potamion pusilli*, PN – *Potentillion anserinae*, PO – *Petasition officinalis*, PP – *Plantagini-Prunellion*, PQ – *Pino-Quercion*, PR – *Parietarion officinalis*, PS – *Panico-Setarion*, PT – *Polygono-Trisetion*, PU – *Puccinellion limosae*, QC – *Quercion confertae-cerris*, QE – *Quercion petraeae*, QP – *Quercion pubescenti-petraeae*, RA – *Rumicion alpini*, RF – *Ranunculion fluitantis*, RL – *Radiolion linoidis*, RQ – *Ranunculion aquatilis*, SA – *Sherardion arvensis*, SB – *Salicion albae*, SC – *Salicion cinereae*, SF – *Senecionion fluviatilis*, SG – *Sparganio-Glycerion*, SI – *Stipion calamagrostis*, SN – *Scleranthion annui*, SO – *Spergulo-Oxalidion*, SP – *Saginion procumbentis*, SR – *Salsolion ruthenicae*, ST – *Salicion triandrae*, SY – *Sisymbrion officinalis*, TA – *Tilio-Acerion*, TC – *Thero-Camphorosmion*, TI – *Thero-Airion*, TM – *Trifolion medii*, TS – *Teucrion scorodoniae*, US – *Ulici-Sarothamnion*, VE – *Veronico-Euphorbion*. The **life-forms (LF)** according to the Raunkiær classification: Ch – chamaephyte, G – geophyte, He – hemicryptophyte, Hy – hydrophyte, Ph – phanerophyte, T – therophyte. **Origin of the taxon**: Af – Africa, As – Asia, Au – Australia, C – from cultivation (anecophyte), CAm – Central America, E – Europe, H – hybrid, NAm – North America, SAm – South America; it is not given for the taxa of obscure origin.

Name of taxon	Fam	IS	RT	TI	IM	AB	PR	LU	Alliances	LF	Origin
Abies firma Siebold et Zucc.*	Pin	cas	neo	1905 (1960)	d	1	Pr	H		Ph	As
Abies grandis (Douglas ex D. Don) Lindl.	Pin	cas	neo	1890 (1960)	d	1	Co Pr	N		Ph	NAm
Abies nordmanniana (Stev.) Spach	Pin	cas	neo	1845 (1960)	d	1	Pr	H		Ph	As
Abutilon theophrasti Medik.	Mal	nat	neo	1865	ad	3	Bc Br Ep M Pr	**H** S	PS	T	As
Acer negundo L.	Sap	inv	neo	1794 (1865)	d	4	Bc Br Ec Ep M Pr	H S **N**	**AI SB SF** CH DM PQ AN PA ME	Ph	NAm
Acer saccharinum L.	Sap	cas	neo	1820 (1998)	ad	1	Ep	H		Ph	NAm
Achillea macrophylla L.	Ast	cas	neo	1950	d	1†	Ep			He	E
Acorus calamus L.	Aco	nat	neo	1791 (1830)	d	3	Co Ep I M Pr	**N** S	**PA** AG ME SG OQ CI	Hy	As
Adiantum capillus-veneris L.	Adi	nat	neo	1993	d	1	Pr	H			E As Af NAm CAm
Adonis aestivalis L.	Ran	nat	arch		a	4	Bc Br Ec Ep I M Pr	**H** S	**CL** VE SY GA AY AE CA CN PS	T	E As Af
Adonis annua L.	Ran	cas	neo	1830 (1905)	d	2	Bc Ep I	H		T	E Af
Adonis flammea Jacq.	Ran	nat	arch		a	3	Ep M Pr	H		T	E As
Aesculus hippocastanum L.	Sap	nat	neo	17c (1830)	d	4	Bc Ep M Pr	H S N	AI CB PQ AQ AG GA QC SB	Ph	E
Aethusa cynapium L.	Api	nat	arch		a	4	Bc Br Ec Ep I M Pr	**H** S N	**CL SF SA** AI PO AP PS SY AN BV	T He	E As
Ageratum houstonianum Mill.	Ast	cas	neo	2006	d	1	Ep	H		He	CAm SAm
Agrostemma githago L.	Car	nat	arch	N	a	4	Bc Br Co Ec Ep I M Pr	H	**CL VE SN** SA PS CA ER EP	T	E As
Agrostemma linicola Terechov	Car	cas	neo	1972	a	1	Pr	H		T	As
Ailanthus altissima (Mill.) Swingle	Sim	inv	neo	1850 (1964)	d	5	Br Ep I M Pr	**H** S **N**	**AI** SY OA DM MN	Ph	As
Alcea rosea L.	Mal	cas	neo	1947	d	2	Ep Pr	H S	PN SY	T He	E As
Alcea rugosa Alef.	Mal	cas	neo	2003	d	1	Ep	H		T He	As
Alchemilla mollis (Buser) Rothm.	Ros	cas	neo	1974	d	1	Ep	H		He	E As
Allium cepa L.	All	cas	neo	1830 (1950)	d	1	Ep Pr	H		G	As
Allium cristophii Trautv.	All	cas	neo	2008	d	1	Ep	H		G	As
Allium karataviense Regel	All	cas	neo	1980 (2011)	d	1	Ep	S		G	As
Allium moly L.	All	cas	neo	1853 (1993)	d	1	Ec	N		G	E
Allium porrum L.	All	cas	neo	1830 (1984)	d	1	Ep	H		G	C
Allium sativum L.	All	cas	neo	1830 (1955)	d	1	Ep	H		G	As
Allium schoenoprasum L. subsp. *schoenoprasum*	All	cas	neo	1830 (1979)	d	2	Pr	H		G	E As
Allium stipitatum Regel	All	cas	neo	2011	d	1	Ep	H		G	As
Alnus viridis (Chaix) DC.	Bet	nat	neo	18c (1853)	d	2	Bc Br Ec Pr	N		Ph	E
Alopecurus myosuroides Huds.	Poa	nat	arch	M	a	3	Ep M Pr	H	SY	T He	E As
Althaea armeniaca Ten.	Mal	cas	neo	1982 (2006)	d	1	Ep	H		He	E As
Alyssum murale Waldst. et Kit.	Bra	cas	neo	1941	d	1	Co I Pr	H		Ch	E
Amaranthus albus L.	Ama	nat	neo	1911	a	4	Bc Br Ec Ep I M Pr	**H** S	PS ER CG EP AN MN AL BT DM	T	NAm
Amaranthus blitoides S. Watson	Ama	nat	neo	1935	a	4	Br Ep I M Pr	H	CG PS CL ER EP MN	T	NAm
Amaranthus blitum L. subsp. *blitum*	Ama	nat	arch		a	4	Ep M Pr	H S	**PS ER** CG AN OQ SG	T	E Af

Name of taxon	Fam	IS	RT	TI	IM	AB	PR	LU	Alliances	LF	Origin
Amaranthus blitum subsp. *emarginatus* (Moq. ex Uline et W. L. Bray) Carretero, Muñoz Gram. et Pedrol.	Ama	cas	neo	2004	a	1	Ep	S	CG	T	As Af
Amaranthus bouchonii Thell.	Ama	cas	neo		a	1	Ep	H		T	NAm
Amaranthus caudatus L.	Ama	cas	neo	1896 (1947)	d	3	Ep M Pr	H	AN	T	SAm
Amaranthus crispus (Lesp. et Thévenau) N. Terracc.	Ama	nat	neo	1936	a	3	Ep M Pr	H	**EP** CG	T	SAm
Amaranthus cruentus L.	Ama	cas	neo	1876 (1938)	ad	2	Ep	H		T	CAm SAm
Amaranthus deflexus L.	Ama	nat	neo	1920	a	2	Ep	H		He	SAm
Amaranthus graecizans L. subsp. *graecizans*	Ama	cas	neo	1947	a	1	Ep	H		T	E SAm Af
Amaranthus graecizans subsp. *sylvestris* (Vill.) Brenan	Ama	nat	arch		a	2	Ep Pr	H		T	E As
Amaranthus hybridus L.	Ama	cas	neo	2005	a	1	Bc Ep	H		T	NAm CAm SAm
Amaranthus hypochondriacus L.	Ama	cas	neo	1791 (1948)	d	1	Ep Pr	H		T	CAm SAm
Amaranthus ×ozanonii Priszter	Ama	cas	neo	1966	a	1	Ep	H		T	H
Amaranthus palmeri S. Watson	Ama	cas	neo		a	1	Ep	H		T	NAm
Amaranthus powellii S. Watson	Ama	nat	neo	1935	a	4	Bc Br Co Ec Ep I M Pr	H	**CL ER PS** AL BT CA MN	T	CAm SAm
Amaranthus retroflexus L.	Ama	inv	neo	1830	a	5	Bc Br Co Ec Ep I M Pr	H	**PS** CG MN AN EP ER DM CL AL	T	CAm SAm
Amaranthus tricolor L.	Ama	cas	neo	1946	d	1	M	H		T	As
Amaranthus viridis L.	Ama	cas	neo	1966	a	1	Ep	H		T	SAm
Ambrosia artemisiifolia L.	Ast	inv	neo	1949	a	4	Bc Br Ec Ep I M Pr	**H** S	**DM** CL CA EP SR BT PS SY CG	T	NAm
Ambrosia trifida L.	Ast	cas	neo	1980	a	1	Ep M	H		T	NAm CAm
Amelanchier canadensis (L.) Medik.	Ros	cas	neo	1900 (1969)	d	1	Pr	H		Ph	NAm
Amorpha fruticosa L.	Fab	nat	neo	1850 (1931)	d	3	Bc Br Ep M Pr	H N		Ph	NAm
Amsinckia calycina (Moris) Chater	Bor	cas	neo	2000	a	1	Pr	H		T	SAm
Anacyclus clavatus (Desf.) Pers.	Ast	cas	neo	1960	ad	1	Br	H		T	E
Anagallis arvensis L.	Pri	nat	arch	R	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**CL PS SN** SA VE SO MN OA ER PN	T	E As Af
Anagallis ×doerfleri Ronniger	Pri	cas	arch		a	2	Ep Pr			T	H
Anagallis foemina Mill.	Pri	nat	arch		a	4	Bc Br Co Ep I M Pr	**H** S	**CL PS** PN MN MP AN GA NF SP	T	E As
Anaphalis margaritacea (L.) Benth. et Hook.	Ast	cas	neo	1928	d	1	Pr	H		He	SAm As
Anchusa italica Retz.	Bor	nat	neo	1830	a	2	Ep M	H S N	SY DM CL FV FE	He	E As
Anchusa leptophylla Roem. et Schult.*	Bor	cas	neo	1950	a	1	Ep	S		He	E As
Anchusa officinalis L.	Bor	nat	arch		a	4	Bc Br Ec Ep I M Pr	H S N	**DM** OA CA SY FV SR ER	He	E As
Anemone apenina L.*	Ran	cas	neo	1987	d	1	Ep	H		G	E As
Anethum graveolens L.	Api	nat	arch		ad	3	Bc Br Co Ec Ep M Pr	H	MN DM AN ER PS SN	T	E As
Anthemis arvensis L.	Ast	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**SN** VE SA CL BT PS SO CN AE PH	T	E As Af
Anthemis cotula L.	Ast	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	**H** S	**MN** PN MP OA AL DM CN BT CG	T	E As Af

Name of taxon	Fam	IS	RT	TI	IM	AB	PR	LU	Alliances	LF	Origin
Anthemis ruthenica M. Bieb.	Ast	nat	arch		a	4	Ep M Pr	H S N	**ER** CC CL DM CA FE SR EP KA OA	T	E
Anthoxanthum aristatum Boiss.	Poa	cas	neo	1931	a	1	Ec Ep	H		T	E As Af
Anthriscus caucalis M. Bieb.	Api	nat	arch		a	4	Bc Br Ec Ep I M Pr	H S N	**GA** OA SY DM AL BV AP AN MN TA	T	E As Af
Anthriscus cerefolium (L.) Hoffm. subsp. *cerefolium*	Api	cas	neo	1830 (1853)	d	2	Br Ep M Pr	H		T	E As
Anthriscus cerefolium subsp. *trichosperma* (Schult.) Arcang.	Api	nat	arch		a	4	Br Ep M Pr	H S N	**GA** CH AL AS BR AP DM SY	T	E As
Antirrhinum majus L.	Pla	cas	neo	1791 (1830)	d	2	Bc Ep Pr	H		He	E As Af
Apera spica-venti (L.) P. Beauv.	Poa	inv	arch		a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**CL** SN VE EP DM ER CA AL NF	T	E As
Aphanes arvensis L.	Ros	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	H	**SN** CL SA VE PS	T	E As
Apium graveolens L.	Api	cas	arch	1830 (1853)	d	1	Ep Pr	H		He	E As Af
Arabis caucasica Willd.	Bra	cas	neo	1979	d	1	Pr	H		He Ch	E As
Arabis procurrens Waldst. et Kit.	Bra	cas	neo	1923	d	1	Ep M Pr	N		Ch	E
Arctium ×*ambiguum* (Čelak.) Beck	Ast	nat	arch		a	2	Br Ec Ep Pr	H S	AP DM SF	He	H
Arctium ×*cimbricum* (E. Krause) Hayek	Ast	cas	arch		a	1	Pr	S		He	H
Arctium lappa L.	Ast	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**AL** DM AP AN GA AI SF SY MN PN	He	E As
Arctium minus (Hill) Bernh.	Ast	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	**H** S N	**AL** DM AI OA MN SY BT AP GA AN	He	E
Arctium ×*nothum* (Ruhmer) Weiss	Ast	cas	arch		a	1	Ep	H		He	H
Arctium tomentosum Mill.	Ast	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H S** N	**AP AL** DM PO CU SF GA PN AN PS	He	E As
Armoracia rusticana P. Gaertn., B. Mey. et Scherb.	Bra	nat	arch	M	d	4	Bc Br Co Ec Ep I M Pr	**H** S N	**AP** AL DM SF PN PH SN BT PS	G He	E
Arnoseris minima (L.) Schweigg. et Körte	Ast	cas	neo	1895	a	1†	Ep I	H		He	E
Artemisia abrotanum L.	Ast	cas	neo	1888 (2008)	d	1	Ep	H		He	As
Artemisia absinthium L.	Ast	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	**H** S N	**OA DM** SY MP MN AF PN AL AN	He	E As
Artemisia alba Turra	Ast	cas	neo	2007	a	1	Ep	S		Ch	E
Artemisia annua L.	Ast	nat	neo	1916	a	4	Bc Ep M Pr	H	**AN CG** MN DM SY AL BT MP SR	T	E As
Artemisia dracunculus L.	Ast	cas	neo	1878 (1931)	ad	1	Ep M Pr	H S		He	As
Artemisia repens Willd.	Ast	cas	neo	1948	a	1	Ep	H		Ch	E As
Artemisia scoparia Waldst. et Kit.	Ast	nat	arch		a	3	Bc Ep I M Pr	H S N	FE GE	He	E As
Artemisia sieversiana Ehrh. ex Willd.	Ast	cas	neo	1957	a	1	Ep	H		T	E As
Arundo donax L.	Poa	cas	neo	2004	d	1	Ep	H		G	As
Asclepias syriaca L.	Apo	inv	neo	1917	d	4	Br Ep M Pr	H S	GA SF	He	NAm
Asperugo procumbens L.	Bor	nat	arch		a	4	Br Ep I M Pr	H	**GA SY** AN DM CA AP AL MP MN	T	E As Af
Asperula arvensis L.	Rub	nat	arch	N	a	3	Bc Ep M Pr	H	CL	T	E As Af
Aster novae-angliae L.	Ast	cas	neo	1985	d	1	Pr	H		He	NAm
Aster novi-belgii agg.	Ast	inv	neo	1865	d	5	Bc Br Co Ec Ep I M Pr	H **S N**	**SF SB** AI PN PA CV BT CG ME ST	He	NAm

Name of taxon	Fam	IS	RT	TI	IM	AB	PR	LU	Alliances	LF	Origin
Aster patulus Lam.*	Ast	cas	neo	1939	d	1	Ep			He	NAm
Atriplex hortensis L.	Ama	cas	arch	R	d	3	Bc Br Ep M Pr	H S	AE CN SY	T	As
Atriplex micrantha Ledeb.*	Ama	cas	neo	1998	a	1	Ep	H		T	As
Atriplex oblongifolia Waldst. et Kit.	Ama	nat	arch	M	a	4	Bc Br Ec Ep I M Pr	H	AN PS OA SR BT EP CG SO	T	E As Af
Atriplex rosea L.	Ama	nat#	arch		a	3	Ep M Pr	H S	FP PU MN	T	E As
Atriplex sagittata Borkh.	Ama	nat	arch	B	a	4	Bc Br Ec Ep I M Pr	**H** S N	**AN** CG SY DM GA AL SF BT SR	T	E As
Atriplex tatarica L.	Ama	inv	arch		a	5	Bc Ep M Pr	**H** S N	**AN SY** CG DM GA EP MP AL MN CA	T	E As Af
Avena fatua L.	Poa	nat	arch	I	a	4	Bc Br Co Ec Ep I M Pr	**H** S	**CL** SN VE SA PS AN GA SY AL	T	E
Avena nuda L.*	Poa	cas	neo	1830 (1853)	ad	1†		H		T	As
Avena sativa L.	Poa	cas	arch	I	d	4	Bc Br Co Ec Ep I M Pr	**H** S	**SN** DM AN CL SA SY	T	E
Avena sterilis L.*	Poa	cas	arch	N	a	1	Ep	H	EH	T	E
Avena strigosa Schreb.	Poa	nat	arch		d	1	Bc Ep Pr	H		T	E
Azolla filiculoides Lamk.	Sav	nat	neo	1951	a	2	Ep	N	LM	Hy	NAm
Ballota nigra L.	Lam	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**GA AL DM** OA SY AP MN AN CA AS	He	E As Af
Bassia scoparia (L.) A. J. Scott	Ama	nat	neo	1791 (1926)	d	4	Bc Ep M	**H** S	**AN** CG CY JG PS SY	T	E As
Bassia sedoides (Asch.) Iljin	Ama	cas	neo	1948	a	1	Pr			T	E As
Beckmannia syzigachne (Steud.) Fernald	Poa	cas	neo	1991	a	1	Ep	H		T	SAm As
Berberis julianae C. K. Schneid.	Ber	cas	neo	1910 (1999)	d	1	Ep	H		Ph	As
Berberis thunbergii DC.	Ber	cas	neo	1910 (2011)	d	1	Ep	H		Ph	As
Berteroa incana (L.) DC.	Bra	nat	arch		a	4	Bc Br Ec Ep I M Pr	**H** S	**DM** OA CA EP SY SR AF AN ER FV	T He	E As
Beta vulgaris L.	Ama	cas	neo	1830 (1948)	d	2	Ep Pr	H	AN CG PS	T He	C
Bidens frondosa L.	Ast	inv	neo	1947	a	5	Bc Br Co Ec Ep M Pr	H S N	**BT PA** SF CG ME OQ SG SB AI	T	NAm
Bifora radians M. Bieb.	Api	nat	arch		a	3	Ep M Pr	H	CL	T	E As Af
Borago officinalis L.	Bor	cas	neo	1791 (1866)	d	2	Bc Ec Ep I M Pr	H		T	E Af
Brassica carinata A. Braun	Bra	cas	neo	1980 (2002)	d	1	Ep	F		T	Af
Brassica elongata subsp. *integrifolia* (Boiss.) Breistr.	Bra	cas	neo	1973	ad	2	Ep Pr	H S		He	E As
Brassica juncea (L.) Czern.	Bra	cas	neo	1988	ad	1	Ep	H		T	As
Brassica napus L.	Bra	cas	neo	1913 (1984)	d	4	Bc Ec Ep I M Pr	H	**CL VE PS** SN SO EP	T	C
Brassica nigra (L.) W. D. J. Koch	Bra	nat	arch		d	3	Ep I M	H S N	SF PA AI	T	E As Af
Brassica oleracea L.	Bra	cas	neo	1830 (1958)	d	3	Bc Ep Pr	H	PS SN	T Ch	E
Brassica rapa L.	Bra	cas	arch		d	1	Ep	H		T Ch	E As Af
Bromus arvensis L.	Poa	nat	arch	N	a	4	Bc Br Ec Ep I M Pr	**H** S N	AE FV CL CA SY GE BV OA BE DM	T He	E As
Bromus briziformis Fisch. et C. A. Mey.	Poa	cas	neo	1929	d	1	Ep M	H S		T	E As
Bromus carinatus Hook. et Arn.	Poa	cas	neo	1982	ad	1	Ep Pr	H		He	NAm
Bromus catharticus Vahl*	Poa	cas	neo	1990	a	1	Ep	H		T	SAm
Bromus lanceolatus Roth	Poa	cas	neo	1955	a	1	Ep Pr	H		T	E As Af
Bromus secalinus L.	Poa	nat	arch	N	a	4	Bc Br Co Ep I M Pr	H	CL SN SA ER EP BV FV MO SO	T	E
Bromus sterilis L.	Poa	nat	arch	N	a	5	Bc Br Ec Ep I M Pr	**H** S N	**SY GA DM** CA AL OA AN AP CH BR	T He	E As
Bromus tectorum L.	Poa	nat	arch	N	a	5	Bc Br Ec Ep I M Pr	**H** S N	**SY DM** OA EH CA AN SR GA MP AF	T He	E As

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Broussonetia papyrifera (L.) L' Hér. ex Vent.	Mor	cas	neo	1929 (2005)	d	1	Ep	H		Ph	As
Brunnera macrophylla (Adams) I. M. Johnst.	Bor	cas	neo	1982	d	1	Ep	H		He	E As
Bryonia alba L.	Cuc	nat	arch	M	d	4	Bc Br Ec Ep I M Pr	H S N	**GA** AL AN CB CA SY	He G	E As
Bryonia dioica Jacq.	Cuc	nat	arch		ad	3	Br Ec Ep M Pr	H S N	AI AS DM QP ST VE	He G	E As Af
Buddleja davidii Franch.	Scr	cas	neo	1911 (1942)	d	1	Ep Pr	H		Ph	As
Bunias orientalis L.	Bra	nat	neo	1864	a	4	Bc Br Co Ec Ep I M Pr	**H** S N	DM BE AP AL CA GA	He	E As
Bupleurum rotundifolium L.	Api	nat	arch	M	a	3	Bc Ep M Pr	H		T	E As
Buxus sempervirens L.	Bux	cas	neo	1865 (1931)	d	2	Ep	H		Ph	E
Cakile euxina Pobed.*	Bra	cas	neo	1962	a	1	Ep	H		T	E
Calendula arvensis L.	Ast	cas	neo	1950	a	1	Bc			T	E As Af
Calendula officinalis L.	Ast	cas	neo	1830	d	3	Bc Br Co Ep I M Pr	H	AN SF	T	C
Callistephus chinensis (L.) Nees	Ast	cas	neo	1931	d	1	Ep Pr	H N		T	As
Camelina alyssum (Mill.) Thell.	Bra	nat	arch		a	3	Pr	H		T	E As
Camelina microcarpa Andrz. ex DC. subsp. *microcarpa*	Bra	cas	neo	1904	a	3	Bc Br Ep I M Pr	H		T	E As
Camelina microcarpa subsp. *sylvestris* (Wallr.) Hiitonen	Bra	nat	arch	M	a	4	Bc Br Ec Ep I M Pr	H S		T	E As
Camelina sativa (L.) Crantz subsp. *sativa*	Bra	nat	arch	B	d	3	Bc Ec Ep I M Pr	H S		T	E As
Camelina sativa subsp. *zingeri* (Mirek) Smejkal	Bra	nat	neo	1899	a	2	Ep M Pr	H S	FV	T	E As
Campanula alliariifolia Willd.	Cam	cas	neo	1983	d	1	I	H		He	As
Campanula medium L.	Cam	cas	neo	1933	d	1	Ep	H		He	E
Campanula portenschlagiana Roem. et Schult.*	Cam	cas	neo	2009	d	1	Ep	H			E
Campsis radicans (L.) Seem.	Big	cas	neo	20c (2010)	d	1	Ep	H		Ph	NAm
Cannabis ×intersita Soják	Can	cas	neo	1984	a	1	Ep	H		T	H
Cannabis ruderalis Janisch.	Can	nat	neo	1911	a	4	Bc Br Ep M Pr	H S	SN AN CL OA DM PS SB SY	T	As
Cannabis sativa L.	Can	cas	arch	B	d	4	Ec Ep M Pr	H S	SY AL CL GA OA CO DM PN	T	As
Capsella bursa-pastoris (L.) Medik.	Bra	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H** S N	SY VE SN MP CL PS CN DM MN AN	T	E
Capsicum annuum L.	Sol	cas	neo	1830 (1936)	d	1	Ep	H		T	NAm CAm SAm
Caragana arborescens Lam.	Fab	cas	neo	1890 (1937)	d	1	Ep M Pr	H		Ph	As
Cardaria draba (L.) Desv.	Bra	inv	arch	M	a	5	Bc Br Ep I M Pr	**H** S	**CA SY** DM PS OA VE CL AL AN MP	He	E As Af
Carduus acanthoides L.	Ast	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**DM SY** OA AN GA AL CA CN FV	He	E As
Carduus ×beckianus Soó	Ast	cas	arch		a	1	Ec			He	H
Carduus ×leptocephalus Peterm.	Ast	cas	arch		a	1	Ec			He	H
Carduus ×orthocephalus Wallr.	Ast	cas	arch		a	1	Pr			He	H
Carduus ×solteszii Budai	Ast	cas	arch		a	1	Pr			He	H
Carduus ×textorisianus Margittai	Ast	cas	arch		a	1	Ec			He	H

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Carex scoparia Schkuhr	Cyp	nat	neo	1982	a	1	Ep	N	ME		NAm
Carex vulpinoidea Michx.	Cyp	cas	neo	1910	a	1	I	S		He	NAm
Carthamus tinctorius L.	Ast	cas	neo	1853	d	2	Ep Pr	H		T	E As
Carya ovata (Mill.) K. Koch	Jug	cas	neo	1858 (1958)	d	1	M	N		Ph	NAm
Carya tomentosa (Poir.) Nutt.*	Jug	nat	neo	1858 (1958)	d	1	M	N		Ph	NAm
Castanea sativa Mill.	Fag	nat	arch	R	d	3	Ep M Pr	N	CB GQ PE QE TA	Ph	E As
Catalpa bignonioides Walt.	Big	cas	neo	1763 (1985)	d	2	Ep Pr	H		Ph	NAm
Caucalis platycarpos L.	Api	nat	arch		a	4	Ep M Pr	H S N	AF BF AH CL FV DM OA	T	E As
Celtis australis L.	Ulm	cas	neo	1794 (2011)	d	1	Ep	S		Ph	E
Celtis occidentalis L.	Ulm	nat	neo	1840 (1972)	d	3	Ep Pr	H N	QP CH	Ph	NAm
Centaurea adpressa Ledeb.*	Ast	cas	neo	2008	a	1	Ep	H		He	E
Centaurea calcitrapa L.	Ast	nat	neo	1791	a	3	Ep Pr	H S		T	E
Centaurea diffusa Lam.	Ast	cas	neo	1950	a	2	Ep	H		T	E As
Centaurea ×extranea Beck.	Ast	cas	neo	1879	a	1	Br Ep Pr	S		He	H
Centaurea nigrescens Willd.	Ast	cas	neo	1920	a	2	Br Ep Pr	H S		He	E
Centaurea solstitialis L.	Ast	nat	neo	1791	a	2†	Ep Pr	**H** S	OA	T	E As Af
Cephalaria gigantea (Ledeb.) Bobrov	Dip	cas	neo	1992	d	1	Ec	H		He	As
Cerastium tomentosum L.	Car	cas	neo	1961	d	2	Ec Ep M Pr	H		Ch	E
Chamaecyparis lawsoniana (A. Murray) Parl.	Cup	cas	neo	1870 (1960)	d	1	Ep Pr	H		Ph	NAm
Chamaecyparis nootkatensis (D. Don) Spach	Cup	cas	neo	1860 (1960)	d	1	Pr	H		Ph	NAm
Chamaepitys chia (Schreb.) Holub	Lam	nat	arch		a	4	Br Ec Ep I M Pr	H S	**PS CL** AN SR	T He	E As Af
Chamerion fleischeri (Hochst.) Holub*	Ona	cas	neo	1934	a	1	Ep	S N		He	E
Cheiranthus cheiri L.	Bra	cas	neo	1908	d	1	Ep Pr	H		Ch	E As
Chelidonium majus L.	Pap	nat	arch	R	a	5	Bc Br Co Ec Ep I M Pr	H S N	**GA** TA AI AP FA CB CH EH IS AL	He	E As
Chenopodium ambrosioides L.	Ama	nat	neo	1865	ad	4	Ep M Pr	H S	CG AL MN BT PN EP AP	T He	NAm CAm SAm
Chenopodium bonus-henricus L.	Ama	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	H S	**CU AL** AP AC RA PN CN MN PO	He	E
Chenopodium botrys L.	Ama	nat	neo	1791	a	4	Ep M Pr	H S	**SR** DM OA SI	T	E As
Chenopodium ficifolium Sm.	Ama	nat	arch	B	a	4	Bc Br Co Ec Ep I M Pr	**H** S N	**CG AN** BT SY SF PS PA MN	T	E As Af
Chenopodium giganteum D. Don	Ama	cas	neo	1978	d	1	Pr	H		T	As
Chenopodium glaucum L.	Ama	nat	arch	B	a	4	Bc Br Co Ec Ep I M Pr	**H S** N	**CG** BT MN AN PN EP CY NF PS SY	T	E As
Chenopodium hybridum L.	Ama	nat	arch	N	a	4	Bc Br Ec Ep I M Pr	**H** S N	AN PS CL MN ER EH SY AL GA DM	T	E As
Chenopodium integrifolium Vorosch.	Ama	cas	neo	1952 (1972)	d	2	Ep	H S		T	NAm
Chenopodium missouriense Aellen	Ama	nat	neo	1980	a	2	Ep	H		T	NAm
Chenopodium murale L.	Ama	nat	arch	B	a	4	Bc Br Ep M Pr	H	**MN** AL DM AN OA PN EP	T	E As Af
Chenopodium opulifolium Schrad.	Ama	nat	arch		a	4	Br Ec Ep I M Pr	H	AN MN AL CG SY OA	T	E As Af

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Chenopodium pedunculare Bertol.	Ama	nat	arch		a	3	Ec Ep Pr	H	DM	T	E
Chenopodium polyspermum L.	Ama	nat	arch	R	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	SO CG PS CL BT SN PA AN VE SY	T	E As
Chenopodium probstii Aellen	Ama	nat	neo	1980	a	2	Ep Pr	H		T	NAm
Chenopodium pumilio R. Br.	Ama	nat	neo	1926	a	2	Ep	H	DM ER	T	Au
Chenopodium schraderianum Schult.	Ama	nat	neo	1893 (1948)	d	1	Ep	H S		T	Af
Chenopodium striatiforme Murr.	Ama	nat	neo	1999	a	1	Bc	H		T	E As
Chenopodium strictum Roth	Ama	nat	neo		a	4	Bc Br Co Ec Ep I M Pr	**H** S N	**AN** DM CG SY SR EP MN OA PS SF	T	As
Chenopodium ×*thellungii* Murr	Ama	cas	arch		a	1	Pr			T	H
Chenopodium urbicum L.	Ama	nat	arch	B	a	3	Ep I M Pr	H S N	MN PU CY	T	E As
Chenopodium vulvaria L.	Ama	nat	arch		a	4	Bc Ec Ep I M Pr	H	MN DM AL MP	T	E As
Chenopodium ×*zahnii* Murr	Ama	cas	arch		a	1	Pr			T	H
Chorispora tenella (Pall.) DC.	Bra	nat	neo	1972	a	2	Ep Pr	H N	CA SY	T	E As
Chrysanthemum coronarium L.	Ast	cas	neo	1996	d	1	Ep	H		T	E As Af
Chrysanthemum segetum L.	Ast	cas	arch		a	1	Ep M	H		T	E As Af
Cicer arietinum L.	Fab	cas	neo	1853	d	1	Ep M Pr	H		T	E As
Cichorium intybus L. subsp. *intybus*	Ast	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H S** N	**DM CN** AE FP CA AL FV SY PS GA	He	E As Af
Citrullus lanatus (Thunb.) Matsum. et Nakai	Cuc	cas	neo	16c (1984)	d	2	Ep M Pr	H		T	Af
Claytonia alsinioides Sims.*	Por	cas	neo	2008	a	1	Ep	H		T He	NAm
Claytonia perfoliata Donn ex Willd.*	Por	cas	neo	2010	d	1	Ep	H		T	CAm NAm
Cnicus benedictus L.	Ast	cas	neo	1950	d	1	M			T	E Af As
Collomia grandiflora Douglas ex Lindl.	Pol	cas	neo	1924	d	1	Pr	H		T	NAm
Commelina communis L.	Com	nat	neo	1965	ad	4	Bc Ep I M Pr	H	DM MN SY	T	As
Conium maculatum L.	Api	nat	arch	M	a	4	Bc Br Co Ec Ep I M Pr	**H** S N	**AL SY AN DM** GA SF BV CA OA AI	T He	E As Af
Conringia orientalis (L.) Dumort.	Bra	nat	arch		a	3	Bc Br Ec Ep M Pr	**H** S	VE SF	T	E As Af
Consolida ajacis (L) Schur	Ran	cas	neo	1853	d	2	Ep M Pr	H		T	E As Af
Consolida hispanica (Costa) Greuter et Burdet	Ran	nat	neo	1876 (1918)	ad	3	Ep I M Pr	H	CL SO SY	T	E As Af
Consolida regalis Gray subsp. *regalis*	Ran	nat	arch		a	5	Ep I M Pr	H S		T	E As
Convolvulus arvensis L.	Con	nat	arch	I	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	AE CL DM PS SY SN CA GA VE CN	He G	E As Af
Convolvulus tricolor L.	Con	cas	neo	1863	d	1	Ep	H		T	E As Af
Conyza bonariensis (L.) Cronquist	Ast	cas	neo		a	1	Ep	H		T	SAm
Conyza canadensis (L.) Cronquist	Ast	inv	neo	1791	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**DM SY EP** CL ER VE MN SR OA	T	NAm
×*Conyzigeron huelssenii* (Vatke) Rauschert	Ast	cas	neo	1920	a	1†	Ec	S			H

Name of taxon	Fam	IS	RT	TI	IM	AB	PR	LU	Alliances	LF	Origin
Coriandrum sativum L.	Api	cas	arch	R	d	2	Ep I Pr	H		T	E As
Cornus alba L.	Cor	cas	neo	1890 (1997)	ad	2	Ec Ep Pr	H		Ph	E As
Cornus alternifolia L. f.*	Cor	cas	neo	1911 (1969)	d	1	Pr	H		Ph	NAm
Cornus sericea L.	Cor	nat	neo	1919 (1989)	d	2	Br Ec Ep	H S		Ph	NAm
Coronopus didymus (L.) Sm.	Bra	cas	neo	1975	a	1	Ep	H		T	SAm
Coronopus squamatus (Forssk.) Asch.	Bra	nat	arch		a	3	Bc Ep M Pr	H S	**MP** JG BF FP	T	E As Af
Corrigiola litoralis L.	Car	cas	neo	1927	a	1	Ep			T	E As Af
Corydalis lutea (L.) DC.	Fum	cas	neo	1982	d	2	Bc Ep Pr	H	CM	He	E
Corylus colurna L.	Bet	cas	neo	1845 (2003)	d	1	Ep	H		Ph	E As
Cosmos bipinnatus Cav.	Ast	cas	neo	1937	ad	3	Br Ep Pr	H	AL CG MN	T	CAm NAm
Cota austriaca (Jacq.) Sch. Bip.	Ast	nat	arch		a	4	Ep M Pr	**H** S	**CL** VE DM PS ER OA EP CC SN GA	T	E
Cotoneaster divaricatus Rehder et Wilson*	Ros	cas	neo	1904 (1992)	d	2	Ep I Pr	H		Ph	As
Cotoneaster horizontalis Decne.	Ros	nat	neo	1909 (1995)	d	1	Ep Pr	H		Ph	As
Crambe abyssinica Host ex R. E. Fr.	Bra	cas	neo	1960 (2003)	d	1	Ep	H		T	Af
Crepis foetida L.	Ast	nat	arch		a	4	Bc Br Ec Ep M Pr	**H** S N	**DM** SI ER FV OA SR FE SY	T He	E As
Crepis neglecta L.	Ast	cas	neo	1931	a	1	Ep M			T	E As
Crepis nicaeensis Balb. ex Pers.	Ast	cas	neo	1857	a	2	Ep	H		He	E
Cucumis melo L.	Cuc	cas	arch	M	d	1	Ep	H	AL ER	T	As Af
Cucumis sativus L.	Cuc	cas	arch	M	d	1	Ep	H	PS	T	As
Cucurbita pepo L.	Cuc	cas	neo	16c (1876)	d	2	Ep M Pr	H	SN AN ER PS	T	NAm
Cuscuta campestris Yunck.	Con	nat	neo	1907	a	4	Br Ep I M Pr	H S	SY AN CG BT DM AP AL OA PS SF	T	NAm
Cuscuta epilinum Weihe ex Boenn.	Con	nat	arch		a	3†	Bc Br Ec I Pr	H S	FV	T	E As
Cyanus segetum Hill	Ast	nat	arch	M	ad	4	Bc Br Co Ec Ep I M Pr	H	**CL** SN VE PS SA SO ER CA	T	E
Cyclamen purpurascens Mill. subsp. *purpurascens**	Pri	cas	neo	1890 (1933)	d	1	Pr	H N		G	E
Cycloloma atriplicifolium (Spreng.) Coult.	Ama	nat	neo	1958	a	1	Ep	S	ER	T	NAm
Cydonia oblonga Mill.	Ros	cas	arch	M	d	3	Br Ep M Pr	H S N		Ph	As
Cymbalaria muralis P. Gaertn., B. Mey. et Scherb.	Pla	nat	neo	1904	d	3	Br Ec Ep I M Pr	H	CM	T He	E
Cynodon dactylon (L.) Pers.	Poa	nat	arch		a	4	Ep M Pr	H **S** N	**EP** FP FE CC DM ER FV CN SR CA	G He	E As Af
Cynosurus echinatus L.	Poa	cas	neo	1938	a	1	Ep Pr	H N		T	E
Dasypyrum villosum (L.) Coss. et Durieu ex P. Candargy*	Poa	cas	neo	1791	a	1†	Ep	H		T	E As Af
Datura inoxia Mill.*	Sol	cas	neo	2000	d	1	Ep Pr	H S		T	SAm CAm
Datura stramonium L.	Sol	nat	neo	16c	a	4	Bc Br Co Ec Ep M Pr	**H** S N	AN CG ER MN DM PS AL CL SR OA	T	?
Daucus carota subsp. *sativus* (Hoffm.) Arcang.	Api	cas	arch	M	d	1	Ep	H		T He	C
Descurainia sophia (L.) Webb ex Prantl	Bra	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**SY AN DM** CL GA VE AL MN OA MP	T	E As

Name of taxon	Fam	IS	RT	TI	IM	AB	PR	LU	Alliances	LF	Origin
Deutzia scabra Thunb.	Hyd	cas	neo	1979	d	1	Ep			Ph	As
Dianthus barbatus L. subsp. *barbatus*	Car	cas	neo	1960	d	1	Br Ep M Pr	H		He	E
Dianthus caryophyllus L.	Car	cas	neo	1853	d	1		H		He	E
Dianthus gratianopolitanus Vill.	Car	cas	neo	2010	d	1	Br			He	E
Digitalis lanata Ehrh.	Pla	cas	neo	1992	d	1	Pr	S		He	E As
Digitalis purpurea L.	Pla	cas	neo	1853 (1998)	d	2	Bc Br Ec Pr	S N		He	E
Digitaria ischaemum (Schreb. ex Schweigg.) Mühlenb.	Poa	nat	arch	N	a	4	Bc Br Co Ep M Pr	**H** S	**EP** PS SO SA VE CE FE SR SN	T	E
Digitaria sanguinalis (L.) Scop.	Poa	nat	arch	B	d	4	Bc Co Ep M Pr	**H** S N	**ER EP** SR PS CL VE DM AN CC	T	E As Af
Dinebra retroflexa (Vahl) Panzer	Ast	cas	neo	1973	a	1	Ep	H		T	As Af
Diospyros lotus L.*	Ebe	cas	neo	2005	d	1	Ep	H		Ph	As
Diplotaxis muralis (L.) DC.	Bra	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	**H** S	DM PS FV OA SY AN VE BT EP MN	T He	E As Af
Diplotaxis tenuifolia (L.) DC.	Bra	nat	arch		a	3	Bc Br Ep I M Pr	**H** S	DM ER CA FV OA SR SY AN EP MN	He Ch	E As Af
Dipsacus sativus (L.) Honck.	Dip	cas	neo	1853	d	1	Br Ep Pr	H		T	E
Dipsacus strigosus Willd. ex Roem. et Schult.	Dip	cas	neo	1981	a	1	Ec Pr	H	PO	T	E As
Dracocephalum thymiflorum L.	Lam	cas	arch	M	a	1	Ep	H		T	E As
Ecballium elaterium (L.) A. Rich.	Cuc	cas	neo	1865	d	1	M Pr	H		He G	E As Af
Echinacea purpurea (L.) Moench	Ast	cas	neo	2005	d	1	Br Pr	H		He	NAm
Echinochloa crus-galli (L.) P. Beauv.	Poa	inv	arch	N	a	5	Bc Br Co Ec Ep I M Pr	H **S** N	**PS CG BT** AN SO ER CL EE NF SN	T	E As
Echinochloa oryzoides (Ard.) Fritsch	Poa	cas	neo	1950	a	2	Ep	H	BT OQ	T	E As
Echinocystis lobata (Michx.) Torr. et A. Gray	Cuc	inv	neo	1933 (1942)	d	5	Bc Br Co Ec Ep I M Pr	H **S** N	**SF** SB BT AI PH CG PA ST ME PN	T	NAm
Egeria densa Planch.	Hyo	nat	neo	1995	d	1	Pr	N		Hy	SAm
Eichhornia crassipes ((Mart.) Solms	Pon	cas	neo	1999	d	1	Ep	N		Hy	SAm
Elaeagnus angustifolia L.	Ela	nat	neo	1870 (1968)	d	3	Bc Ep M Pr	H S		Ph	E As
Elodea canadensis Michx.	Hyo	nat#	neo	1883	a	4	Br Ec Ep I M Pr	H S N	**PL** NA OQ PA PM RF RQ SG	Hy	NAm
Elodea nuttalii (Planch.) H. St. John	Hyo	nat	neo	1992	a	3	Bc Ep Pr	H S N	PL LM ME PA	Hy	NAm
Elsholtzia ciliata (Thunb.) Hyl.	Lam	cas	neo	1937 (1964)	d	3	Bc Br Co Ec Ep M Pr	H S	DM	T	As
Epilobium ciliatum Raf.	Ona	inv	neo	1946	a	4	Bc Br Co Ec Ep I M Pr	H **S** N	**BT** CE JE CR ME GA SF PP DM EE	He	NAm CAm
Epilobium ×*floridulum* Smejkal	Ona	cas	neo	1986	a	1	Pr			He	H
Epilobium ×*interjectum* Smejkal	Ona	cas	neo	1988	a	1	Ec			He	H
Epilobium komarovianum Lév.	Ona	cas	neo	1972	a	1	Pr	H		He	Au
Eragrostis albensis H. Scholz	Poa	cas	neo	1968	a	1	Ep	H		T	E
Eragrostis cilianensis (All.) Vignolo	Poa	nat	neo	1920	a	2	Ep		ER	T	E As Af
Eranthis hyemalis (L.) Salisb.	Ran	cas	neo	1890	d	1	Bc Ep	H S N		G	E

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Erechtites hieraciifolius (L.) Raf. ex DC.	Ast	nat	neo	1896	a	3	Co Ep M Pr	S N	**AG** AF CP CB GA QC SC	T He	NAm
Erigeron annuus (L.) Pers.	Ast	inv	neo	1791	a	5	Bc Br Co Ec Ep I M Pr	H S N	**DM AI** SF AE OA GA SY CN BT	T	NAm
Erigeron speciosus (Lindl.) DC.	Ast	cas	neo	2002	d	1	Ec			He	NAm SAm
Erigeron strigosus Mühl. ex Willd.	Ast	nat	neo	1937	a	3	Bc Co Ep M Pr	H S N		T	NAm
Erodium malacoides (L.) L'Hér.	Ger	cas	neo	1884	a	1	Ec Ep	H			E
Eruca sativa Mill.	Bra	cas	arch		d	2	Ep	H		T	E
Erucastrum gallicum (Willd.) O. E. Schulz	Bra	nat	neo	1830	a	4	Bc Ec Ep I M Pr	H S	CL DM MP OA SR SY AN BE MN	T	E
Erucastrum nasturtiifolium (Poir.) O. E. Schulz	Bra	nat	neo	1791	a	4	Bc Br Ep I Pr	H S	BT MN SY	He	E
Erysimum cheiranthoides L.	Bra	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	**H S** N	**DM** CG SF PS BT AL CL SN SY PN	T He	E As
Erysimum repandum L.	Bra	nat	arch		a	3	Br Ec Ep I M Pr	H S	BE CL	He T	E As
Eschscholzia californica Cham.*	Pap	cas	neo	1978	d	2	Ep M Pr	H		T	NAm
Euclidium syriacum (L.) R. Br.	Bra	nat	neo	1843 (1843)	a	4	Ep M	**H** S	AN	T	E As
Euonymus japonicus Thunb.	Cel	cas	neo	1895 (1991)	d	1	Ep			Ph	As
Euphorbia exigua L.	Eup	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	H	**CL SA PS** SY VE AN SR	T	E As Af
Euphorbia falcata L.	Eup	nat	arch		a	4	Bc Br Ec Ep M Pr	H	**PS CL** SO VE	T	E As Af
Euphorbia helioscopia L.	Eup	nat	arch	I	a	4	Bc Br Co Ec Ep I M Pr	H S	**CL SN VE** PS MN SA SY AN PN AL	T	E As Af
Euphorbia lathyris L.	Eup	cas	neo	1864 (1916)	d	2	Ep M Pr	H		He Ph	E
Euphorbia maculata L.*	Eup	cas	neo	2007	a	1	Ep Pr	H		T	NAm
Euphorbia marginata Pursh	Eup	cas	neo	1937	d	2	Ep M Pr	H	DM	T	NAm
Euphorbia peplus L.	Eup	nat	arch		a	4	Bc Br Ec Ep I M Pr	H	**SO SN** MN PS CL SR	T	E
Euphorbia platyphyllos L.	Eup	nat	arch	I	a	4	Bc Br Co Ec Ep I M Pr	H S	**CL** OA CN DM PS BT NF PF	T	E As
Euphorbia segetalis L.*	Eup	cas	neo	1830	a	1	Ep	H		T	E
Euphorbia taurinensis All.	Eup	cas	neo	1947	a	1	Ep	H	CL	T	E As
Faba bona Medik.	Fab	cas	arch	B	d	2	Ep Pr	H	CL	T	As Af
Fagopyrum esculentum Moench	Pog	cas	neo	1791	d	2	Br Co Ep Pr	H		T	As
Fagopyrum tataricum (L.) Gaertn.	Pog	cas	neo	1869 (1956)	ad	2	Br Ep Pr	H	AI	T	As
Fallopia aubertii (L. Henry) Holub	Pog	cas	neo	1911 (1975)	d	2	Ep Pr	H S	OA SY DM	Ph	As
Fallopia ×bohemica (Chrtek et Chrtková) J. P. Bailey	Pog	nat	neo	1996	d	3	Bc Ec Ep Pr	H S N		G	H
Fallopia convolvulus (L.) Á. Löve	Pog	nat	arch	N	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**CL SN PS CB VE** GA QP AI DM SY	T	E As
Fallopia japonica (Houtt.) Ronse Decr.	Pog	inv	neo	1920	d	5	Bc Br Co Ec Ep I M Pr	H S N	**SF** GA IS PH SY	G	As
Fallopia sachalinensis (F. Schmidt) Ronse Decr.	Pog	nat	neo	1946 (1962)	d	3	Bc Ec Ep I Pr	H S N		G	As
Ficus carica L.	Mor	cas	neo	1972	d	1	Ep	H		Ph	As
Foeniculum vulgare Mill.	Api	cas	neo	1830 (1977)	d	2	Ep Pr	H	OA	T He	E As Af
Forsythia suspensa Vahl	Ole	cas	neo	1890 (1999)	d	1	Ep	H		Ph	As

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Fragaria ×ananassa (Duchesne) Decne. et Naudin	Ros	cas	neo	1985	d	1	Pr	H		He	H C
Fraxinus americana L.	Ole	nat	neo	1804 (1986)	d	2	Ep	H S N		Ph	NAm
Fraxinus pennsylvanica Marshall	Ole	nat	neo	1870 (1994)	d	3	Bc Ep	H S N	**AI** SB	Ph	NAm
Fumaria capreolata L.	Fum	cas	neo	1948	d	1	Ep	H		T	E
Fumaria officinalis L.	Fum	nat	arch	I	a	4	Bc Br Ec Ep I M Pr	**H** S N	**VE CL** PS SY CA MN SN BR SA AN	T	E As Af
Fumaria schleicheri Soy.-Will.	Fum	nat	arch		a	4	Br Ec Ep I M Pr	H S N	**EH** PF SN SY CL GE SF	T	E As
Fumaria vaillantii Loisel.	Fum	nat	arch		a	4	Br Co Ec Ep M Pr	**H** S	**CL** SN GA AF ER PS VE	T	E As
Gagea villosa (M. Bieb.) Duby	Lil	nat	arch		a	3	Ep M Pr	H S	VE	G	E
Gaillardia aristata Pursh	Ast	cas	neo	1979	d	1	Pr	H			NAm
Gaillardia pulchella Foug.	Ast	cas	neo	1994	d	1	Ep Pr	H		T	NAm
Galega officinalis L.	Fab	nat	neo	1791	d	4	Br Ep M Pr	H S N	SF AI AO BT CP EE ME PN	He	E
Galeobdolon argentatum Smejkal	Lam	cas	neo	1935	d	2	Br M Pr	H		Ch	C
Galeopsis ladanum L.	Lam	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	H S N	SA QE CB TS GP US GS GQ FA SN	T	E As
Galeopsis segetum Neck	Lam	cas	neo	1971	d	1	Ep Pr	H		T	E
Galinsoga parviflora Cav.	Ast	inv	neo	1853	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**PS** MN BT CL SN ER SO VE AN CG	T	SAm
Galinsoga quadriradiata Ruiz et Pav.	Ast	inv	neo	1936	a	4	Bc Br Co Ec Ep I M Pr		SN PS BT SF MN AP AN CL	T	CAm SAm
Galium spurium L.	Rub	nat	arch	B	a	4	Bc Br Co Ec Ep I M Pr	H S N	**CL** EH SN SA PS AF PF QC VE	T	E As
Galium tricornutum Dandy	Rub	nat	arch	N	a	4	Bc Br Ec Ep M Pr	H	**VE** CL SO TI	T	E Af
Galium verrucosum Huds.*	Rub	cas	neo	1948	a	1†	Ep			T	E As Af
Geranium dissectum L.	Ger	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	H S	**SN PS SA** CL FV AE GA CT DM OA	T	E As
Geranium molle L.	Ger	nat	arch		a	3	Bc Ep I M Pr	H S	FV GA OA	T	E As
Geranium purpureum Vill.*	Ger	nat	neo	2000	a	3	Ec Ep I Pr	H		T	E As Af
Geranium pusillum Burm. f.	Ger	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	H S	DM AL GA MN CL OA VE MP CN SY	T	E As
Geranium pyrenaicum Burm. f.	Ger	nat	neo	1871	a	4	Bc Br Co Ec Ep I M Pr	H S	**GA** CA DM SY BR CN	He	E As Af
Geranium sibiricum L.	Ger	nat	neo	1924	a	2	Br Ep I Pr	H		He	E As
Geranium tuberosum L.*	Ger	cas	neo	1912	a	1	I	H		G	E As Af
Geum canadense Jacq.*	Ros	cas	neo	1989	a	1	Ep	H			NAm
Glaucium corniculatum (L.) Rudolph	Pap	nat	arch		a	3	Ep M Pr	H S		T	E As Af
Glaucium flavum Crantz	Pap	cas	neo	1791 (1830)	d	1	Ep	H S		He	E
Gleditsia triacanthos L.	Fab	nat	neo	1806 (1937)	d	3	Ep M Pr	H S N	PA AI	Ph	NAm
Glycine max (L.) Merr.	Fab	cas	neo	1968 (1984)	ad	1	Ep	H		T	As
Glycyrrhiza glabra L.	Fab	cas	neo	1867	d	1	Ep M Pr	H		He	E As
Grindelia squarrosa (Pursh) Dunal	Ast	cas	neo	1992	ad	1	Ep	H		T He	NAm
Guizotia abyssinica (L. f.) Cass.	Ast	cas	neo	2005	ad	1	Pr	H		T	Af
Gymnocladus dioica (L.) K. Koch	Fab	cas	neo	1794 (1984)	d	1	Bc Ep	S N		Ph	NAm
Gypsophila perfoliata L.	Car	cas	neo	1968	a	1	Ep	H		He	E As
Gypsophila scorzonerifolia Ser.*	Car	cas	neo	1819 (2011)	a	1	Pr	H		G	As

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Helianthus annuus L.	Ast	cas	neo	1830 (1853)	ad	4	Bc Co Ep M Pr	**H** S	CG AN CL CA NF ER PS AL DM	T	NAm
Helianthus ×laetiflorus Pers.	Ast	cas	neo	1974	d	1	Ep	H		He	H
Helianthus rigidus (Cass.) Desf.	Ast	cas	neo	1974	d	1	Ep Pr	H		He	NAm
Helianthus salicifolius A. Dietr.	Ast	cas	neo	1993	d	1	Ep	H		He	NAm
Helianthus tuberosus L.	Ast	inv	neo	1830 (1956)	d	4	Bc Br Ec Ep I M Pr	H S N	**SF DM** AL CG CA GA BT PH	He	NAm
Heliopsis helianthoides L.	Ast	cas	neo	2007	d	1	Pr			He	NAm
Heliotropium europaeum L.	Bor	nat	arch		a	4	Br Ep M Pr	H	ER	T	E As Af
Heliotropium peruvianum L.	Bor	cas	neo	1933	d	1	M	H		T	SAm
Helleborus niger L.	Ran	cas	neo	1882	d	1†	Ec I Pr	H		He	E
Helleborus viridis L.	Ran	cas	neo	1855 (1864)	d	2	Br Ec M Pr	H		He	E
Helminthotheca echioides (L.) Holub	Ast	nat	neo	1992	a	1	Ep	H S	PA	He	E
Hemerocallis fulva (L.) L.	Hem	nat	neo	1791 (1876)	d	3	Bc Co Ec Ep M Pr	**H** S		G	E
Hemerocallis lilioasphodelus L.	Hem	cas	neo	1853	d	1†	Ep	H		G	E
Heracleum mantegazzianum Sommier et Levier	Api	inv	neo	1963	d	4	Bc Br Co Ec Ep I Pr	H S N	PO SF AI GA	He	As
Herniaria hirsuta L.	Car	nat	arch		a	3	Ep M Pr	H	ER CL SN EP VE	T He	E As Af
Hesperis pycnotricha Borbás et Degen	Bra	cas	neo	1961	a	1	Ep	H		He	E
Heuchera americana L.*	Sax	cas	neo	1989	d	1	Ep	H		He	NAm
Hibiscus syriacus L.	Mal	cas	neo	1811 (2002)	d	1	Ep	H		Ph	As
Hibiscus trionum L.	Mal	nat	arch		ad	4	Ep M Pr	H S	**PS ER** SO CV MN NF PN	T	E As
Hippophaë rhamnoides L.	Ela	cas	neo	1890 (2002)	d	1	Ep			Ph	E As
Hordeum distichon L.	Poa	cas	arch	B	ad	2	Ep I Pr	H		T	C
Hordeum jubatum L.	Poa	cas	neo	1955	d	2	Ep I Pr	H		T He	NAm
Hordeum marinum Huds.	Poa	cas	neo	1955	a	2	Ep	H	PU	T	E
Hordeum murinum L.	Poa	nat	arch		a	4	Bc Br Ep I M Pr	H	**SY** DM GA CN CA AN MN OA MP EP	T	E As
Hordeum vulgare L.	Poa	cas	arch	N	ad	3	Bc Br Ec Ep I M Pr	H	**SN** CL PS EP GA	T	C
Hosta plantaginea (Lam.) Asch.*	Lil	cas	neo	1976	d	1	Ep Pr	H N		G	As
Humulus scandens (Lour.) Merr.	Can	cas	neo	1933	d	1	I	H		T	As
Hyacinthus orientalis L.	Hya	cas	neo	1871	d	1	Pr	H		G	As
Hydrilla verticillata (L.f.) Royle*	Hyo	nat	neo	1995	d	1	Pr	S		Hy	As
Hylotelephium spectabile (Boreau) Ohba	Cra	cas	neo	1979	d	1	Br Pr	H		He	As
Hyoscyamus niger L.	Sol	nat	arch	B	a	4	Bc Br Co Ec Ep I M Pr	H	**DM** MN AN ER OA CL CG PS	T He	E As Af
Hyssopus officinalis L.	Lam	nat	neo	1830 (1919)	d	2	Ec Ep M Pr	S		Ch	E As Af
Iberis pinnata L.*	Bra	cas	neo	1803	d	1†	Pr	S		T	E
Iberis umbellata L.	Bra	cas	neo	1966	d	2	Bc Br Co Ec Ep Pr	H S N		T	E
Ilex aquifolium L.*	Aqu	cas	neo	1820 (1982)	d	1	Ep Pr	H		Ph	E As Af
Impatiens balfourii Hook. f.	Bal	cas	neo	1988	d	1	Pr	H		T	As
Impatiens balsamina L.	Bal	cas	neo	1956	d	1	Pr	H		T	As
Impatiens glandulifera Royle	Bal	inv	neo	1958	ad	4	Bc Br Co Ec Ep I M Pr	H **S** N	**SF SB** AI BT PA ME AP OA PN	T	As

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Impatiens parviflora DC.	Bal	inv	neo	1897	d	5	Bc Br Co Ec Ep I M Pr	H S N	**AI CB SF** SB FA GA IS BT AP AG	T	As
Inula helenium L.	Ast	nat	neo	1853	d	3	Bc Br Ec Ep I M Pr	H S	SR	He	As
Ipomoea purpurea (L.) Roth	Con	cas	neo	1979	ad	2	Ep I Pr	H		T	CAm
Ipomoea violacea L.*	Con	cas	neo	1986	d	1	Pr	H		T	As Af CAm SAm
Iris germanica L.	Iri	cas	neo	1856	d	3	Ep Pr	H		G	E
Iris ×*sambucina* L.*	Iri	cas	neo	1881 (1936)	d	2	Pr	H S		G	H C
Isatis tinctoria L.	Bra	nat	arch		ad	3	Ep M Pr	H S N	FV AN CD	He	E As Af
Iva xanthiifolia Nutt.	Ast	nat#	neo	1934	a	4	Bc Br Co Ec Ep M Pr	**H** S N	**AN** SY CG DM GA AL MN	T	NAm
Juglans nigra L.	Jug	nat	neo	1770 (1984)	d	3	Bc Ep M Pr	N	**AI** SB QP FA CB PE	Ph	NAm
Juglans regia L.	Jug	nat	arch	M	d	4	Bc Br Ec Ep M Pr	H S **N**	**CB AI** FA SB CL CH TA AE GA	Ph	E As
Juncus dudleyi Wiegand	Jun	cas	neo	1996	a	1	Ep	S			NAm
Juncus tenuis Willd.	Jun	inv	neo	1923	a	4	Bc Br Co Ec Ep I M Pr	**H** S N	**PP** CN PN CP CD CV AE CE MP CS	He	NAm
Kerria japonica (L.) DC.	Ros	cas	neo	1900 (2000)	d	1	Ep			Ph	As
Kickxia elatine (L.) Dumort.	Pla	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	H	**CL SA PS** VE AN EE SN SO	T	E As Af
Kickxia spuria (L.) Dumort.	Pla	nat	arch		a	4	Bc Br Ep M Pr	H	**CL PS** AN SO BT DM ER NF	T	E As Af
Koelreuteria paniculata Laxm.	Sap	cas	neo	1850 (1982)	d	1	Ep	H		Ph	As
Laburnum alpinum (Mill.) Bercht. et J. Presl	Fab	nat	neo	1911	d	1	Ep Pr	S		Ph	E
Laburnum anagyroides Medik.	Fab	nat	neo	1791	ad	3	Ec Ep Pr	H N	CB GQ QP	Ph	E
Lactuca sativa L.	Ast	cas	neo	1931	d	2	Bc Ec Ep Pr	H	MN VE	T He	C
Lactuca serriola L.	Ast	nat	arch	M	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**SY DM AN GA** AL CL CA SF OA CG	T He	E As Af
Lactuca tatarica (L.) C. A. Mey.	Ast	cas	neo	1962	a	2	Ep	H		He	E As
Lagenaria siceraria (Molina) Standl.	Cuc	cas	arch	M	d	1	Ep	H		T	Af
Lagurus ovatus L.	Poa	cas	neo	1998	d	1	Ep	H		T	E As Af
Lamium album L.	Lam	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	**H** S N	**AP** AL SN GA VE MN PN DM BT CL	He	E As
Lamium amplexicaule L.	Lam	nat	arch	R	a	5	Bc Br Ec Ep I M Pr	**H** S N	**VE** CL PS SN SO SY CA ER GA	T	E As Af
Lamium purpureum L.	Lam	nat	arch	R	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**VE** SN GA CL PS SY AI AN CA CH	T	E As Af
Lappula consanguinea (Fisch. et C. A. Mey.) Gürke*	Bor	cas	neo	2008	a	1	Ep	H			As
Lappula patula (Lehm.) Menyh.	Bor	cas	neo	1970	a	1	Ep			T	E As Af
Lathyrus annuus L.	Fab	cas	neo	1957	ad	1	M Pr	H		T	E As
Lathyrus aphaca L.	Fab	nat	arch	M	a	3	Bc Ep M Pr	H		T	E As Af
Lathyrus odoratus L.	Fab	cas	neo	1871 (1931)	d	1	Ep	H		T	E
Lathyrus sativus L.	Fab	cas	arch		d	1	Ep Pr	H S		T	E As Af
Lathyrus tuberosus L.	Fab	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**CL** PS SN VE AE DM SO BE GA CA	He	E As
Lavandula angustifolia Mill.	Lam	cas	neo	1830 (1993)	d	1	Ep M	H		Ch	E
Lavatera trimestris L.	Mal	cas	neo	1914	d	1†	Ep	H		T	E As Af
Legousia speculum-veneris (L.) Chaix	Cam	cas	arch		d	2	Ep I Pr	H		T	E As Af
Lemna minuta Kunth*	Ara	nat	neo	1997	a	1	Ep	S		Hy	NAm
Lens culinaris Medik.	Fab	cas	arch	N	d	1	Pr			T	E As
Leonurus cardiaca L.	Lam	nat	arch	M	ad	4	Bc Br Co Ec Ep I M Pr	**H** S	AL MN OA DM GA AP SY AN BT	He	E As

Name of taxon	Fam	IS	RT	TI	IM	AB	PR	LU	Alliances	LF	Origin
Lepidium campestre (L.) R. Br.	Bra	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	H S N	**DM FV AF** OA SA GE QP BE CT	T	E As
Lepidium densiflorum Schrad.	Bra	nat	neo	1920	a	4	Bc Br Ep I M Pr	H S	SR DM MP EP OA AL AN ER FV	T	NAm
Lepidium heterophyllum (DC.) Bentham*	Bra	cas	neo	1965	a	1	Ep	H		He	E
Lepidium latifolium L.	Bra	cas	neo	1931	ad	1	Ep	H		He	E As
Lepidium ruderale L.	Bra	nat	arch		a	4	Bc Br Co Ep I M Pr	**H** S N	**SY** MP DM MN EP PU AN CN TC	T	E As
Lepidium sativum L.	Bra	cas	neo	1830	d	2	Ep M Pr	H		T	As Af
Lepidium virginicum L.	Bra	nat	neo	1947	a	2	Ep Pr	H	AL DM SY	T	NAm CAm
Lepyrodiclis holosteoides (C. A. Mey.) Fenzl ex Fisch. et C. A. Mey.*	Car	cas	neo	1998	a	1	Ep	H			As
Leucanthemum ×superbum (Ingram) Kent	Ast	cas	neo	1979	d	1	Pr	H			H C
Leucosinapis alba (L.) Spach	Bra	cas	neo	1877	d	3	Bc Ep M Pr	H	AN MN CL PN	T	E As Af
Levisticum officinale W. D. J. Koch	Api	cas	arch	M	d	1	Bc Br Ep Pr	H		He	As
Ligustrum ovalifolium Hassk.*	Ole	cas	neo	1910 (1999)	d	1	Ep	H		Ph	As
Lilium candidum L.	Lil	cas	neo	1977	d	1	Pr	H		G	E As
Limnophila sessiliflora Blume	Scr	cas	neo	1994	d	1	Pr	H		Hy	As
Linaria arvensis (L.) Desf.	Pla	nat	arch		a	2	Ep M Pr	H S		T	E As Af
Linaria incarnata (Vent.) Spreng.	Pla	cas	neo	1991	d	1	Br	H			Af
Linum usitatissimum L.	Lin	cas	arch	N	d	2	Ep I Pr	H	DM SY EP VE	T	E As
Liriodendron tulipifera L.*	Mag	cas	neo	1794 (1960)	d	1	M	H		Ph	NAm
Lithospermum arvense L.	Bor	nat	arch	R	a	4	Bc Br Ec Ep I M Pr	**H** S	**VE CL EH** AE SN FV	T	E As
Lobularia maritima (L.) Desv.	Bra	cas	neo	1976	d	2	Ep Pr	H		T	E Af
Lolium multiflorum Lam.	Poa	nat	neo	1869	d	3	Bc Br Co Ec Ep I M Pr	H S	AE BT SN CL CN DM MN PH SA	T He	E As Af
Lolium remotum Schrank	Poa	nat	arch		a	2	Ep I	H S		T	E
Lolium temulentum L.	Poa	nat	arch	B	a	3	Bc Br Ec Ep I M Pr	**H** S	**SN** PS CL VE AP PO SA SY	T	E
Lonicera caprifolium L.	Cap	cas	neo	1791	d	3	Bc Ep I M Pr	H S N	FA	Ph	E
Lonicera maackii (Rupr.) Maxim.*	Cap	cas	neo	1901 (2005)	d	1	Ep	H		Ph	As
Lonicera periclymenum L.	Cap	cas	neo	1853	ad	2	Ep Pr	H S N	QE	Ph	E
Lonicera tatarica L.	Cap	nat	neo	1890 (1931)	d	2	Ep Pr	H S N		Ph	E As
Lunaria annua L.	Bra	cas	neo	1804	d	2	Ec Ep Pr	H		He	E
Lupinus albus L.	Fab	cas	neo	1984	ad	1	Ep	H		T	E
Lupinus luteus L.	Fab	cas	neo	1882	d	1	Pr			T	E Af
Lupinus polyphyllus Lindl.	Fab	nat	neo	1911	d	3	Bc Br Co Ec Ep I M Pr	H S N	DM FA	He	NAm
Lychnis chalcedonica L.	Car	cas	neo	1871	d	1	Pr	H		He	E As
Lycium barbarum L.	Sol	inv	neo	1830	d	4	Bc Br Ep I M Pr	H S	**AS AL** DM SY AN CA OA AP BV MN	Ph	As
Lycium chinense Mill.	Sol	cas	neo	1993 (2005)	d	1	Ep	H		Ph	As
Lycopersicon esculentum Mill.	Sol	cas	neo	1830 (1956)	ad	4	Bc Br Ep I M Pr	H S N		T	CAm SAm
Lycopsis arvensis L.	Bor	nat	arch		a	4	Bc Br Ec Ep I M Pr	H	**SN VE** DM CL AE CA MP PS SA SY	T He	E

Name of taxon	Fam	IS	RT	TI	IM	AB	PR	LU	Alliances	LF	Origin
Macleaya cordata (Willd.) R. Br.	Pap	cas	neo	1928 (1938)	d	1	Ep Pr	H		He	As
Maclura pomifera (Raf.) C. K. Schneid.	Mor	cas	neo	1847 (1964)	d	1	M Pr	S N		Ph	NAm
Mahonia aquifolium (Pursh) Nutt.	Ber	nat	neo	1895 (1963)	d	2	Ep Pr	H S		Ph	NAm
Majorana hortensis Moench	Lam	cas	neo	1830 (1956)	d	1	Pr			T	E As Af
Malcolmia africana (L.) W. T. Aiton	Bra	nat	neo	1938	a	2	Ep	H S		T	E As Af
Malope trifida Cav.	Mal	cas	neo	1939	d	1	M	H		T	E Af
Malus domestica Borkh.	Ros	cas	arch	M	d	3	Bc Br Co Ec Ep Pr	H S N	CN AE CT BV GQ PT QE	Ph	C
Malva ×adulterina Wallr.	Mal	cas	arch		a	1	Ep	H S		T He	H
Malva mauritiana L.	Mal	cas	neo	1962	d	1	Ep Pr	H		He	E
Malva moschata L.	Mal	nat	neo	1865	d	3	Bc Br Co Ec Ep I Pr	H S	AE AP CN	He	E
Malva neglecta Wallr.	Mal	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	H S	**MN** MP AL DM SY PN OA EP CG AN	T He	As
Malva pusilla Sm.	Mal	nat	arch		a	4	Br Co Ec Ep I M Pr	**H** S	**MN** EP ER OA AL SY AN BT PS	T	As
Malva sylvestris L.	Mal	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	**H** S N	AL SY DM PS ER OA AN MN GA	T	E As Af
Malva verticillata L.	Mal	cas	neo	1866	d	2	Ep I Pr	H		He	As
Marrubium ×paniculatum Desr.	Lam	nat	arch		a	1	Ep Pr	H		He	H
Marrubium vulgare L.	Lam	nat	arch		a	4	Ep M Pr	**H** S	DM OA MN AL AN	He	E As Af
Matricaria discoidea DC.	Ast	inv	neo	1791	a	5	Bc Br Co Ec Ep I M Pr	**H** S	**MP CN** PN MN SY SN BT CG AL VE	T	NAm As
Medicago polymorpha L.	Fab	cas	neo	1991	a	1	Ep	H		T	E As Af
Medicago rigidula (L.) All.	Fab	nat	neo	1932	a	1	M			T	E As
Medicago sativa L.	Fab	nat	neo	1830	ad	4	Bc Br Co Ec Ep I M Pr	**H S** N	**DM AE** SY CA AP OA BE CL AL GA	He	As
Medicago ×varia Martyn	Fab	nat	neo	1871	ad	4	Bc Co Ec Ep I M Pr	H S	DM OA CT AL AE BE CA FV GE	He	H
Melampyrum arvense L.	Oro	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	H S	GE FV SI CT AE BF DS BE CN	T	E As
Melilotus albus Medik.	Fab	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	**H** S N	**DM** AL AN AE CN BT PH AP PO SF	T He	E As Af
Melilotus indicus (L.) All.	Fab	cas	neo	1948	a	1†	Pr	H		T	E As Af
Melilotus officinalis (L.) Pall.	Fab	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H S** N	**DM** AE OA SY FV CA AN CB CL CT	He	E As
Melilotus ×schaenheitianus O. E. Schulz	Fab	cas	arch		a	1	Ep			He	H
Melilotus wolgicus Poir.	Fab	cas	neo	1968	a	1	Ep	H		He	E As
Melissa officinalis L.	Lam	cas	neo	1830 (1869)	d	3	Ep I M Pr	H S		He	E As Af
Mentha ×gracilis Sole	Lam	cas	neo	1876	d	2	Br Ep I M Pr	H		He	H C
Mentha ×piperita L.	Lam	cas	neo	1830 (1956)	d	3	Bc Br Ep I M Pr	H S N	AG SG CP MP	He	H C
Mentha spicata L. subsp. *spicata*	Lam	cas	neo	1791 (1895)	ad	2	Br Co Ep I Pr	H		He	E
Mentha suaveolens Ehrh.*	Lam	cas	neo	1959	d	1†	Ep	H		He	E As Af
Mentha ×villosa Huds.	Lam	cas	neo	1993	ad	1	Bc Ec Ep	H		He	H
Mercurialis annua L.	Eup	nat	arch		a	4	Bc Br Ep M Pr	H	VE PS CL AN DM SY MN EP ER OA	T	E As Af
Mertensia sibirica (L.) G. Don	Bor	cas	neo	1933	d	1	I	H		He	As
Mesembryanthemum crystallinum L.*	Aiz	cas	neo	1948	d	1†	I				E As Af
Mespilus germanica L.	Ros	cas	arch	M	d	2	Ep M Pr	H S	GE	Ph	E As

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Metasequoia glyptrostroboides Hu et Cheng	Cup	cas	neo	1968 (2011)	d	1	Ep	H		Ph	As
Microrrhinum litorale (Bernh. ex Willd.) Speta	Pla	cas	neo	1993	a	1	Pr	H		T	E
Mimulus guttatus DC.	Pla	nat	neo	1885	d	3	Ec Ep I M Pr	S **N**	CP CS SG	He	NAm
Mimulus moschatus Douglas ex Lindl.*	Pla	cas	neo	1997 (2005)	d	1	Ec	H		He	NAm
Mirabilis jalapa L.	Nyc	cas	neo	2005	d	1	Ep	H		T	NAm
Misopates orontium (L.) Raf.	Pla	nat	arch		a	4	Br Co Ec Ep M Pr	H	**SA CL** PS SO VE CA ER	T	E As Af
Moenchia mantica (L.) Bartl.	Car	cas	neo	1927	a	2†	Ep M Pr	H S N		T	E
Morus alba L.	Mor	nat	neo	1720 (1830)	d	3	Ep Pr	H S	OA SB	Ph	As
Morus nigra L.	Mor	cas	arch	M	d	2	Ep M Pr	H S	SB	Ph	As
Muscari armeniaca Leichtlin ex Baker*	Hya	cas	neo	2010	d	1	Pr	S		G	E
Myagrum perfoliatum L.	Bra	nat	neo	1853	a	3	Ep M Pr	H	CL SY	T	E As
Myosotis arvensis (L.) Hill	Bor	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**SN AE CL** VE SA CN CT FV PS SO	T	E As
Myrrhis odorata (L.) Scop.	Api	cas	neo	16c (2002)	d	1	Pr	H S		He	E
Myrrhoides nodosa (L.) Cannon	Api	cas	neo	1982	a	1	Pr	N		T	E
Najas guadalupensis (Sprengel) Magnus	Hyo	cas	neo	1986	d	1	Ep Pr	H		T	SAm NAm
Narcissus poeticus L.	Amy	cas	neo	1791 (1856)	d	1	Ep M	H		G	E
Narcissus pseudonarcissus L.	Amy	cas	neo	1791 (1863)	d	2	Bc Ep Pr	H		G	E
Nepeta cataria L.	Lam	nat	arch		ad	4	Bc Br Co Ec Ep I M Pr	H S **N**	**EH** DM MN PR AN GA OA	He	E As
Nepeta racemosa Lam.	Lam	cas	neo	1997 (2010)	d	1	Ep	H		Ch	As
Neslia paniculata (L.) Desv.	Bra	nat	arch	M	a	4	Bc Br Ec Ep I M Pr	H	**CL SA VE SN** AN CN SY	T	As
Nicandra physalodes (L.) P. Gaertn.	Sol	cas	neo	1864	d	1	M Pr	H		T	SAm
Nicotiana alata Link et Otto	Sol	cas	neo	1979	d	1	Ep	H		T	SAm
Nicotiana rustica L.	Sol	cas	neo	1830	d	2	Br Ep	H		T	CAm SAm
Nicotiana tabacum L.	Sol	cas	neo	1866 (1936)	d	2	Ep	H	AN	T	SAm
Nigella arvensis L.	Ran	nat	arch		a	4	Bc Br Ep M Pr	**H** S	OA CL DM FV AF CA ER PS	T	E As Af
Nigella damascena L.	Ran	cas	neo	1853	d	2	Ep M Pr	H		T	E As Af
Nonea lutea (Desr.) DC.	Bor	cas	neo	1856	ad	2	Ep M Pr			T He	As
Nonea rosea (M. Bieb.) Link*	Bor	cas	neo	1989	a	1	Ep			T	As
Ocimum basilicum L.	Lam	cas	neo	1992	d	1	Pr	H		T	As
Oenothera ×albisubcurva Renner	Ona	cas	neo	1877	a	1†	Ep	H		He	H
Oenothera biennis L.	Ona	nat	neo	1791	ad	4	Bc Br Co Ec Ep I M Pr	**H** S	**DM EP** SR FE CA ER CC FV AN PQ	He	NAm
Oenothera depressa Greene	Ona	nat	neo	1920	a	3	Br Co Ep I M Pr	H S	FE AE DM	He	NAm
Oenothera ×drawerti Renner ex Rostański	Ona	cas	neo	1965	a	1	Ep	H		He	H
Oenothera fallax Renner	Ona	cas	neo	1978	ad	2	Br Ep I Pr	H		He	H
Oenothera glazioviana Micheli	Ona	nat	neo	1881	d	2	Ep Pr	H	DM	He	H C

Name of taxon	Fam	IS	RT	TI	IM	AB	PR	LU	Alliances	LF	Origin
Oenothera hoelscheri Renner ex Rostański	Ona	cas	neo	1973	a	2	Ec Ep I Pr	H	DM	He	H
Oenothera issleri Renner ex Rostański	Ona	cas	neo	1917	a	1†	Ep	H		Ch	H
Oenothera oakesiana S. Watson et Coult.	Ona	cas	neo	1917	a	1	Ep	H		Ch	NAm
Oenothera oehlkersi Kappus ex Rostański	Ona	cas	neo	1973	d	1	Ep	H		He	H
Oenothera parviflora L.	Ona	cas	neo	1855	a	1	Pr	H		Ch	NAm
Oenothera pycnocarpa G. F. Atk. et Bartlett	Ona	cas	neo	1967	a	2	Ep Pr	H	DM	He	NAm
Oenothera rubricaulis Kleb.	Ona	cas	neo	1920	a	2	Ep Pr	H	DM	He	NAm
Oenothera ×*slovaca* Jehlík et Rostański	Ona	cas	neo	1973	a	1	Ep	H		He	H
Oenothera suaveolens Desf. ex Pers.	Ona	cas	neo	1973	a	2	Ep	H	DM	He	NAm
Omphalodes verna Moench	Bor	cas	neo	1862	d	1	Ep I Pr	H S		He	E
Onobrychis ×*versurarum* Rech.	Fab	cas	neo	1969	a	1	Ec Pr	H		He	H
Onobrychis viciifolia Scop.	Fab	nat	neo	1791	d	4	Bc Br Co Ec Ep I M Pr	H **S** N	**AE BE CT** FV CN PT	He	E As
Onopordum acanthium L.	Ast	nat	arch		a	4	Bc Br Ep I M Pr	**H** S	**DM** SY OA MN AN AL GA AP CL	He	E
Opuntia phaeacantha Engelm.*	Cac	cas	neo	2009	d	1	Pr	S		Ch	NAm
Ornithogalum nutans L.	Hya	cas	neo	1912	d	1†	Ep I Pr	H		G	E As
Ornithopus perpusillus L.*	Fab	cas	neo	1989	a	1	Pr	N		T	E
Orobanche cernua Loefl.	Oro	nat	neo	1944	a	2	Ep	H N	ER		As
Orobanche minor Sm.	Oro	nat	neo	1830	a	1	Bc Ep Pr	H	SA SN	T G	E As Af
Oryza sativa L.	Poa	cas	neo	17c (2008)	ad	1	Ep	H		T	As
Ostrya carpinifolia Scop.	Bet	cas	neo	1903 (2006)	d	1	Pr	H		Ph	E
Othocallis amoena (L.) Trávníček	Hya	nat	neo	1791	d	1	Ep	N	AI	G	As
Othocallis siberica (Haw.) Speta	Hya	cas	neo	2007	d	1	Bc	H		G	E As
Oxalis bowiei Aiton ex D. Don*	Oxa	cas	neo	1927	d	1†	Ep				Af
Oxalis corniculata L.	Oxa	nat	neo	1906	a	3	Ep M Pr	H	AN DM ER MN SF	T	?
Oxalis debilis Humb., Bonpl. et Kunth	Oxa	cas	neo	1986	ad	3	Ep I M Pr	H		G	SAm
Oxalis dillenii Jacq.	Oxa	nat	neo	1945	a	4	Br Co Ec Ep M Pr	H S	BT DM AL EPCE CL CG SR	T He	NAm
Oxalis fontana Bunge	Oxa	nat	neo	1853	a	4	Bc Br Co Ec Ep I M Pr	**H** S N	**CL SN SO** DM PS SA SY AI VE ER	G	NAm
Oxalis latifolia Humb., Bonpl. et Kunth	Oxa	cas	neo	1981 (1987)	d	3	Br Ep I M Pr	H		G	CAm SAm
Oxalis repens Thunb.	Oxa	cas	neo	1994	d	1	Ep	H		T	As Au
Oxybaphus nyctagineus (Michx.) Sweet	Nyc	nat	neo	1994	a	4	Ep M Pr	H		G He	NAm
Paeonia officinalis L.	Pae	cas	neo	1956	d	1	Pr	H		G	E As
Paeonia peregrina Mill.*	Pae	cas	neo	1999	d	1	Ep	S			E As
Panicum capillare L.	Poa	nat#	neo	1951	a	4	Ep Pr	H	**SR** EP SY DM	T	NAm

Name of taxon	Fam	IS	RT	TI	IM	AB	PR	LU	Alliances	LF	Origin
Panicum dichotomiflorum Michx.	Poa	nat	neo	1978	a	2	Ep Pr	H		T	NAm
Panicum miliaceum L. subsp. *miliaceum*	Poa	cas	arch	N	a	1	Ep	H		T	As
Panicum miliaceum subsp. *agricola* H. Scholz et Mikoláš	Poa	nat	neo	1984	a	2	Br Ep	H		T	E
Panicum miliaceum subsp. *ruderale* (Kitag.) Tzvelev	Poa	nat	neo	1985	a	2	Br Ep	H	ER	T	As
Papaver alpinum subsp. *kerneri* (Hayek) Fedde*	Pap	cas	neo	1948	d	1†	Ec	H		He	E
Papaver argemone L.	Pap	nat	arch		a	4	Ep I M Pr	H S	**CL VE** CA ER DM SN	T	E
Papaver croceum Ledeb.	Pap	cas	neo	1904	d	1†	Bc Ec	H		He	As
Papaver dubium subsp. *stevenianium* (Mikheev) Kubát et Šípošová	Pap	cas	neo	1979	a	1	Pr	H		T	E
Papaver pseudoorientale (Fedde) Medw.	Pap	cas	neo	1979	d	1	Pr	H		He	As
Papaver rhoeas L.	Pap	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**CL** SY DM VE SN CA PS OA AN GA	T	E As Af
Papaver somniferum L.	Pap	cas	arch	R	ad	3	Bc Br Ec Ep M Pr	**H** S	BT SY AN AH PN SP	T	As
Parietaria officinalis L.	Urt	nat	arch		a	4	Bc Br Co Ec Ep M Pr	H S **N**	**AI** IS GA TA PR FA SB AR AP QP	He	E As
Paronychia kapela (Hacq.) A. Kern.	Car	cas	neo	1932	d	1†	Pr	H N			E
Parthenocissus inserta (A. Kern.) Fritsch	Vit	nat	neo	1976	d	2	Ep Pr	H S N		Ph	NAm
Parthenocissus quinquefolia (L.) Planch.	Vit	nat	neo	1897	ad	4	Bc Br Co Ec Ep I M Pr	H S **N**	**AI** FA SF AP AS CB IS SB	Ph	NAm
Parthenocissus tricuspidata (Siebold et Zucc.) Planch.	Vit	cas	neo	1900 (1998)	ad	1	Ep Pr			Ph	As
Paulownia tomentosa (Thunb.) Steud.	Pau	nat	neo	1870 (1988)	d	2	Ep	H		Ph	As
Periploca graeca L.	Apo	cas	neo	2005	d	1	Ep	H			E As
Persicaria orientalis (L.) Spach	Pog	cas	neo	1896	d	2	Ep M Pr	H		T	As
Petroselinum crispum (Mill.) A. W. Hill	Api	cas	neo	1830 (1940)	d	2	Br Ep Pr	H	CA BT OA PN	He	E As Af
Petunia ×atkinsiana D. Don ex Loudon	Sol	cas	neo	1964	d	1	Ep	H		T	H C
Phacelia tanacetifolia Benth.	Bor	cas	neo	1931	d	3	Ec Ep I Pr	H S	CL SR	T	NAm
Phalaris arundinacea var. *picta* L.	Poa	cas	neo	1830	d	2	Bc Ep I Pr	**H** S		He	C
Phalaris canariensis L.	Poa	cas	neo	1854	ad	2	Ep I Pr	H		T	Af
Phaseolus coccineus L.	Fab	cas	neo	1830 (1919)	d	1	Ep	H S		T	CAm SAm
Phaseolus vulgaris L.	Fab	cas	neo	1830 (1920)	d	2	Br Ec Ep Pr	H		T	NAm CAm SAm

Name of taxon	Fam	IS	RT	TI	IM	AB	PR	LU	Alliances	LF	Origin
Phelipanche ramosa (L.) Pomel	Oro	nat	arch		a	4	Br Ec Ep I M Pr	H		T	E As Af
Philadelphus coronarius L.	Hyd	cas	neo	1847 (1853)	d	2	Br Ec Ep Pr	H S		Ph	E
Philadelphus latifolius Schrad.	Hyd	cas	neo	1985 (2000)	d	1	Ep	S		Ph	NAm
Phlox paniculata L.	Pol	cas	neo	1976	d	1	Ep Pr	H	DM	He	NAm
Phlox subulata L.	Pol	cas	neo	1985 (2006)	d	1	Ec	H		He	NAm
Physalis franchetii Mast.	Sol	cas	neo	1993 (1996)	d	1	Ep	H		He	As
Physalis peruviana L.	Sol	cas	neo	2005	d	1	Ep	H		He	SAm
Physocarpus opulifolius (L.) Maxim.	Ros	cas	neo	1890 (1931)	d	1	Bc Ep	H S		Ph	NAm
Physostegia virginiana (L.) Bentham	Lam	cas	neo	1995	d	1	Ep	H			NAm
Phytolacca americana L.	Phy	nat	neo	1830	d	4	Ep M Pr	H S **N**	**PQ** AI CE DM RL SR	G He	NAm
Phytolacca esculenta Van Houtte	Phy	nat	neo	1956	d	3	Bc Ep M Pr	H S		G He	As
Picea orientalis (L.) Link	Pin	cas	neo	1880 (1967)	d	1	Ep	H		Ph	E As
Pinus contorta Douglas ex Loudon	Pin	cas	neo	1967	d	1	Ep	H		Ph	NAm
Pinus nigra J. F. Arnold	Pin	nat	neo	1800 (1929)	d	3	Bc Br Ec Ep I M Pr	H S **N**	QP AI FA AE CB BF	Ph	E
Pinus peuce Grisebach	Pin	cas	neo	1908 (1960)	d	1	Pr	H		Ph	E
Pinus strobus L.	Pin	nat	neo	1800 (1960)	d	1	I Pr	H S		Ph	NAm
Pinus wallichiana Jackson	Pin	cas	neo	1967	d	1	Ep	H		Ph	As
Pistia stratiotes	Ara	cas	neo	2007	d	1	Ep	N		Hy	Af SAm
Pisum sativum L.	Fab	cas	arch	N	d	3	Bc Br Ec Ep I Pr	H	**SN** CL PS	T	E As Af
Plantago aristata Michx.	Pla	cas	neo	1959	a	1	Ep Pr	H		T	NAm
Plantago coronopus L.*	Pla	cas	neo	1949	a	1†	Ep	H		T He	E As Af
Platanus ×hispanica Münchh.	Plt	cas	neo	1750 (1984)	ad	1	Ep	H		Ph	H C
Platanus occidentalis L.	Plt	cas	neo	1770 (1931)	d	1	Ep	S		Ph	NAm
Platanus orientalis L.	Plt	cas	neo	1750 (1995)	d	1	Ep	H		Ph	E As
Platycladus orientalis (L.) Franco	Cup	cas	neo	1800 (1980)	d	1	Ep	H		Ph	As
Polycarpon tetraphyllum (L.) L.	Car	nat	neo	1843	a	2	Ep Pr	H		T	E
Populus ×canadensis Moench	Sal	nat	neo	1800 (1912)	d	4	Bc Br Ec Ep I M Pr	N	**SB AI** PA FV SR	Ph	H C
Populus trichocarpa Torr. et A. Gray*	Sal	cas	neo	1905 (1960)	d	1	Pr	H		Ph	NAm
Portulaca grandiflora Hook.	Por	cas	neo	1954	d	2	Ep Pr	H		T	SAm
Portulaca oleracea L.	Por	nat	arch	M	a	4	Bc Br Co Ec Ep M Pr	H S		T	E As
Potentilla fruticosa L.	Ros	cas	neo	1890 (2010)	d	1	Ec	H		Ph	E As NAm
Potentilla indica (Andrews) T. Wolf	Ros	cas	neo	1998	d	2	Bc Ep Pr	H		He	As
Potentilla intermedia L.	Ros	cas	neo	1978	a	1	Br Co Ep	H	DM	He	E
Prunus armeniaca L.	Ros	cas	arch	M	d	2	Ep M Pr	H N		Ph	As
Prunus cerasifera Ehrh.	Ros	nat	neo	1890 (1974)	d	2	Bc Ep Pr	H S N		Ph	E As
Prunus cerasus L.	Ros	nat	arch	M	d	3	Br Ec Ep M Pr	S **N**	**CB** AI CH GQ QE	Ph	E As
Prunus domestica L.	Ros	nat	arch	M	d	4	Bc Br Co Ec Ep I M Pr	H S N	**AE** CT CN BE GA AP AL FV SY BV	Ph	E As

Name of taxon	Fam	IS	RT	TI	IM	AB	PR	LU	Alliances	LF	Origin
Prunus dulcis (Mill.) D. A. Webb	Ros	cas	arch	M	d	1	Ep	H		Ph	As
Prunus ×eminens Beck	Ros	nat	arch		a	3	Br Ec Ep M Pr	H S N	PF	Ph	H
Prunus insititia Jusl.	Ros	cas	arch	M	d	3	Ep I Pr	S N	BV	Ph	As
Prunus laurocerasus L.	Ros	cas	neo	1825 (1982)	d	1	Ep	H		Ph	E As
Prunus mahaleb L. subsp. *mahaleb*	Ros	cas	neo	1910	d	1	Ep M	H		Ph	E
Prunus persica (L.) Batsch	Ros	cas	arch	M	d	2	Ep M Pr	H		Ph	As
Prunus serotina Ehrh.	Ros	nat	neo	1900 (1976)	d	3	Bc Ep Pr	H S N	FV QC CB	Ph	NAm
Prunus virginiana L.	Ros	cas	neo	1900 (1933)	d	1	M			Ph	NAm
Pseudolysimachion incanum (L.) Holub subsp. *incanum*	Pla	cas	neo	1962	d	1	Ep	H		He	E As
Pseudotsuga menziesii (Mirb.) Franco	Pin	cas	neo	1830 (1860)	d	1	Pr	H		Ph	NAm
Ptelea trifoliata L.	Rut	cas	neo	1871	d	1	Ep	H N		Ph	NAm
Pyracantha coccinea M. Roem.	Ros	cas	neo	1892 (2002)	d	1	Bc Ep	H		Ph	E As
Pyrus communis L.	Ros	nat	arch	M	d	4	Bc Br Co Ec Ep I M Pr	H S **N**	**QC CB** QP CT AI BV AE GE FA	Ph	As
Quercus rubra L.	Fag	nat	neo	1855 (1982)	d	3	Bc Br Co Ec Ep M Pr	H S **N**	**CB** GQ AQ FA	Ph	NAm
Ranunculus arvensis L.	Ran	nat	arch		a	4	Bc Br Ec Ep I M Pr	**H** S	**CL SN VE** SA PS SO NF CD CT	T	E As Af
Raphanus raphanistrum L.	Bra	nat	arch	M	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**SN CL PS** VE SA SO ER AN CG SY	T	E As Af
Raphanus sativus L.	Bra	cas	neo	1830 (1853)	d	4	Bc Br Ep M Pr	H S N	MN CG DM CL OA PA SY	T He	C
Rapistrum rugosum (L.) All.	Bra	nat	neo	1881	a	1	Ep Pr	H		T	E As
Reseda alba L.	Res	cas	neo	1935	d	1	Ec			T	E As Af
Reseda lutea L.	Res	nat	arch	R	a	4	Bc Br Co Ec Ep I M Pr	**H** S N	**DM** SY OA PS FV AN CL CA BF CT	He	E As Af
Reseda luteola L.	Res	nat	arch		d	4	Br Ec Ep I M Pr	H S	**DM** OA SI FP	He	E As Af
Rhaponticum repens (L.) Hidalgo	Ast	cas	neo	1964	a	1	Ep	H		He	As
Rhaponticum scariosum subsp. *rhaponticum* (L.) Greuter	Ast	cas	neo	2004	d	1	Pr			He	E
Rheum rhabarbarum L.	Pog	cas	neo	1980 (1997)	d	1	Ec	H		G	As
Rhodotypos scandens (Thunb.) Makino	Ros	cas	neo	1900 (2002)	d	1	Ep	H		Ph	As
Rhus typhina L.	Ana	cas	neo	19c (1871)	d	2	Bc Ep M Pr	H		Ph	NAm
Ribes aureum Pursh	Gro	nat	neo	1890 (1926)	d	2	Ep Pr	H S	DM	Ph	NAm
Ribes odoratum H. L. Wendl.	Gro	cas	neo	1986	d	1	Ep	S		Ph	NAm
Ribes rubrum L.	Gro	nat	neo	1791 (1830)	d	3	Ep Pr	H S N		Ph	E
Ricinus communis L.	Eup	cas	neo	1919	d	1	Ep	H		T	Af
Robinia ×ambigua Poir.	Fab	cas	neo	1996	d	1	I Pr	H		Ph	H C
Robinia pseudoacacia L.	Fab	inv	neo	1720 (1830)	d	5	Bc Br Co Ec Ep I M Pr	H S **N**	**AI** CB CH GA BR DM QC	Ph	NAm
Robinia viscosa Vent.	Fab	cas	neo	1920	d	3	Ep Pr	H		Ph	NAm
Rochelia disperma (L. f.) K. Koch	Bor	cas	neo	1824	a	1†	Ec	N		T	E As Af
Rosa chinensis Jacq.*	Ros	cas	neo	1948	d	1†	Br			Ph	As
Rosa majalis Herrm.	Ros	cas	neo	1974	d	1	I M	H		Ph	E As

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Rosa multiflora Thunb.*	Ros	cas	neo	1984	d	1	Pr	H		Ph	As
Rosa rugosa Thunb.	Ros	cas	neo	1992 (1995)	d	1	Ep	H		Ph	As
Rubia tinctorum L.	Rub	cas	neo	1583	d	1†	Ep	H		He	E As
Rubus armeniacus Focke	Ros	cas	neo	1997	d	1	Pr	H		Ph	As
Rubus occidentalis L.*	Ros	cas	neo	2003	d	1	Pr	S		Ph	NAm
Rubus phoenicolasius Maxim.	Ros	cas	neo	1948	d	1	Ec I	H		Ph	As
Rudbeckia hirta L.	Ast	nat	neo	1912	d	3	Bc Ep I M Pr	H S		T He	NAm
Rudbeckia laciniata L.	Ast	nat	neo	1871	d	4	Bc Br Co Ep I M Pr	H S N	**SF** AG BT SB ST	He	NAm
Rudbeckia pinnata Vent.	Ast	cas	neo	1965	d	1	M	S			NAm
Rumex patientia L.	Pog	inv	neo	1856 (1901)	d	4	Br Co Ep I M Pr	H S	**GA** OA AP SY AL DM CA NA TM	He	E
Rumex thyrsiflorus Fingerh.	Pog	nat	neo	1917	a	4	Ep M Pr	**H** S N	DM AE CA ER AO CC FV CT GA	He	E As
Rumex triangulivalvis (Danser) Rech. f.	Pog	nat	neo	1947	a	2	Ep I Pr	H	GA	He	NAm
Ruta graveolens L.	Rut	cas	neo	1830 (1853)	d	1†	M	H		Ch	E
Sagina apetala Ard.	Car	nat	arch		a	2†	Br Ep Pr	H S	PP CN	T	E
Sagittaria subulata (L.) Buchenau	Ali	cas	neo	1995	d	1	Pr	H		Hy	NAm
Salsola collina Pall.	Ama	cas	neo	1998	a	1	Ep	H		T	As
Salvia officinalis L.	Lam	cas	neo	1830	d	2	Ep Pr	H S N		Ch	E As
Salvia sclarea L.	Lam	cas	neo	1888	d	1	M Pr	S		He	E As
Saponaria ocymoides L.	Car	cas	neo	1924	d	1†	Ep	H		He	E
Saponaria officinalis L.	Car	nat	arch	B	ad	4	Bc Br Co Ep I M Pr	**H** S N	**DM** CA GA SF EP OA SB AL AP SR	He	E As
Satureja hortensis L.	Lam	cas	neo	1791	d	3	Ep I M Pr	H	CG	T	E As
Scabiosa atropurpurea L.	Dip	cas	neo	1979	d	1	Pr	H		T	E As Af
Scandix pecten-veneris L.	Api	nat	arch		a	3	Bc Br Ep I Pr	H		T	E As Af
Scleranthus annuus L.	Car	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**SN** CL SA SO VE PS ER CN AF	T	E As Af
Sclerochloa dura (L.) P. Beauv.	Poa	nat	arch		a	4	Ep M Pr	**H** S	**MP** CA SY FV DM PU VE	T	E As
Secale cereale L.	Poa	cas	arch	B	d	4	Bc Ep I M Pr	**H** S	**CL SN VE** EP CA AL DM PS SA	T He	As
Sedum hispanicum L.	Cra	cas	neo	1998	d	2	Bc Ep Pr	H		T	E As
Sedum rupestre subsp. *erectum* Hart	Cra	nat	neo	1867	d	3	Bc Ec Ep Pr	H S N	KA CA	Ch	E
Sedum sarmentosum Bunge	Cra	cas	neo	1979	d	2	Bc Ep Pr	H		He	As
Sedum spurium M. Bieb.	Cra	nat	neo	1921	ad	3	Bc Co Ec Ep M Pr	H S N	EP IS	Ch	As
Sempervivum tectorum L.	Cra	nat	neo	1791	d	3	Ec Pr	H S N	BF DS FA	Ch	E
Senecio inaequidens DC.	Ast	cas	neo	1998	a	1	Ep	H		Ch	Af
Senecio vernalis Waldst. et Kit.	Ast	nat#	neo	1902	a	2	Ep Pr	H	AL	T	E As
Senecio vulgaris L.	Ast	nat	arch	I	a	4	Bc Br Co Ec Ep I M Pr	**H** S N	VE PS SY AN PQ CL PN MN BT DM	T	E As
Seseli rigidum Waldst. et Kit.	Api	nat	neo	19c (1966)	d	1†	Bc	S		He	E
Setaria faberi F. Herm.*	Poa	nat	neo	1973	a	2	Ep Pr	H		T	As
Setaria italica (L.) P. Beauv.	Poa	cas	arch	I	d	2	Co Ep M	H	AN ER	T	As
Setaria pumila (Poir.) Roem. et Schult.	Poa	nat	arch	N	a	5	Bc Br Co Ec Ep M Pr	**H** S N	**PS** CL ER DM SO AN SA BT SR EP	T	E As
Setaria verticillata (L.) P. Beauv.	Poa	nat	arch	N	a	4	Bc Ep M Pr	H	EP SR AN ER PU SY CL DM GA MN	T	E
Setaria verticilliformis Dumort.	Poa	cas	arch		a	2	Ep Pr	H		T	E As Af

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Setaria viridis (L.) P. Beauv.	Poa	nat	arch	N	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**PS** EP ER VE DM CL SR CG SO BT	T	E As Af
Sherardia arvensis L.	Rub	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	H	**CL** SA SN VE PS SO CN	T	E As Af
Shinnersia rivularis (Gray) King & Robinson*	Ast	nat	neo	1994	d	1	Ep	H	SG		NAm
Sicyos angulata L.	Cuc	cas	neo	1908	d	3	Br Ep M Pr	H S N	SF	T	NAm
Silene armeria L.	Car	cas	neo	1876	d	2	Br Ec Ep Pr	H		T	E As
Silene cretica L.*	Car	cas	neo	1865	a	1†	Bc Pr	H		T	E As Af
Silene dichotoma Ehrh.	Car	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	H	DM SY CL PS TM	T	E As
Silene gallica L.	Car	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	H	SY SN	T	E
Silene ×hampeana Meusel et Werner	Car	nat	arch		a	3	Bc Ec Ep I M Pr	H S N	GE QP AQ FV PF AL CB PC		H
Silene latifolia subsp. *alba* (Mill.) Greuter et Burdet	Car	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**DM** CA GA SY AL OA AP SN BV CL	He	E As Af
Silene noctiflora L.	Car	nat	arch		a	4	Bc Br Co Ec Ep M Pr	**H** S		T	E As
*Silene pendula**	Car	cas	neo	1867 (1967)	d	1	Ep	N		T	E
Siler montanum Crantz	Api	cas	neo	1949	d	1†	Ep	H			E
Silybum marianum (L.) P. Gaertn.	Ast	cas	neo	1853	d	2	Ec Ep Pr	H		T He	E
Sinapis arvensis L.	Bra	nat	arch	B	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**CL SN VE** PS SY DM SO AN GA AL	T	E As Af
Sisymbrium altissimum L.	Bra	nat	arch		a	4	Bc Br Ep M Pr	H S	**SY** DM AN FE VE	T	E As
Sisymbrium irio L.	Bra	nat	neo	1830	a	2	Br Ep Pr	H	MN	T	E As
Sisymbrium loeselii L.	Bra	nat	arch		a	4	Br Co Ec Ep M Pr	**H** S N	**SY DM** AN CN MP OA	T	E As Af
Sisymbrium officinale (L.) Scop.	Bra	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	H S	MN SY DM AL AN AP CN PN MP	T	E As Af
Sisymbrium orientale L.	Bra	nat	arch		a	4	Co Ep M Pr	H	OA DM AN ER	T	E As Af
Sisymbrium polymorphum (Murray) Roth	Bra	cas	neo	1998	a	1	Ep	H		He	E As
Sisymbrium volgense M. Bieb. ex E. Fourn.	Bra	nat	neo	1964	a	3	Br Co Ep I	H		He	E
Sisyrinchium bermudiana L. (s. l.)	Iri	nat	neo	1921	d	2	Bc Co Ep Pr	H S	CN	G	NAm
Smyrnium perfoliatum L.	Api	nat	neo	1737	d	1	Ep Pr	H N	CB TA	He	E As
Solanum alatum Moench	Sol	cas	neo	1863	d	2	Ep M Pr	H		T	E
Solanum citrullifolium A. Br.*	Sol	cas	neo		d	1	Ep	H			NAm
Solanum decipiens Opiz	Sol	cas	neo	1973	a	2	Ep M Pr	H		T	E
Solanum melongena L.	Sol	cas	neo	1929 (1993)	d	1	Ep	H	CG	T	As Af
Solanum nigrum L.	Sol	nat	arch	N	a	4	Bc Br Co Ec Ep I M Pr	**H** S N	PS AN MN CG CL AL DM EP VE ER	T	E
Solanum physalifolium Rusby	Sol	cas	neo	1998	a	1	Ep	H		T	SAm
Solanum scabrum Mill.	Sol	cas	neo	1987	d	1	Ep	H		T	C
Solanum tuberosum L.	Sol	cas	neo	1830 (1923)	d	4	Bc Br Co Ec Ep I M Pr	H	**SN CL** PS VE AN MN ER AL GA PN	G	SAm
Solanum villosum Mill.	Sol	nat	neo	1830	a	3	Ep M Pr	H	CE MN	T	E As Af
Solidago altissima L.	Ast	cas	neo	2000	d	1	Pr	N			NAm
Solidago canadensis L.	Ast	inv	neo	1872	ad	5	Bc Br Ec Ep M Pr	H S **N**	**AI SF** SB DM ME GA CH	He	NAm
Solidago gigantea Aiton	Ast	inv	neo	1909	d	5	Bc Br Co Ec Ep M Pr	H S **N**	**SF** AI SB ME GA DM PA OA CH AG	He	NAm
Sonchus arvensis L.	Ast	nat	arch	M	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**SN CL PS VE** SA SY SO AN DM PA	He	E As

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Sonchus asper (L.) Hill	Ast	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	**H** S N	**PS** CL VE SN CD SA SO BT AN	T	E As Af
Sonchus oleraceus L.	Ast	nat	arch	R	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**PS CL** SY AN BT DM CG VE EP SN	T	E As Af
Sophora japonica L.	Fab	cas	neo	1840 (1986)	d	1	Ep	H	CG	Ph	As
Sorbaria sorbifolia (L.) A. Braun	Ros	cas	neo	1930 (2005)	d	1	Ep	H		Ph	As
Sorghum bicolor (L.) Moench	Poa	cas	neo	1920	ad	2	Ep Pr	H		T	Af
Sorghum halepense (L.) Pers.	Poa	nat	neo	1853	ad	2	Ep Pr	H	ER	G	E As Af
Spergula arvensis L.	Car	nat	arch	N	a	4	Bc Br Co Ec Ep I M Pr	H S	**SN** VE CL SA PS SO BT MP	T	E As Af
Spinacia oleracea L.	Ama	cas	neo	1791 (1830)	d	1	Ep Pr	H		T	As
Spiraea ×billardii Dippel*	Ros	cas	neo	1998	d	1	Bc	S		Ph	H C
Spiraea douglasii Hook.*	Ros	cas	neo	1890 (1956)	d	1	Ep	N		Ph	NAm
Spiraea chamaedryfolia L.	Ros	cas	neo	1902	d	1	I Pr	S		Ph	E As
Spiraea japonica L. f.*	Ros	cas	neo	2010	d	1	Pr	H		Ph	As
Spiraea tomentosa L.*	Ros	cas	neo	2005	d	1	Ep	H		Ph	NAm
Spiraea ×vanhouttei (Briot) Zabel	Ros	cas	neo	1920 (1931)	d	1	Ep	N		Ph	H C
Sporobolus cryptandrus (Torr.) A. Gray	Poa	cas	neo	1978	a	1	Ep	H			NAm
Stachys annua (L.) L.	Lam	nat	arch	N	a	4	Bc Br Co Ec Ep I M Pr	**H** S N	**CL PS** AN SA SN DM ER SY VE SO	He	E As
Stachys arvensis (L.) L.	Lam	nat	arch	N	a	3†	Bc Ep I Pr	H	SN AL CN PS VE	T	E As Af
Stachys byzantina K. Koch	Lam	cas	neo	1853	d	2	Ep M Pr	H S		He	E As
Symphoricarpos albus (L.) S. F. Blake	Ado	cas	neo	19c (1956)	d	2	Br Ep Pr	H S		Ph	NAm
Symphoricarpos orbiculatus Moench*	Ado	cas	neo	1890 (2005)	d	1	Pr	H		Ph	NAm
Symphyotrichum ciliatum (Ledeb.) G. L. Nesom	Ast	cas	neo	1987	a	1	Ep	H			As
Syringa vulgaris L.	Ole	nat	neo	1650 (1830)	d	4	Bc Ec Ep I M Pr	H S N	GA AS OA AI BE FV IS SY	Ph	E
Tagetes patula L.	Ast	cas	neo	1920	d	2	Co Ep Pr	H		T	CAm
Tamarix gallica L.	Tam	cas	neo	1847 (1991)	d	1	Br Ep	N		Ph	E
Tanacetum balsamita L.	Ast	cas	neo	1956	d	1	Ep Pr	H		He	As
Tanacetum parthenium (L.) Sch. Bip.	Ast	nat	neo	1791	d	3	Bc Br Ec Ep M Pr	H N	PR AA DM MP OA SI	He	E As
Tetradium danielii (Benn.) T. G. Hartley*	Rut	cas	neo	2003	d	1	Ep	H		Ph	As
Thladiantha dubia Bunge	Cuc	cas	neo	1898	d	3	Br Co Ep Pr	H S N	PS SF	G	As
Thlaspi alliaceum L.	Bra	cas	neo	1907	a	1†	Ep			T	E As Af
Thlaspi arvense L.	Bra	nat	arch	B	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	CL SN VE PS SY SO AN AE CG SA	T	E As Af
Tolpis staticifolia (All.) Sch. Bip.	Ast	cas	neo	1791	a	1†	Ep	N			E
Torilis arvensis (Huds.) Link	Api	nat	arch		a	4	Bc Br Ep I M Pr	**H** S N	OA DM GA CH IS CA	T	E
Toxicodendron radicans (L.) Kuntze*	Ana	cas	neo	1980 (2005)	d	1	Ep	H		Ph	NAm

Name of taxon	Fam	IS	RT	TI	IM	AB	PR	LU	Alliances	LF	Origin
Toxicodendron vernicifluum Stokes*	Ana	cas	neo	1982	d	1	Ep	H		Ph	As
Tradescantia ×andersoniana Ludw. et Rothw.	Com	cas	neo	1976	d	1	Ep Pr	H			H C
Tradescantia viridis hort.*	Com	cas	neo	1954	d	1	Ep	H			SAm
Tragus racemosus (L.) All.	Poa	nat	neo	1830	a	4	Ep M Pr	H S N	KA AN ER SR EP	T	E
Tribulus terrestris L.	Zyg	nat	arch		a	3	Ep	H	ER SY	T	E As
Trifolium angustifolium L.*	Fab	cas	neo	1991	a	1	Ep				E
Trifolium hybridum L.	Fab	nat	neo	1791	d	5	Bc Br Co Ec Ep I M Pr	H S N	**CP AO AE** ME CV CN SN CD BT	He	E As
Trifolium incarnatum L.	Fab	cas	neo	1850 (1923)	d	2	Br Ec Ep I Pr	H S	AN	He	E As Af
Trifolium pallidum Waldst. et Kit.*	Fab	cas	neo	1991	a	1	Ep	H			E As Af
Trifolium pratense subsp. *sativum* (Schreb.) Schübl. et G. Martens	Fab	cas	neo	1985	d	1	Pr			He	E As Af
Trifolium resupinatum L.	Fab	cas	neo	1940	ad	1†	Ep	H		T	As
Trifolium squamosum L.*	Fab	cas	neo	1991	a	1	Ep	H		T	E As Af
Trigonella caerulea (L.) Ser.	Fab	cas	neo	1899	d	1†	Ep Pr	H		T	E
Trigonella foenum-graecum L.	Fab	cas	neo	1853	d	1†	Br Ep	H		T	E As
Tripleurospermum caucasicum (Willd.) Hayek*	Ast	cas	neo	1930	d	1†	Ec	N			As
Tripleurospermum inodorum (L.) Sch. Bip.	Ast	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H** S N	DM CL SY SN AN PS VE BT CG AL	T	E
Triticum aestivum L.	Poa	cas	arch	N	d	4	Bc Br Co Ep I M Pr	H	**SY** AN SN CL DM GA VE AP MP	T	C
Tropaeolum majus L.	Tro	cas	neo	1982 (1997)	d	1	Ep	H		T He	SAm
Tulipa ×gesneriana L.*	Lil	cas	neo	1977	d	1	Ep Pr	H		G	H C
Tulipa sylvestris L.*	Lil	cas	neo	1956	d	1	Ep Pr	H S		G	E
Turgenia latifolia (L.) Hoffm.	Api	nat	arch		a	3	Ep M Pr	H S N	AF AI	T	E As Af
Typha laxmannii Lepech.	Typ	nat	neo	1966	a	4	Br Ep I M Pr	H S **N**	**PA** CF PL	G Hy	As
Urtica pilulifera L.	Urt	cas	neo	2003	ad	1	Ep Pr	H		T	E
Urtica urens L.	Urt	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	**H** S N	**MN** PN AL PH SY CG GA MP AN BT	T	E As
Utricularia gibba L.	Len	cas	neo	1993	d	1	Pr	H		Hy	NAm CAm SAm Au As
Vaccaria hispanica (Mill.) Rauschert subsp. *hispanica*	Car	cas	neo	1856	a	1	Br Ep M	H		T	E
Vaccaria hispanica subsp. *grandiflora* (Fisch. ex Ser.) Holub	Car	nat	arch	M	a	4	Bc Br Ep I M Pr	H	CL	T	E
Valeriana phu L.*	Val	cas	neo	1949	d	1†	I Pr				E
Valerianella dentata (L.) Pollich	Val	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	**H** S N	**AF SA CL** SN VE FV BF SO AE	T	E As Af
Valerianella locusta (L.) Laterr.	Val	nat	arch		ad	4	Bc Br Ec Ep I M Pr	H S N	**AE FV** SN CL GE AF BV	T	E As Af
Valerianella rimosa Bastard	Val	nat	arch		a	3	Br Ep I M Pr	H S N	FV AF SA CL CT CA FP	T	E As Af
Verbena officinalis L.	Ver	nat	arch		a	4	Bc Br Co Ec Ep I M Pr	**H** S N	MN OA PN DM AL BT CG CN EP	T He	E As Af
Veronica agrestis L.	Pla	nat	arch	R	a	4	Bc Br Ec Ep I M Pr	H	**SN** VE CL AE PS SO CN AN MN SY	T	E Af

Name of taxon	Fam	IS	RT	TI	IM	AB	PR	LU	Alliances	LF	Origin
Veronica arvensis L.	Pla	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	H S N	**AE** SN CL CN FV FP VE AF AO	T	E As Af
Veronica filiformis Sm.	Pla	nat	neo	1937	ad	4	Bc Br Co Ec Ep I Pr	H S N	AP DM GA PP	He	E As
Veronica opaca Fr.	Pla	nat	arch		a	2	Br M Pr	H S N	AO AE FV GE MN SN	T	E
Veronica peregrina L.	Pla	nat	neo	1936	a	3	Bc Ec Ep I M Pr	H S N	PN CN BT CG AL	T	NAm CAm SAm
Veronica persica Poir.	Pla	nat#	neo	1844	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**CL VE SN** PS SO SA MN SY AN	T	As
Veronica polita Fr.	Pla	nat	arch		a	4	Bc Br Ec Ep I M Pr	**H** S N	CL VE PS MN MP SN DM CA GA	T	E As Af
Veronica triloba (Opiz) Opiz	Pla	nat	arch		a	4	Ep M Pr	H	**VE** CL SN CA GA PS	T	E As
Veronica triphyllos L.	Pla	nat	arch		a	4	Bc Co Ep M Pr	**H** S N	**VE** CL FP AE CA DM GA NF SN	T	E As
Viburnum carlesii Hemsl.	Ado	cas	neo	1985 (2000)	d	1	Ep	N		Ph	As
Viburnum rhytidophyllum Hemsl.	Ado	cas	neo	1901 (2005)	d	1	Ep	H		Ph	As
Vicia angustifolia L.	Fab	nat	arch	N	a	5	Bc Br Co Ec Ep I M Pr	H S N	**CL** SN FV DM SA VE CT OA PS SY	T	E As Af
Vicia articulata Hornem.	Fab	cas	neo	1858	d	2	Ep M Pr	H		T	E As Af
Vicia ervilia (L.) Willd.	Fab	cas	arch	N	ad	2†	Ep M Pr	H		T	E As Af
Vicia glabrescens (W. D. J. Koch) Heimerl	Fab	nat	neo	1926	a	3	Ep M Pr	H S	DM CL SN SA	T	E
Vicia hirsuta (L.) Gray	Fab	nat	arch	R	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**SN CL** AE VE SA AF PS DM CN GE	T	E As Af
Vicia melanops Sibth. et Sm.	Fab	cas	neo	1972	a	1	Ep	H		T	E As
Vicia narbonensis L.	Fab	cas	neo	1934	d	1	Ep M	H		T	E As Af
Vicia sativa L.	Fab	nat	arch	N	ad	4	Bc Br Co Ec Ep I M Pr	H S N	**AE SN** CN CL AO SA VE CT PN	T	E As Af
Vicia tetrasperma (L.) Schreb.	Fab	nat	arch	M	a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**AE CL SN** CN PS GE CT BV SO AO	T	E As Af
Vicia villosa Roth	Fab	nat	arch		ad	4	Bc Br Co Ec Ep I M Pr	**H** S N	**CL SN DM** ER CA VE SY PS SO	T	E As
Vinca major L.	Apo	cas	neo	1863	d	1	Ep Pr	H		Ch	E
Viola arvensis Murray	Vio	nat	arch		a	5	Bc Br Co Ec Ep I M Pr	**H** S N	**CL SN VE** AE PS SA CN FV DM SO	T	E As Af
Viola ×*haynaldii* Wiesb.	Vio	cas	neo	1923	a	1†	Pr			He	H
Viola ×*kalksburgensis* Wiesb.	Vio	cas	neo	1923	a	1†	Pr			He	H
Viola odorata L.	Vio	nat	arch		a	4	Bc Br Ec Ep I M Pr	H S **N**	**AI** CB AE QP BV AQ PT FA QE	He	E As Af
Viola ×*pluricaulis* Borbás	Vio	nat	arch		a	2	Ep M Pr	H S N		He	H
Viola ×*scabra* F. Braun	Vio	nat	arch		a	3	Ep M Pr	H S N	FA QP TA CB QC AE	He	H
Viola sororia Willd.*	Vio	cas	neo	1990	d	1	Ep M Pr	H		He	NAm
Viola suavis M. Bieb.	Vio	nat	neo	1874	d	4	Br Ep I M Pr	H S N	AI CB AQ QP QE CC QC SB	He	E As Af
Viola ×*vindobonensis* Wiesb.	Vio	cas	neo	1922	a	1	Pr			He	H
Viola ×*wittrockiana* Gams	Vio	cas	neo	1977	d	2	Ec Ep Pr	H	OA	T He	H C
Vitis vinifera L.	Vit	nat	arch	R	ad	3	Bc Ep M Pr	H S N	AI CA DM GA FV AP SF	Ph	E As
Vitis vulpina L.	Vit	cas	neo		d	1	Ep Pr	N	AI	Ph	NAm
Wisteria frutescens Poir.	Fab	cas	neo	1948	d	1†	Pr	H			NAm
Xanthium orientale agg.	Ast	nat	neo	1872	a	4	Bc Ep M Pr	H S N	**CG** SF BT PN CA CI OQ	T	NAm
Xanthium spinosum L.	Ast	nat	neo	1845	a	4	Ep M Pr	H S	**MN** DM AN OA EP FP MP	T	SAm
Xanthium strumarium L.	Ast	nat	arch	M	a	4	Bc Co Ep M Pr	**H** S N	**MN** BT DM AL CG AN OA PS	T	E As
Xanthoceras sorbifolium Bunge*	Sap	cas	neo	1988 (2005)	d	1	Ep	H		Ph	As
Yucca filamentosa L.	Aga	cas	neo	1890 (1981)	d	1	Pr	H			NAm
Zea mays L.	Poa	cas	neo	1830 (1931)	d	3	Bc Ep Pr	H S	MN AN SR BT MP	T	CAm

Appendix 2. – Species of uncertain residence status, either alien or native: *Agrimonia pilosa* Ledeb., *Alcea biennis* Winterl, *Althaea hirsuta* L., *Althaea taurinensis* DC., *Aristolochia clematitis* L., *Atriplex patula* L., *Carduus nutans* L., *Cerastium glomeratum* Thuill., *Chenopodium album* L., *Chenopodium suecicum* Murr, *Cirsium vulgare* (Savi) Ten., *Crepis setosa* Haller f., *Cytisus scoparius* (L.) Link, *Echinops exaltatus* Schrad., *Echinops sphaerocephalus* L., *Eragrostis minor* Host, *Erodium cicutarium* (L.) L'Hér., *Fumaria rostellata* Knaf, *Geranium rotundifolium* L., *Lappula squarrosa* (Retz.) Dumort., *Matricaria chamomilla* L., *Microrrhinum minus* (L.) Fourr., *Physalis alkekengi* L., *Polycnemum majus* A. Braun, *Polygonum arenastrum* Boreau, *Polygonum aviculare* L., *Ribes nigrum* L., *Sisymbrium strictissimum* L., *Spiraea salicifolia* L., *Tanacetum vulgare* L., *Veronica acinifolia* L., *Veronica hederifolia* L., *Vicia lutea* L.