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PLETHORA OF PLANTS - COLLECTIONS OF THE BOTANICAL GARDEN, FACULTY OF SCIENCE, UNIVERSITY OF ZAGREB (3): *IRIS* (IRIDACEAE) COLLECTION

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In this paper, the plant lists of the genus *Iris* (Iridaceae family) grown in Zagreb Botanical Garden of the Faculty of Science since 1895 are studied. Synonymy, nomenclature and origin of plant material were sorted. Lists of species grown in the last 124 years have been constructed to show that during that period at least 273 taxa of wild and cultivated irises inhabited the Garden's collections. Today we have 168 species, cultivars and hybrids.

Key words: Zagreb Botanical Garden, Faculty of Science, historic plant collections, *Iris* collection

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U ovom članku sastavljeni su popisi svojta perunika (rod *Iris*, porodica Iridaceae) uzgajanih u Botaničkom vrtu zagrebačkog Prirodoslovno-matematičkog fakulteta između 1895. i 2019. godine. Uređena je sinonimika i nomenklatura te istraženo podrijetlo biljnog materijala. Rezultati pokazuju da su tijekom 124 godine kroz zbirke Botaničkog vrta prošle najmanje 273 divlje i uzgojne svojte perunika. Danas uzgajamo 168 vrsta, kultivara i križanaca.

Ključne riječi: Botanički vrt PMF-a u Zagrebu, povijesne zbirke biljaka, rod *Iris*

INTRODUCTION

The comprehensive investigation of plant collections in the Botanical Garden of the Faculty of Science, University of Zagreb (in further text "Botanical Garden" or "the Garden") initiated in 2012 is continuing with inventories of indigenous, wild and cultivated taxa of the genus *Iris* Tourn. ex L. (Iridaceae family). The general facts about the Garden and its collections were published in the first paper of this series (Kovačić, 2015) and will not be repeated here. Following the established principles, I made an inventory of the genus *Iris* s.l. taxa cultivated in collections of our Botanical Garden since 1895.

Irises are well known and extensively cultivated around the globe for centuries and are used in perfumery and pharmacy. The genus *Iris* includes between 200 and 300 species, depending on the comprehension of the genus range (Barker & Govaerts, 2016); for example, more than 1400 taxa – species, subspecies, natural varieties and hybrids – are listed in The Plant List database (http://www.theplantlist.

org/), and its successor World Flora Online (http://www.worldfloraonline.org/), and about 1500 in the databases of cultivated taxa (for example, the Pacific Bulb Society, https://www.pacificbulbsociety.org/pbswiki/index.php/Iris). Wild taxa are divided into subgenera, sections and subsections (Shear, 2002), inter-relations of which are complex and not included in this inventory. Most *Iris* species are distributed in the temperate regions of Europe, Asia and North America, predominantly in dry, semi-desert, or rocky mountainous areas, less in grasslands, meadowlands, bogs and riverbanks (Kamanatsky & Okubo, 2012). *Iris* species, cultivars and hybrids grown in the collections of our Botanical Garden during the years have been planted outdoors, where they are represented by several specimens each, and are periodically rejuvenated by being divided (vegetatively). Irises are not listed in the CITES-lists (http://checklist.cites.org/#/en), but up to 26 taxa are listed as (potentially) invasive acc. to EASIN (http://alien.jrc.ec.europa.eu/SpeciesMapper), though of low/unknown impact.

Samples for the wild taxa collections in our Garden are obtained through the *Delectus (Index) Seminum*-network of inter-botanic-garden seed exchange, while the collections of cultivars and hybrids are supplemented from specialist nurseries or private collectors. Some of the estimations calculate that up to 100 000 *Iris* cultivars are available today in innumerable nurseries around the world, while around 41 400 are registered by name with the general authority, the American Iris Society (https://irises.org/), presenting this genus as the most popular monocotyledon in cultivation today. These are reasons for the endangerment of some *Iris* taxa in their natural habitats. More than 20 wild *Iris* species – especially those very rare, aesthetically pleasing or/and parental to the vast selection of horticultural hybrids and cultivars – are today red-listed. The Global Red List (https://www.iucnredlist.org) holds seven *Iris* species: one critically endangered (CR), four endangered (EN) and two vulnerable (VU). European, and combined Euro-Mediterranean Red Lists hold a single critically endangered (CR) *Iris* species each, while the Mediterranean Red List contains 14 species: 4 (CR), 6 (EN) and 4 (VU). Many more *Iris* taxa are listed as data deficient (DD) or estimated as of low concern (LC) in all of the aforementioned Red Lists (https://www.iucnredlist.org). The Croatian Red List (https://hirc.botanic.hr/fcd/CrvenaKnjiga/) and subsequent legislation hold two vulnerable (VU) *Iris* taxa, both – interestingly – unrecognized by the "higher authorities" (for example, Euro+Med Plantbase, World Flora Online, Global Red List, etc.). These are the Croatian "local endemics" (Mitić & Cigić, 2007) *Iris croatica* Horvat & M. D. Horvat (Mitić *et al.*, 2004) and *I. sibirica* L. subsp. *sibirica* (Topić *et al.*, 2004). The entire *Iris* genus, with 14 indigenous species, two subspecies and two natural hybrids, is statutorily strictly protected in all Croatian wild habitats (http://www.propisi.hr/print.php?id=12728). It is worth mentioning that irises are closely related to the Slavic mythology: the Croatian (and not only Croatian) word for the genus, "perunika", dedicates its flower to the highest deity of the ancient Slavic pantheon – the thunder god Perun.

MATERIAL & METHOD

Three main sources are used for the construction of lists of irises that have grown in the Botanical Garden's collections since its foundation. As explained in Kovačić (2015), these are: (i) published records on the historic collections of the early days (1891-1896), (ii) a passive database of plants cultivated in the Garden since the early 1950s, but not living today and (iii) an active database of plants recently (September 2019) living in our collections.

The initial part of this study (i) is based on a booklet written by the founder of our Botanical Garden, Professor Antun Heinz (Heinz, 1895-1896), often imprecise in stating the details on the inventory. After that, there is a gap of more than 50 years during which the data on the Garden collections are missing – until recent records were founded in the early 1950s, and since than systematically gathered (details in Kovačić, 2015). Unlike the glasshouse exotics described in our previous papers (Kovačić, 2015; Sandev *et al.*, 2017), the origin of most of the *Iris* species in our inventory cards is well documented. Part of the reason lies, possibly, in the fact that irises appear relatively late in our inventory cards (late 1950s), when the protocol was already well established and new taxa ordered via the *Index Seminum* network, or brought in from field research. For most of the entries the plant origin is clearly noted (hometown, botanic garden, natural site, donator, or collector), together with a year when the material was acquired, and in which form (seed, cutting, bulb, rhizome or living plant - *planta viva*).

As the irises are grown in several Garden collections, I divided the inventory lists of taxa in four groups. These informal, and partly overlapping groups are:

1. indigenous *Iris*-species of wild origin, brought to the Garden from field excursions as living plants (*plantae vivae*) and further grown in the collections (phytogeographical sections or rockeries) dedicated to the native flora (Tab. 1, Photo-table 1);

2. other, non-native *Iris* species of presumably wild origin, obtained via *Index Seminum* publications, grown from the seeds and planted elsewhere in the Garden (Tab. 2, Photo-table 2);

3. cultivars of wild species partly acquired as living plants (incl. rhizomes and bulbs), partly grown from seeds obtained via *Index Seminum* publications, out of which some could be presumably of wild origin (natural varieties and forms, rarely hybrids), but are mostly of garden-origin; planted in the Garden's ornamental flowerbeds, nurseries or systematic fields (Tab. 3, Photo-table 3);

4. Iris *Barbata* hybrids (also called "bearded" irises, mostly of the "tall bearded" group, an offspring of the *Iris* × *germanica* and *I. variegata* progenitors), plants of elaborated man-made origin achieved via meticulous crossings of vast numbers of named and un-named (called "seedlings") hybrids. These are acquired strictly as living plants (in the form of rhizomes) and planted in the Garden's nurseries, ornamental flowerbeds and *Iridarium,* established in 2004 (Tab. 4, Photo-table 4).

As our Botanical Garden grows many "local" plants of South East European distribution, I felt that the authentic nomenclature as stated in our old inventory-cards – even though today partly unrecognized – should be preserved. Therefore,

Tables 1 and 2 are designed to conserve the original plant names, the entries by which the specimens arrived to our collection, whenever possible: unfortunately, sometimes the original names during the years were erased and replaced with the valid synonyms of that time. Recently valid, up-do-date nomenclature is added in the last columns of Tabs. 1 and 2, when possible: in some occasions it was not possible to connect the original name-entry to the recently valid name.

Therefore, the nomenclature in this paper follows several authorities, in accordance with the group of irises in focus, in attempt to keep the historical data with up-to-date synonyms.

In Tab. 1, the main authority is the Croatian Flora Database (https://hirc.botanic.hr/fcd/), for the sole reason that many Croatian *Iris*-taxa are not recently recognized by the prominent floristic databases (Euro+Med Plantbase, World Flora Online, IPNI). If some taxon is not included in the Croatian flora, the Euro+Med Plantbase is consulted secondarily (http://ww2.bgbm.org/EuroPlusMed/query.asp). The World Flora Online (http://www.worldfloraonline.org/) database is added last, also used as the nomenclatural authority in the Tabs. 2 and 3 for the species outside Euro+Med Plantbase's range. Names of cultivars and hybrids in the Tab. 3 follow botanical nomenclature whenever possible; but also other, "less scientific" sources, such as horticultural databases. For the *Iris* Barbata ("bearded") group of hybrids listed in Table 4, the *Iris Encyclopedia* of the American Iris Society (http://wiki.irises.org/) was consulted first, followed by the databases of the Historic Iris Preservation Society (https://www.historiciris.org/) and the National Gardening Organization (https://garden.org/plants/view/181474/Irises-Iris/).

RESULTS & DISCUSSION

As seen in Heinz (1895-1896), in the late 19th century only four *Iris* species are named as living in our Botanical Garden, all "common Croatian" taxa that we still grow today. The *Iris* genus is described very poorly, as "in sizable number" (…"oveći broj *Iris*-vrsta, perunika…") of "mostly Mediterranean species", highlighting by name only "medicinal species" *Iris germanica*, *I. pallida* and *I. florentina*, besides *I. pseudacorus* (Heinz, 1895-1896 – p. 23). Two of these kept their original names: the common yellow flag (*Iris pseudacorus* L.) and the Dalmatian iris (*I. pallida* Lam., which include *I. illyrica* Tomm. and *I. pseudopallida* Trinajstić, still recognized by the Flora Croatica Database), most probably originally endemic to the Croatian coast, but widely cultivated elsewhere. The blue German bearded iris (*I. germanica* L.) and white German bearded iris or Florentine iris (*I. florentina* L.) are today nested in the range of an olden cultivated "megataxon", *Iris* × *germanica* L., which includes many "little" taxa considered to be endemic in this part of Europe (Mitić & Cigić, 2007). Today we do not know where those first irises were planted in the Garden (systematic fields, beds with the "useful plants", flowerbeds?), except for *I. pseudacorus* ("growing by the pond"). Also, we do not know where those plants originated: were they from Croatian wild localities, or of some "other-garden" origin?

1. **Indigenous or wild irises collected in Croatia and the neighbourhood countries**

Tab. 1 comprises the irises collected in their natural habitats, which were (and still are) grown in the national indigenous plant collections ("the rockeries") in our Garden: phytogeographical sections (Karstic – K, Mediterranean – M and sub-Mediterranean – SBM), established during the "Second Yugoslavia" era (1945 - 1991). Details about the Garden's rockeries with indigenous flora could be found in Stamenković & Kovačić (2014).

According to my calculations, since 1959 at least 24 *Iris* taxa have passed through the Garden phytogeographical sections, out of which we keep 14 today (Tab. 1, Photo-table 1). It must be emphasized that several taxa were never properly determined before vanishing from the collections (inventory-cards designated as "*Iris* sp." were excluded from this inventory). Also, the samples assigned "for scientific purposes" (in Tabs. 1 and 2) are not parts of the Garden's collection, but kept in our nurseries for the research of Professor Božena Mitić and her colleagues.

Most of the samples (51) listed in Tab. 1 were collected in Croatian localities as living plants, while 12 originate from neighbouring countries (Bosnia and Herzegovina, Serbia and North Macedonia that were during the time of collecting, like Croatia, part of Yugoslavia). Six samples are of unknown origin ("nn" in Tab. 1 and other tables). Older scientific names are difficult to track, due to synonymy and taxonomical changes, so I cannot be absolutely certain about which taxon some of the plant samples, now missing from our collections, actually belonged to. As already emphasized, I intentionally kept the original plant-names from our inventory-cards of the plants today missing from our collection, to preserve this vivid, today often neglected, nomenclature of the past. It is also worth mentioning that some of the samples planted in the rockeries were collected as wild-growing, but are today considered to be of an ancient cultivated origin: that is particularly the case with the "local taxa" such as blue and white German bearded irises (*I.* × *germanica* and *I.* × *florentina*), which were grown as "indigenous" in our phytogeographical sections (rockeries).

As Tab. 1 shows, the first irises from the wild were brought to the Garden in 1959, by our first post-WWII Garden Manager Dr. Sala Ungar. Those were *Iris illyrica* Tomm. (*I. illyrica* Tomm. ex Vis. is today considered to be a synonym of *I. pallida* Lam. subsp. *illyrica* (Tomm. ex Vis.) K. Richt.) from the Croatian North Adriatic shores (Sušanj near Karlobag); *I. macedonica* Horv. (illegitimate name, probably one of the *I. reichenbachii* Heuff. range) and *I. pumila* L. subsp. *attica* (Boiss. et Heldr.) Hay. f. *ochridana* (unknown form) from North-Macedonian Mt Galičica. The others were brought mostly as living plants (*planta viva*) from Dr. Ungar's field excursions across ex-Yugoslavia in the 1960s.

According to the national Flora Croatica Database, the Croatian flora today comprises 14 *Iris* species (https://hirc.botanic.hr/fcd/ShowResults.aspx?hash=-1000434997), out of which several are included in the larger ("mega"-) taxa according to prominent botanic databases (Euro+Med

Tab. 1. Indigenous *Iris* species native to Croatia and neighbouring countries, brought from the field excursions as living plants and grown in the collections of native plants in the Botanical Garden from 1959 to 2019.

Scientific name (from the original inventory-card)	**Origin of plant material***	**Year of obtaining**	**Last recorded**	**Collection**	**Notes in the original inventory-card**	**FCD**	**Euro+Med**	**Plant List**	**Notes and remarks**
Iris adriatica Trinajstić	Čiovo	1988	1989	M	I. adriatica Trinajstić ex Mitić	Iris adriatica Trinajstić ex Mitić			author of the valid taxon description, Professor Mitić, is keeping her scientific samples in the Garden
	Šibenik	1988	1989	M					
	Bibinje	1988	1989	M					
	Unešić	2001	2001	Nursery					
	Bilice	2016	**2019**	Nursery	for scientific purposes				
Iris bosniaca Beck	Zelengora, Bosnia & Herzegovina	1966	1989	SBM	I. bosniaca (Beck) Dörfl.	no	no	I. reichenbachii Heuff.	
Iris cengialti Ambr.	Krk	1967	1979	M	syn. I. pallida Lam. subsp. cengialti (Ambr.) Foster	I. cengialti Ambr. is a synonim of I. illyrica Tomm.	I. cengialti Ambrosi ex A.Kern. is a synonim of I. pallida subsp. cengialti (Ambrosi ex A.Kern.) Foster		corr. I. illyrica
	Gornje Jelenje	1965	2012	SBM					corr. I. pallida
	nn	1993	**2019**	Nursery	for scientific purposes				
Iris croatica Horv.	Samoborsko gorje	1963	1989	K	I. croatica Horvat et Horvat M.	I. croatica Horvat et M. D. Horvat VU	no	I. × croatica Horvat & M.D.Horvat / illegitimate/ is a synonym of I. × germanica L.	
	Strahinjčica	1970	**2019**	K					
	Medvednica	1989	**2019**	K					
Iris florentina L.	nn	1962	**2019**	Systematic fields		Iris germanica L.	no	unresolved name	I. germanica nothovar. florentina or "Iris Florentina" (www.rhs.org.uk) I. x florentina is incl. to I. × germanica group
	nn	1963	1969	Nursery					
	Orebić	1969	2001	M					
	nn	2008	**2019**	Nursery	(for scientific purposes)				
	Orebić	2017	**2019**	Iridarium					
	Orebić	1969	2001	Nursery, later M					
Iris graminea L.	Samoborsko gorje	1961	2010	K		accepted			
	Velebit	1963	**2019**	K					
	Klek	1999	**2019**	K					
	Ravna gora	1978	1989	Nursery					
Iris illyrica Tomm.	Plomin	1965	**2019**	M	"syn. I. cengialti Ambr. subsp. illyrica (Tomm.) Pemp. - invalid!"	accepted	no	I. illyrica Tomm. ex Vis. is a synonym of I. pallida subsp. illyrica (Tomm. ex Vis.) K.Richt.	
	Krk	1967	1981	M					
	Vir	1966	1989	M					
	Biokovo	1967	**2019**	SBM					
	Sušanj	1959	1963	K					
	Velebit	1974	1986	K					
	Velebit	1975	2001	K					
	Velebit	1983	1986	K					
	Velebit	1994	**2019**	K					
Iris macedonica Horv. (?)	Galičica, North Macedonia	1959	1984	SBM	'I.m. Nadji', or 'I.m. Heldr. ?'	no			Probably from the range of I. reichenbachii

Scientific name (from the original inventory-card)	**Origin of plant material***	**Year of obtaining**	**Last recorded**	**Collection**	**Notes in the original inventory-card**	**FCD**	**Euro+Med**	**Plant List**	**Notes and remarks**
Iris pallida Lam.	Radika, North Macedonia	1963	**2019**	SBM		accepted			
	Dubrovnik	1983	1989	M	prob. I. pseudopallida				
	Biokovo	1962	1989	SBM					
	Dinara	1982	1963	SBM					
	Biokovo	1964	1988	SBM					
	Mt St. Ilija	1971	**2019**	SBM	prob. I pseudopallida				
Iris pallida Lam. subsp. dalmatica Pamp. (I. pseudopallida Trinajstić)	Bobara Isle	1972	1974	Nursery	I. pallida Lam. subsp. illyrica (Tomm. ex Vis.) K. Richt. var. dalmatica Pamp. = I. pseudopallida Trinajstić	I. pallida Lam. var. dalmatica Pamp. is a synonim of I. pseudopallida Trinajstić	I. pallida var. dalmatica Pamp. is a synonym of I. pallida subsp. illyrica (Tomm. ex Vis.) K.Richt.		
	Korčula Island	1987	**2019**	M					
	Pelješac Peninsula	1992	**2019**	EuMed					
	Cetina River Valley	1999	**2019**	Nursery	for scientific purposes				
Iris pseudacorus L.	nn	1962	**2019**	Ponds		accepted			
	Jablanovec	1989	**2019**	Ponds					
	nn	2001	**2019**	Ponds					
	Pisarovina	2009	**2019**	Nursery					
Iris pumila L.	nn	1963	1963	Nursery		accepted			
	nn	1963	1978	K					
	Deliblato Sands, Serbia	1965	**2019**	SBM					
	Bansko brdo	2013	**2019**	Nursery					
Iris pumila L. subsp. attica (Boiss. et Heldr.) Hay.	Orlovo brdo, N. Macedonia	1973	1980	Nursery	I. attica Boiss. et Heldr.	no	I. pumila subsp. attica (Boiss. & Heldr.) K.Richt.		(from native locality)
	Sarajevo	1975	1980	Nursery					
Iris pumila L. subsp. attica (Boiss. et Heldr.) "Hay. f. ochridana"	Galičica, North Macedonia	1959	1973	SBM		no			unknown *forma*
Iris pumila L. "subsp. eupumila f. violacea Ker."	nn	1962	1963	K		no			unknown subspecies and *forma*
Iris reginae Horv. (?)	Galičica, North Macedonia	1967	1984	Nursery	incorrect - I. variegata	no	no	I. reginae Horvat & M.D.Horvat is a synonim of I. variegata L.	
Iris reichenbachii Heuff.	Rtanj, Serbia	1974	1979	nursery		accepted			includes many Balkan "local taxa", f.e. Iris athoa, I. balkana, I. bosniaca, I. macedonica, I. serbica…
	Kopaonik, Serbia	1965	**2019**	SBM					
Iris rubromarginata Baker 'f. flavescens Azn.'	Galičica, North Macedonia	1960	1973	SBM		no	val. I. suaveolens Boiss. & Reut.; unknown forma		
Iris rudsky Horv. (?)	Sokolac, Bosnia & Herzegovina	1967	1984	Nursery	incorrect - I. variegata	no		I. rudskyi Horvat & M.D.Horvat = I. variegata L.	

Scientific name (from the original inventory-card)	**Origin of plant material***	**Year of obtaining**	**Last recorded**	**Collection**	**Notes in the original inventory-card**	**FCD**	**Euro+Med**	**Plant List**	**Notes and remarks**
Iris sibirica L.	nn	1962	**2019**	Systematic fields		accepted	accepted		acc. to FCD Iris sibirica includes two subspecies: I. sibirica L. subsp. sibirica (VU) and I. sibirica L. subsp. erirrhiza (Posp.) Wraber.
	Platak	1968	1973	SBM	arrived as I. graminea				
	nn	1987	1988	Nursery	arrived as I. delavayi				
	Risnjak	1965	1993	SBM					
I. sibirica L. subsp. sibirica	Petrijevci	2004	**2019**	Systematic fields	for scientific purposes		no	no	
I. sibirica L. subsp. erirrhiza (Posp.) Wraber	Bjelolasica	2012	**2019**	Nursery	for scientific purposes				
Iris (Hermodactylus) tuberosa L.	Zaton-Doli	2001	**2019**	SBM	Hermodactylus tuberosus (L.) Mill.	Hermodactylus tuberosus (L.) Mill.	I. tuberosa L.		
Iris variegata L.	nn	1962	1969	K		accepted			
	Deliblato Sands, Serbia	1965	1989	SBM					
	Dinara	1966	1969	Nursery					
	Velebit	1968	1969	K					
	Papuk	1969	1989	K					
	Klek	1970	1970	Nursery					
	Lička Plješivica	1974	1975	K					
	Velebit	1995	1997	K					

*if not stated differently, the locality of plant material collection is situated in Croatian national territory

Plantbase, World Flora Online), or are considered being garden escapees from ancient times. For example, *Iris bosniaca* (Beck) Dörfl. is today included in the range of *I. reichenbachii* Heuff.; *I. croatica* Horvat et M. D. Horvat, *I. pseudopallida* Trinajstić and *I. germanica* L. are unrecognized by Euro+Med Plantbase, as are the natural hybrids *I.* × *rotschildii* Degen (*I. illyrica* Tomm. × *I. variegata* L.) and *I.* × *sambucina* L. (*I. pallida* Lam. × *I. variegata* L.). Also, according to Flora Croatica Database, *I. sibirica* L. in Croatia exists in the form of two subspecies: *I. sibirica* L. subsp. *erirrhiza* (Posp.) Wraber (endemic to Croatia and Slovenia) and *I. sibirica* L. subsp. *sibirica*. The latter is considered to be vulnerable (VU) according to the Croatian Red Book, even though it is not recognized by the aforementioned plant authorities – first and foremost, the Euro+Med Plantbase. However, World Flora Online, successor of the "garden-friendly" Plant List database, recognizes some of this historic nomenclature that could be seen in the Tables 1 and 2. Nevertheless, some plant names from our inventory cards are today "lost": for example, *Iris variegata* L. comprises both *I. reginae* Horvat & M. D. Horvat and *I. rudskyi* Horvat & M. D. Horvat, described by the famous botany professor of our faculty, Dr Ivo Horvat (1897 - 1963) and his wife Marija. Both botanists also described the Croatian "national flower" *I. croatica* Horvat & M. D. Horvat, a taxon that has recently become not only unrecognized by "reputable" botanical databases (today it is included in *I.* × *germanica*), but also apparently illegitimate, due to the priority of plant naming (see *I.* × *croatica* Prodán in The Plant List and World Flora Online).

2. **Wild or "natural" irises grown from seed obtained via *Index Seminum* publications**

Tab. 2 contains the list of irises grown predominantly from seeds obtained via *Index Seminum* publications. Although the taxa in Tab. 2 are not listed as cultivars, most of them originate from garden growth, so, consequently, some of them could have been hybrids or horticultural varieties – at least, results of the "open pollination" (as frequently stated in the *Index Seminum* publications), rather than wild species *sensu stricto*. Tab. 2 depicts 66 taxa of irises that we grew during the last 60 years, out of which we today hold 25 (some can be seen in the Photo-table 2). These were, and still are, grown mostly in several of the Garden nurseries, flowerbeds with horticultural plants or the "Alpinum": the oldest rockery in the Garden, intended for horticultural varieties. For 14 samples the source is unknown ("nn" in Tab. 2). One *Iris rubromarginata* Baker subsp. *mellita* (Janka) K. Richt. (valid *I. suaveolens* Boiss. & Reut.), obtained from Vienna in 1953, was the first species of this genus inventoried in the new Garden database, followed by *I. crocea* Jacquem. ex R.C.Foster (from Nancy, 1955) and *I. japonica* Thunb. (from Nanking, 1959). It is interesting to see that some species were ordered repeatedly from different botanic gardens during the years, for example, *I. kaempferi* Siebold ex Lem., 17 times since 1961.

Tab. 2. Wild *Iris* species, not-native to Croatia, grown from seeds in the Botanical Garden from 1955 to 2019

Scientific name from the original inventory-card	**Origin** (botanical garden, city, nursery)	**Year of obtaining**	**Last recorded**	**Collection**	Notes in the original inventory-card	**Nomenclature** acc. to Euro+Med for the respective species; acc. to the Plant List for the rest of the world
Iris acutiloba C.A.Meyer	Waasland	1987	1992	Nursery		valid
Iris aphylla L.	Bruxelles	1960	1963	Nursery		valid
	Toronto	1960	1963	Nursery		
	Pruhonice	1964	1964	Nursery		
	Uppsala	1971	1974	Nursery		
	Dresden	1975	1977	Nursery		
	Edmonton	1985	**2019**	Alpinum		
Iris aphylla L. subsp. hungarica (W.et K.) A. et G.	Budapest	1976	1976	Nursery	from the Carpathians	valid
Iris bakeriana Foster	Wuppertal	1976	1984	Nursery		val. I. reticulata var. bakeriana (Foster) B. Mathew & Wendelbo
Iris biglumis Vahl	Halle	1996	1996	Nursery	syn. I lactea	valid
Iris bismarckiana Dammen et Sprenger	Athens	1984	1989	Nursery	syn. I. nazarena Hort.	valid
Iris bucharica Foster	Tashkent	1973	1980	Nursery	arrived as Juno	valid
	Athens	1981	**2019**	Alpinum	bucharica	
Iris bulleyana Dykes	Chelsea	1960	1969	Nursery		valid
	Jena	1983	1983	Nursery		
	Sofia	1984	1985	Glasshouse		
	Bochum	2002	**2019**	Systematic fields		
Iris caucasica Hoffm.	Sofia	1984	1969	Nursery	incorrect	valid
Iris cengialti Ambrosi ex A. Kern.	nn	1993	**2019**	Nursery	(for scientific purposes)	val. I. pallida subsp. cengialti (Ambrosi ex A. Kern.) Foster

Scientific name from the original inventory-card	**Origin** (botanical garden, city, nursery)	**Year of obtaining**	**Last recorded**	**Collection**	Notes in the original inventory-card	**Nomenclature** acc. to Euro+Med for the respective species; acc. to the Plant List for the rest of the world
Iris chamaeiris Bertol.	Montpellier	1966	1975	Nursery	arrived also as (val.) I. lutescens Lam. subsp. lutescens	valid
	Vienna	1968	1979	Nursery		
	Lausanne	1968	1972	Nursery		
	Montpellier	1967	1975	Nursery		
	Frankfurt	1979	1983	Glasshouse		
	Barcelona	1982	1989	Alpinum		
	Bern	1983	1989	Nursery		
	Torino	1983	1984	Glasshouse		
	Liege	1984	1989	Nursery		
Iris chrysographes Dykes	Wisely	1998	1998	Nursery		valid
Iris chrysographes Dykes 'f. noire'	Nancy	1998	2014	Nursery	incorrect?	unknown *forma*
Iris cretensis Janka	nn	1963	1969	Nursery		val. I. unguicularis subsp. cretensis (Janka) A. P. Davis & Jury
	Freiburg	1989	1992	Nursery		
Iris crocea Jacquem. ex R.C.Foster	Geneve	1968	1988	Nursery	Syn. I. aurea Lindley	valid
	Sopron	1985	1989	Nursery		
	Meyrin	1990	1991	Nursery	incorrect	
	Pavia	1995	1995	Nursery		
	Nancy	1955	2004	Nursery		
	Antwerpen	2018	**2019**	Nursery		
Iris × cypriana Foster & Baker	nn	2008	**2019**	Nursery	(for scientific purposes)	from I × germanica group
Iris danfordiae (Baker) Boiss.	Wuppertal	1976	1980	Nursery	syn. I. bornmuelleri Haussk.	valid
Iris darwasica Regel	nn	1962	1963	Nursery	arrived as I. suwadrowi Regel; incorrect	valid
Iris delavayi Micheli	nn	1963	1987	Nursery	incorrect	valid
	Oxford	1989	1991	Flower bed		
	nn	1994	**2019**	Nursery		
Iris demetrii Achv. & Mirzoeva	Neuchatel	1987	2004	Alpinum		val. I. spuria L. subsp. demetrii (Achv. & Mirzoeva) B. Mathew
Iris dichotoma Pall.	Blagoveshchensk	2012	**2019**	Flower bed	arrived as Pardanthopsis dichotoma (Pall.) Ledeb.	valid
Iris domestica (L.) Goldblatt & Mabb.	Marseille	1980	1989	Alpinum	arrived also as Belamcanda chinensis (L.) Leman., Pardanthus chinensis/ P. sinensis	valid
	Besancon	1983	1989	Nursery		
	Valencia	1997	**2019**	Systematic fields		
	Marburg	2017	**2019**	Flower bed		
Iris douglasiana Herb.	Berkeley	1997	1998	Nursery		valid
	Seattle	2002	2004	Nursery		
Iris ensata Thunb.	nn	1962	1988	Nursery		valid
	Vacratot	1985	1989	Nursery		
	Edmonton	1985	1989	Nursery		
	Cluj-Nappoca	1988	1993	Nursery		
	Wuppertal	1996	1996	Nursery		
	Cluj-Nappoca	1996	1997	Nursery		

Scientific name from the original inventory-card	**Origin** (botanical garden, city, nursery)	**Year of obtaining**	**Last recorded**	**Collection**	Notes in the original inventory-card	**Nomenclature** acc. to Euro+Med for the respective species; acc. to the Plant List for the rest of the world
Iris foetidissima L.	Lada	1960	1984	Nursery		valid
	Tenerife	1981	1984	Nursery		
	Coimbra	1982	1992	Nursery		
	Pesaro	1980	1989	Nursery		
	Coimbra	1984	**2019**	Nursery		
	Bordeaux	1987	1991	Nursery		
	Meyrin	1994	2004	Nursery		
	Sienna	1994	1996	Nursery		
	Valencia	1995	**2019**	Nursery		
	Paris	2000	**2019**	Alpinum		
Iris germanica L.	nn	1963	1989	Nursery	unknown origin (incl. I. croatica, I. sambucina?)	acc. to Plant list: I. × germanica L.
	nn	1962	**2019**	Systematic fields		
Iris halophila Pall.	Dresden	1980	1985	Nursery		val. acc. to Euro+Med; acc to Plant list: I. spuria L. subsp. halophila (Pall.) D.A.Webb & Chater
	Rotterdam	1987	**2019**	Nursery		
	Tallin	1988	**2019**	Nursery		
Iris hookeri Penny ex Don	Nancy	1980	1986	Glasshouse	syn. I. setosa Pall. subsp. canadensis (M. Foster) Hult.	valid
	Montreal	1978	1981	Nursery		
	Montreal	1983	1983	Glasshouse		
Iris humilis Georgi subsp. subsp. arenaria (Waldst. & Kit.) Á.Löve & D.Löve	nn	1970	1971	Nursery		acc. to Euro+Med: I. humilis Georgi; acc. to Plant list: I. arenaria Waldst. & Kit.
	Rotterdam	1978	1989	Alpinum		
	Budapest	1983	1985	Nursery		
Iris imbricata Lindley	Yerevan	1960	1966	Nursery	syn. I. sulphurea C. Koch	valid
Iris japonica Thunb.	Nanking	1959	1994	Nursery	incorrect	valid
	Rezia	2002	2002	Nursery		
	Antwerpen	2018	**2019**	Systematic fields		
Iris juncea Poiret	Waasland	1987	1993	Nursery	incorrect	valid
Iris kaempferi Siebold ex Lem.	Geneve	1961	1988	Nursery		acc. to Plant list: I. ensata Thunb.
	nn	1962	1963	Nursery	syn. I. laevigata	
	Pallanza	1963	1969	Nursery		
	Bonn	1964	1972	Nursery		
	Lautaret	1966	1968	Nursery		
	Suhumi	1967	1975	Nursery	arrived as “Hybrida Hort.”; incorrect	
	Wisley	1970	1977	Nursery		
	Zuerich	1981	1981	Nursery		
	Warsaw	1982	1989	Nursery		
	Geneve	1982	1983	Nursery	incorrect	
	Bonn	1982	1983	Nursery		
	Kiel	1982	1989	Alpinum		
	Krefeld	1983	1983	Glasshouse		
	Wisley	1984	1989	Nursery		
	Bordeaux	1985	1989	Nursery		
	Muenchen	1995	**2019**	Nursery		
	Meyrin	1996	**2019**	Nursery		

Scientific name from the original inventory-card	**Origin** (botanical garden, city, nursery)	**Year of obtaining**	**Last recorded**	**Collection**	Notes in the original inventory-card	**Nomenclature** acc. to Euro+Med for the respective species; acc. to the Plant List for the rest of the world
Iris kashmiriana Baker	Athens	1981	1992	Nursery		valid
Iris koreana Nakai	Antwerpen	2018	**2019**	Flower bed		valid
Iris korolkowii Regel	Quedlinburg	1987	1989	Nursery		valid
	Waasland	1993	1994	Nursery	incorrect	
Iris kumaonesis Baker	nn	1963	1969	Nursery		unknown: maybe I. kumasnensis Well. (Plant list)
	Antwerpen	1975	1975	Nursery		
Iris lactea Pall.	Halle	1982	1989	Nursery	from Mongolia	valid
Iris laevigata Fisch.	nn	1963	1969	Nursery		valid
	Vladivostok	1987	1989	Nursery		
Iris lazica Albov	Wuppertal	1981	1984	Nursery		valid
Iris lusitanica Ker Gawl.	Neuchatel	1981	1989	Nursery	arrived as I. xiphium var. lusitanica (Ker Gawl.) Franco	valid
	Coimbra	1984	1989	Nursery		
Iris lutescens Lam.	nn	2008	**2019**	Nursery	(for scientific purposes)	valid
Iris rubromarginata Baker subsp. mellita (Janka) K. Richt.	Vienna	1953	1969	Nursery	arrived as I. mellita Janka	val. I. suaveolens Boiss. & Reut.
	Wuppertal	1978	1983	Glasshouse		
	Linz	1981	1982	Nursery		
	Cluj-Nappoca	1987	1992	Nursery	incorrect	
Iris missouriensis Nutt.	Antwerpen	2008	**2019**	Alpinum		valid
Iris monnieri DC.	Sofia	1968	1987	Nursery		valid
Iris moorcroftiana Wall. ex D.Don	Dresden	1975	1975	Nursery		acc. to Plant list: syn of I. lactea Pall. (var. lactea)
Iris musulmanica Fomin	Yerevan	1961	1984	Nursery		acc. to Plant list: syn of I. spuria L. subsp. musulmanica (Fomin) Takht.
	Yerevan	1973	1992	Nursery		
	Tallin	1988	**2019**	Flower bed		
	Neuchatel	1987	2004	Nursery		
Iris orientalis Mill.	nn	1962	1969	Nursery	arrived also as I. ochroleuca L.	valid
	Izmir	1965	**2019**	Iridarium		
	Wroclaw	1983	1992	Nursery	incorrect	
	Wuppertal	1983	**2019**	Alpinum		
Iris persica L.	Wuppertal	1981	1984	Nursery		valid
Iris polakii Stapf.	Cluj-Napoca	1987	2000	Alpinum	incorrect	acc. to Plant list I. sanguinea Donn ex Hornem.
Iris prismatica Pursh	nn	1963	1987	Nursery	incorrect	valid
	Meyrin	1991	1992	Nursery	incorrect	
Iris pseudacorus L.var. pallidiflora Sims	Bruxelles	1960	2004	Flower bed	incorrect (not pale)	valid
Iris reticulata M. Bieb.	Yerevan	1961	1963	Nursery		valid
	Sofia	1969	1970	Nursery		
	Wuppertal	1978	**2019**	Alpinum		

Scientific name from the original inventory-card	**Origin** (botanical garden, city, nursery)	**Year of obtaining**	**Last recorded**	**Collection**	Notes in the original inventory-card	**Nomenclature** acc. to Euro+Med for the respective species; acc. to the Plant List for the rest of the world
Iris sanguinea Donn ex Hornem.	Moscow	1961	1974	Nursery	arrived as I. orientalis Thunb. [Illegitimate]	valid
	Vienna	1963	1972	Nursery		
	Vladivostok	1971	1988	Nursery		
	Moscow	1972	1980	Nursery		
	Oslo	1983	1992	Nursery		
	Barcelona	1983	1992	Nursery		
	Edmonton	1985	1985	Nursery		
	Sofia	1990	**2019**	Flower beds		
Iris sambucina L.	Pallanza	1970	1979	Systematic fields		Probably I. × sambucina L., a syn. of I. × germanica L.
Iris setosa Pall. ex Link	Nancy	1980	1986	Nursery		valid
	Basel	1985	1995	Nursery		
	Vacratot	1985	1988	Nursery		
Iris setosa Pall. ex Link var. nana	Quedlinburg	1988	1991	Flower beds		unknown variety
Iris sikkimensis Dykes	Oslo	1984	1995	Flower beds		acc. to Plant list: unresolved, possibly a hybrid of I. hookeriana × I. kumaonensis
	Athens	1986	1989	Flower beds		
	Bormio	1988	1992	Flower beds	incorrect	
	Oslo	1989	1996	Flower beds	incorrect	
	Meyrin	1987	1993	Flower beds	incorrect	
	Meyrin	1996	1996	Flower beds	incorrect	
	Wisley	1999	**2019**	Iridarium		
	Bormio	2002	**2019**	Iridarium		

3. **"Simple" garden varieties and cultivars of known ancestry**

Various *Iris*-cultivars were obtained through the years in the form of living plants (*planta viva*, incl. rhizomes and bulbs), but also grown from seeds obtained via *Index Seminum* publications. These were, and still are, planted in the flowerbeds of our horticultural displays. As seen in Tab. 3, during the investigated time (since 1963) we had at least 15 named cultivars, out of which today we grow 8 (Photo-table 3). The earliest noted cultivars of this informal group are *Iris pallida* L. 'Variegata' and the cultivars of *I. reticulata* M. Bieb. ("Hyb."), gained in 1963 as gifts from person(s) today unknown.

It is worth mentioning that the seed from the plant varieties of garden origin is "expected" to sprout in "unexpected" – but sometimes interesting – forms, due to the open-air pollination and instability of morphologic/phenotypic traits (as for the irises, the colour(s) and size of the flowers, stripes of the leaves and general height of the plant). Sometimes we keep those plants, though "incorrect" (Tab. 3), and yet they are more similar to the wild species than to the named cultivar (for example, our I. *sibirica* L. 'Phosphorflamme', grown from the seeds, had no "phosphor flame" in it, so we replaced it with a living plant, courtesy of the colleagues from Riga University Botanical Garden).

Tab. 3. Cultivated varieties of different *Iris* species, grown in the Botanical Garden from 1960 to 2019.

Iris - other cultivars:	Origin and year of obtaining*	Last recorded	Collection	Notes and remarks
Iris danfordiae (Baker) Boiss.	Graz - nursery (purchased) 1986	2000	Flower bed	
	Zagreb - nursery (purchased) 2000	2017	Flower bed	
Iris decora Wall. (cult.)	Halle 1997 (seed)	1998	Nursery	arrived as "I. subgenus Nepalensis"
Iris ensata Thunb. 'Kalići's Ghost'	Gift ("Kalići" Nursery, Vodnjan) 2018	**2019**	Flower bed	(unregistered cultivar)
Iris × hollandica	Zagreb - nursery (purchased) 2017	**2019**	Flower bed	I. × hollandica group: I. tingitana × I. xiphium
Iris × norrisii (L.W.Lenz) C.Whitehouse	Utrecht 1993 (seed)	2001	Flower bed	× Pardancanda norrisii L.W.Lenz
Iris pallida Lam. 'Variegata'	Gift (nn) 1963	1969	Nursery	
	Gift (Beograd) 2017	2019	Iridarium	
Iris pseudopallida L. 'Variegata'	Gift (dr. Regula) 2019	2019	Nursery	
Iris reticulata M. Bieb.	Gift (nn) 1963	2000	Flower bed	"horticult. var.?", "cv.", "Hyb." Various forms and colours
	Sopron (purchased) 1985	1985	Flower bed	
	Zagreb - nursery (purchased) 2004	2005	Alpinum	
	Zagreb - nursery (purchased), 2000	2005	Flower beds	
Iris sanguinea Donn ex Hornem. 'Snow Queen'	Porrentruy 1989 (seed)	**2019**	Iridarium	
	Sofia 1990 (seed)	1993	Nursery	
Iris sibirica L. 'Phosphorflamme'	Riga 1990 (seed)	**2019**	Flower beds	incorrect
	Riga 2019	**2019**	Flower beds	correct
Iris sibirica L. 'White Swirl'	Zagreb - nursery (purchased), 2000	2006	Flower beds	
Iris versicolor L 'Mint Fresh'	Przemysl 2006 (seed)	**2019**	Flower beds	
Iris versicolor L. 'Between the Lines'	Przemysl 2007 (seed)	**2019**	Flower beds	
Iris versicolor L. 'Kermesina'	Poznan 1995 (seed)	2004	Flower beds	incorrect
Iris versicolor L. 'Party Line'	Przemysl 2006 (seed)	**2019**	Flower beds	

*if not stated differently, the plants are obtained in the form of bare roots/rhizomes/bulbs.

4. ***Barbata Elatior* ("tall bearded") group of cultivars with complex ancestry**
Since the late 1990s, the largest part of our *Iris* collection has been composed of hybrids, mostly from the *Barbata Elatior* or the "tall bearded" (*I.* × *germanica*- and *I. variegata*- hybrids) group. These are regularly obtained in the form of "bare rhizomes", while their exquisite flower characteristics (brightly coloured and enlarged tepals: upper, called "the standards", and lower called "the falls") could not be achieved from seeds. The oldest still living tall bearded irises that we grow today arrived in 1964 from the famous Czech collection near Prague (Průhonice Park and Chateau with the Institute of Botany), as gifts from the former curator Dr. Milan Blažek to our late Garden Manager Dr. Sala Ungar (1908-1988). These are the tall bearded hybrids *Iris* 'Gaylord', 'Girl Friday', 'Cloud Cap', 'Jane Phillips', 'Goldfackel', 'Olympic Star', 'Pink Plume' and 'Sable Night'. However, most of our recent bearded hybrids were sent during the 1990s by the former Canadian Royal Botanical Gardens (Hamilton, Ontario) curator of Croatian origin, Mr. Charles D. Holetich, to our (now retired) Garden Manager Dr. Ljerka Regula, a vigorous *Iris* collector herself. Our bearded irises are recently displayed to the public mostly in our little Garden *Iridarium*, where we have arranged them according to their flower patterns (Pfeiffer, 2015; http://wiki.irises.org/Main/TallBearded). Some additional data on the bearded irises flower patterns are added as the supplement to Photo-table 4, which depicts the "colours" in our collection.

Tab. 4. Iris (Barbata, Bearded) hybrids, grown from the rhizomes in the Botanical Garden from 1964 to 2019

***Iris* cultivar/hybrid**	**Origin and year of obtaining**	**Last recorded**	**Garden Collection**	Notes and remarks
***Barbata Elatior* (Tall Bearded) group**				
Acrobat	Hamilton 1998	**2019**	Nursery	
Afternoon Delight	Hamilton 2003	2011		
Autumn Leaves	Gift (Mr. Golob)	**2019**	Nursery	
Back in Black	Hamilton 2003	2004		
Banjo Man	Hamilton 2002	**2019**	Iridarium	Stolen in 2004, 1 plant left
	Kalići 2019	**2019**	Nursery	
Before the Storm	Hamilton 1998	**2019**	Iridarium	
Black Prince	Kalići 2019	**2019**	Nursery	
Black Taffeta	Hamilton 1997	1998		
Blue Ensign	Průhonice 1964	**2019**	Iridarium	not entirely to description
Blue Sapphire	Hamilton 1995	**2019**	Iridarium	"mixed with 'Eleanor's Pride'"
	Průhonice 1965	2004		
Blue Shimmer	Průhonice 1964	1964		
Blue Staccato	Hamilton 1998	**2019**	Iridarium	
Bold Encounter	Liepāja 2019	**2019**	Nursery	

***Iris* cultivar/hybrid**	**Origin and year of obtaining**	**Last recorded**	**Garden Collection**	Notes and remarks
***Barbata Elatior* (Tall Bearded) group**				
Bolero	Riga 2019	**2019**	Nursery	Not registered. Hybridizer: Laimonis Zaķis
Brindled Beauty	Cayeux 2019	**2019**	Nursery	
Bronze Bell	Hamilton 1995	2004		
Brussels	Liepāja 2019	**2019**	Nursery	
Buduārs	Riga 2019	**2019**	Nursery	Not registered. Hybridizer: Laimonis Zaķis
Butterscotch Kiss	Hamilton 1999	**2019**	Iridarium	
By Night	Hamilton 2003	2003		
Camelot Rose	Hamilton 1995	2019	Iridarium	
Canadian Northland	Hamilton 1995	**2019**	Flower bed	Not registered. Hybridizer: unknown
Cantina	Kalići 2019	**2019**	Nursery	
Caroline (?)	Hamilton 1997	**2019**	Iridarium	Probably 'Caroline Jane'
Cascadian	Průhonice 1964	1964		
Cayenne Capers	Hamilton 2001	2004		Stolen
Changing Seasons	Cayeux 2019	**2019**	Nursery	
Chippendale	Hamilton 1998	**2019**	Iridarium	
Cloud Cap	Průhonice 1964	**2019**	Iridarium	"mixed with 'Pink Plume' " (?)
Collage	Hamilton 2002	2002		Stolen
Colour Splash	Hamilton 1998	**2019**	Iridarium	not entirely to description
Congratulations	Hamilton 2002	**2019**	Iridarium	Stolen in 2004, 1 plant left
Conjuration	Hamilton 2001	2002		
Crinoline	Hamilton 2003	**2019**	Iridarium	
Dangerous Mood	Cayeux 2019	**2019**	Nursery	
Dark Freeze	Kalići 2019	**2019**	Nursery	
Decolletage	Hamilton 2003	**2019**	Iridarium	Stolen in 2004, 1 plant left
Deft Touch	Hamilton 1998	**2019**	Iridarium	
Depute Nomblot	Hamilton 1995	2000		
Double Ringer	Liepāja 2019	**2019**	Nursery	
Dūmu Roze	Riga 2019	**2019**	Nursery	Not registered. Hybridizer: Laimonis Zaķis
Dusky Challenger	Hamilton 1995	**2019**	Flower bed	
Eagle's Flight	Hamilton 2003	**2019**	Iridarium	Stolen in 2004, 2 plants left
Ecstatic Night	Hamilton 2001	2001		
Eden	Hamilton 1998	**2019**	Iridarium	(did not flower for years)
El Grandee	Hamilton 1998	1999		
Eleanor's Pride	Hamilton 1995	**2019**	Iridarium	mixed with 'Jane Phillips'
	Průhonice 1969	2004		
Elegant Girl	Gift (Mr. Golob)	**2019**	Nursery	
Elizabeth Noble	Průhonice 1964	1975		
Elzee	Hamilton 1998	2004		

Iris **cultivar/hybrid**	**Origin and year of obtaining**	**Last recorded**	**Garden Collection**	Notes and remarks
***Barbata Elatior* (Tall Bearded) group**				
Ethernity	Liepāja 2019	**2019**	Nursery	Not registered. Hybridizer: Laimonis Zaķis
Fabuleux	Cayeux 2019	**2019**	Nursery	
Far Corners	Hamilton 1998	**2019**	Iridarium	
Festive Spirit	Hamilton 1997	**2019**	Iridarium	
Fireball	Hamilton 1995	**2019**	Iridarium	
Firewater	Hamilton 2001	2001		
Flaming Heart	Hamilton 2001	2001		
Fort Apache	Hamilton 1998	2001		
Foxfire	Hamilton 1995	1996		
	Hamilton 1998	**2019**	Iridarium	
Fringe of Gold	Hamilton 1999	**2019**	Flower bed	
Fuji's Mantle	Hamilton 2002	**2019**	Iridarium	
Galilee	Hamilton 1995	**2019**	Flower bed	
Gay Head	Průhonice 1964	1996		
Gaylord	Průhonice 1964	**2019**	Iridarium	
Gentle Rain	Hamilton 1998	**2019**	Iridarium	
Geometrics	Hamilton 1998	2004		
Girl Friday	Průhonice 1964	**2019**	Iridarium	not entirely to description
Gnu Again	Kalići 2019	**2019**	Nursery	
Going My Way	Hamilton 2001	**2019**	Iridarium	
Goldfackel	Průhonice 1964	**2019**	Iridarium	
Gracie Pfost	Hamilton 2001	2001		
Happy Birthday	Hamilton 2001	**2019**	Iridarium	
Helen McGregor	Průhonice 1964	1964		
Henna Accent	Hamilton 1997	**2019**	Nursery	incorrect
High Command	Kalići 2019	**2019**	Nursery	
	Průhonice 1969	2004		Stolen
Horny Lorri	Hamilton 2003	**2019**	Iridarium	incorrect (without 'horns')
Ice Cream Castle	Hamilton 1999	**2019**	Iridarium	
Inca Chief	Hamilton 1995	2004		
Incantation	Gift (dr. Regula)	**2019**	Iridarium	
Jane Phillips	Průhonice 1964	**2019**	Iridarium	
Jewel Tone	Hamilton 1995	**2019**	Iridarium	
Kona Coast	Hamilton 1998	**2019**	Iridarium	
Laced Cotton	Hamilton 2003	2003		
Ladyfriend	Hamilton 1998	**2019**	Iridarium	
	Gift (Mr. Golob)	**2019**	Nursery	

***Iris* cultivar/hybrid**	**Origin and year of obtaining**	**Last recorded**	**Garden Collection**	Notes and remarks
***Barbata Elatior* (Tall Bearded) group**				
Laurie	Hamilton 2002	**2019**	Iridarium	
Lights On	Průhonice 1964	**2019**	Nursery	
Liseré Pourpre	Liepāja 2019	**2019**	Nursery	
Loop the Loop	Hamilton 1997	2001		
Lord Dandy	Liepāja 2019	**2019**	Iridarium	Not registered. Hybridizer: Laimonis Zaķis
Lorilee	Hamilton 2003	**2019**	Iridarium	not entirely to description
Louis D'Or	Gift (Mr. Golob)	**2019**	Nursery	
Louise Watts	Hamilton 1999	1999		
Lynn Hall	Hamilton 1997	**2019**	Iridarium	
Madeira Belle	Hamilton 1999	2004		
Magic Man	Hamilton 1998	2010		
Majska Andromeda	Gift (Mr. Golob)	**2019**	Nursery	
Majska Galaksija	Gift (Mr. Golob)	**2019**	Nursery	
Majska Katleja	Gift (Mr. Golob)	**2019**	Nursery	
Majska Solistka	Gift (Mr. Golob)	**2019**	Nursery	
Majski Brokat	Gift (Mr. Golob)	**2019**	Nursery	
Malaysia	Hamilton 1998	2004		
Maori King	Hamilton 1995	2004		Stolen
Margarita	Hamilton 1997	2000		
Memphis Delight	Hamilton 1998	1999		
Michele Taylor	Hamilton 2003	2004		Stolen
Minisa	Hamilton 1997	2004		
Mirror Image	Hamilton 1997	1999		Stolen
Mod Mode	Hamilton 1998	**2019**	Iridarium	
Modra Obzorja	Gift (Mr. Golob)	**2019**	Nursery	
Olympic Star	Průhonice 1964	**2019**	Iridarium	
Orange Star	Hamilton 1995	1996		
Orchid Brocade	Hamilton 2003	2004		Stolen
Orelio	Průhonice 1964	1964		
Pagan	Hamilton 1999	**2019**	Iridarium	
Pagan Princess	Průhonice 1964	**2019**	Iridarium	incorrect
Persian Berry	Hamilton 1999	**2019**	Iridarium	
Pink Plume	Průhonice 1964	**2019**	Iridarium	
Pretty Carol	Hamilton 1999	1999		
Prototype	Kalići 2019	**2019**	Nursery	
Queen in Calico	Hamilton 1999	**2019**	Iridarium	
Quetta	Hamilton 1998	**2019**	Iridarium	

Iris **cultivar/hybrid**	**Origin and year of obtaining**	**Last recorded**	**Garden Collection**	Notes and remarks
***Barbata Elatior* (Tall Bearded) group**				
Rameses (?)	Bratislava 1983	**2019**	Iridarium	arrived as 'Schneegoettin'
Rapture in Blue	Hamilton 1999	**2019**	Iridarium	
Romantic Melody	Kalići 2019	**2019**	Nursery	
Roy Elliot	East Grimstead 2000	2000		Unregistered
Royal Regency	Hamilton 1999	**2019**	Flower bed	
Royal Sovereign	Průhonice 1969	**2019**	Iridarium	
Rustic Cedar	Hamilton 1998	2004		
Sable Night	Průhonice 1964	**2019**	Iridarium	
Sable Robe	Hamilton 1997	1997		
Showcase	Hamilton 1998	**2019**	Iridarium	
Silent Majesty	Hamilton 1999	**2019**	Flower bed	
Skylab	Hamilton 1998	2004		
Soaring Kite	Gift (dr. Regula)	**2019**	Iridarium	
Sorceress	Hamilton 2001	2001		Stolen
Space Odyssey	Hamilton 1997	**2019**	Iridarium	
Spartan	Hamilton 1998	**2019**	Iridarium	
Spectacular Bid	Gift (dr. Regula)	**2019**	Iridarium	
Swazi Princess	Hamilton 1998	**2019**	Iridarium	
Sweet Musette	Hamilton 1999	**2019**	Iridarium	
Tarn Hows	Hamilton 1995	**2019**	Iridarium	
	Průhonice 1969	1996		
Tea Apron	Hamilton 1999	**2019**	Iridarium	
Tennessee Frost	Hamilton 2002	**2019**	Iridarium	
Theodolinda	Hamilton 2001	**2019**	Iridarium	
Thriller	Hamilton 1998	2004		
Thru Way	Gift (Mr. Golob)	**2019**	Nursery	
Tournament Queen	Průhonice 1969	**2019**	Iridarium	
Tranquility	Hamilton 1999	**2019**	Iridarium	
Victoria Falls	Kalići 2019	**2019**	Nursery	
Wabash	Cayeux 2019	**2019**	Nursery	
	Hamilton 2001	2004		Stolen
Waltzing Princess	Hamilton 1998	**2019**	Iridarium	
White Knight	Kalići 2019	**2019**	Nursery	
Wild Ginger	Hamilton 1999	**2019**	Iridarium	
Wine and Roses	Hamilton 1999	**2019**	Iridarium	
Winner's Circle	Hamilton 2001	**2019**	Iridarium	
Wintry Sky	Kalići 2019	**2019**	Nursery	

***Iris* cultivar/hybrid**	**Origin and year of obtaining**	**Last recorded**	**Garden Collection**	Notes and remarks
***Barbata Elatior* (Tall Bearded) group**				
Zlata Paleta	Gift (Mr. Golob)	**2019**	Nursery	
Zlati Ornat	Gift (Mr. Golob)	**2019**	Nursery	
Z-02/YHORN	Gift (Mr. Golob)	**2019**	Nursery	"yellow, beard extension in the form of horns - Spaceager". Hybridizer: Izidor Golob
Z-03/SAVK	Gift (Mr. Golob)	**2019**	Nursery	"purple, Spaceager-clone". Hybridizer: Izidor Golob
/unknown 1	Gift (dr. Regula)	**2019**	Iridarium	"two-shades of blue"
/unknown 2	Gift (dr. Regula)	**2019**	Iridarium	"purple dots and dashes"
***Barbata Intermedia* (Border Bearded) group**				
Giobe	Kalići 2019	**2019**	Nursery	
Koķete	Riga 2019	**2019**	Nursery	Not registered. Hybridizer: Aleksejs Muhlinkins
Making Eyes	Gift (dr. Regula)	**2019**	Nursery	
Whoop'em Up	Hamilton 1999	**2019**	Iridarium	
Zelta Dieviņš	Riga 2019	**2019**	Nursery	Not registered. Hybridizer: Laimonis Zaķis
***Barbata Minima* (Miniature Tall Bearded) group**				
Consummation	Kalići 2019	**2019**	Nursery	
***Nana* (Miniature Dwarf) group**				
Piccolo	Gift (prof. Borzan)	2018		Stolen

As the results show, since the 1960s, 168 bearded irises have passed through the Garden's *Iridarium* (Tabs. 4 and 5). Today, we grow 122 cultivars (by far the most from the tall bearded group), among which there are quite many that were recently purchased or received as gifts, to represent the groups of flower patterns that we have been missing in the past (for example, Reverse Amoena, Reverse Bitone, Broken, etc.). The bearded group of irises is – during their time of flowering (late April to early June) – particularly eye-catching to the Garden visitors. This is the reason for this collection having been unfortunately impoverished more than once, mostly due to theft, as can be seen in Tab. 4.

Tab. 5. Total numbers of *Iris* taxa grown in Botanical Garden since 1959 and today

***Iris* collection**	**Total number** (1959-2019)	**September 2019**
Indigenous *Iris* species native to Croatia and neighbouring countries, brought from the field excursions as living plants (1959-2019)	24	14
Wild *Iris* species, not-native to Croatia, grown from seeds (1955-2019)	66	25
Cultivated varieties of various *Iris* species (1960-2019)	15	8
Iris (Barbata,Bearded) hybrids, grown from rhizomes (1964-2019)	168	121
Total	**273**	**168**

SOME FINAL REMARKS, FROM THE BOTANIC GARDEN POINT OF VIEW

Wild irises

Although not in the focus of this paper, several nomenclatural changes within the genus *Iris* are worth mentioning due to their possible wider consequences.

As a result of DNA sequencing evidence (Goldblatt & Mabberley, 2005), a long-known horticultural species *Belamcanda chinensis* (L.) Leman. was renamed *Iris domestica* (L.) Goldblatt & Mabb. Morphologically, and traditionally, this was an unusual decision for the Garden visitors (compared maybe best with the infamous "rearrangement" of the well-known American ornamental asters – *Aster novae-angliae* and *A. novii-belgii* – to the unfamiliar and "difficult-to-pronounce" genus *Symphyotrichum*). It is similar for the former monotypic genus *Pardanthopsis* (Hance) L.W.Lenz, today again included in the *Iris* range: *Pardanthopsis dichotoma* (Pall.) L.W.Lenz (Lenz, 1972) has become *Iris dichotoma* Pall. (Barker & Govaerts, 2016) again. How the nomenclatural complications could be sometimes simplified is illustrated by the case of the the child of the two aforementioned genera: genus × *Pardancanda*, a popular example of a genus-hybrid in horticulture. × *Pardancanda norrisii* L.W.Lenz looks a lot like both of its "parents", *Pardanthopsis dichotoma* and *Belamcanda chinensis* – hence the name *Pardancanda*. But, if the ancestors are actually members of the same genus, then a cross between *Iris dichotoma* and *I. domestica* is a much "less spectacular" *Iris* × *norrisii* (L.W.Lenz) C.Whitehouse.

The matter of nomenclature could become even a *legal* issue, when a genus like *Hermodactylus* sensu Miller "returns" to the genus *Iris* Tourn. ex L. (Barker & Govaerts, 2016). As already emphasized, all members of the *Iris* genus in Croatia are statutorily strictly protected in all wild localities – but not *Hermodactylus tuberosus* (L.) Mill., which is a member of its own genus. Changing the nomenclature, the question arises: does *H. tuberosus* – now *Iris tuberosa* L. – automatically become statutorily strictly protected, or should it be excluded, as a single non-protected indigenous iris in Croatia? Does it become "all of a sudden" endangered in any way, just by changing its name (several years ago we published in *Natura Croatica* a paper considering this matter, see Kovačić *et al.*, 2014)? As with some other "historical" taxa, long-known from Croatian and Balkan flora (for example, *Iris croatica, I. illyrica, I. pseudopallida, I.* × *reichenbachii, I. florentina*), today unrecognized by the "western authorities", we shall nevertheless persevere with "*Hermodactylus tuberosus*", until further notice – or some new re-arrangement of the Iridaceae… After all: "What's in a name? That which we call a rose / By any other name would smell as sweet…"

Cultivated irises

It is also worth addressing the matter familiar to all botanical garden employees around the globe, which has actually been a problem since the establishment of the first botanical gardens of the modern world in the mid-1550s: *thefts*, and how to deal with them.

If there is a common target of "plant lovers who cannot resist", it is a huge group of so called "American" (registered by American Iris Society, AIS) bearded hybrids. These healthy, long-living, and – unfortunately? – very attractive (Photo-table 4) plants are exposed to constant threats. Various precautions were taken in our garden and in others during the years (fences, cameras, night-guards…), but except *not planting* the plants in the open, none of them really worked. As many as 48 of the tall bearded "names" were lost over the years: not all by thefts, but most of those stated as such in Tab. 4 vanished during our last larger rearrangement of the collections in 2004. Our *Iridarium* is recently under reconstruction again, while we are planning to put a new fence ("cage", could be a better choice of word) around the iris flowerbeds. That, together with "not keeping all eggs in a single basket" is almost all that we can do to preserve these beautiful (and expensive) plants.

A positive thought, for the end: as I said earlier, I have sorted the bearded hybrids into the groups using the original descriptions from their registration data, as much as I could. However, even in our modest collection, some cultivars "got mixed", ending looking quite similar (for example, observe the members of "Variegata"-group in the Photo-table 4). However, if you "have the *name*" and a plant you are not sure about, it is not so hard these days to identify the existing Tall Bearded iris hybrids using the meticulous descriptions and high-quality photos in the *Iris*-Encyclopaedias and databases. Unfortunately, if you have just a *plant*, but the *name* is missing, it is very hard to find an "appropriate" one among almost 50 000 registered hybrids! However, the huge social network of iris-lovers is very helpful in finding it: our latest example is the misinterpreted cultivar 'Schneegöttin' (should be pure-white, but the flowers of our plants are multi-coloured), for years without a proper name, concerning which I asked for help from one of such groups. In less than two hours, American "iris-aficionados" detected the hybrid: it is very possibly a 'Ramezes' (Photo-table 4)!

CONCLUSION

Since the establishment of our Garden, we have grown at least **273 *Iris* taxa**: from the indigenous species and natural varieties collected in their native localities or grown from the seeds, to the cultivars and hybrids obtained by artificial crossings, gained in the forms of rhizomes or bulbs. Our current collection holds **39** wild taxa (14 Croatian native and 25 introduced), and **129** cultivars (eight garden varieties of cultivated taxa and 121 "bearded" hybrids) – a total of **168**. The oldest iris grown in the Garden today is *I.* × *germanica* (since 1962), followed by several *Barbata Elatior*-cultivars that arrived from Průhonice in 1964.

ACKNOWLEDGES

I wish to thank our retired Garden manager, Dr. Ljerka Regula, for sharing her documentation, personal data and correspondence on the *Iris* collections during the last 50 years, as well for the tall bearded cultivars which she donated to the

Garden from her personal collection. The kindness of Dr Milan Blažek (Průhonice, Czech Republic) and Mr Charles D. Holetich (Hamilton, Canada) in sending and bringing tall bearded *Iris* cultivars in the 1960s and 1990s, respectively, is highly appreciated (Mr. Blažek is still dynamically interested in the plants he donated to the Garden in 1964!). I also want to thank Professor Božena Mitić (Dpt. Of Botany, Faculty of Science, University of Zagreb) for sharing Croatian wild *Iris* samples from her scientific research; Ms. Alison Benski (Schreiner Iris Gardens, Salem, Oregon, USA) for clarifying many questions on the registration of bearded irises; Inese Nāburga, MSc (Botanical Garden of the University of Latvia, Riga) for kindly replacing our missing cultivar and donating original Latvian tall bearded hybrids; Davor Cetina, MSc ("Kalići" Nursery, Croatia) for happily exchanging and donating plant material, as well as sharing many useful cultivation tips; and renown *Iris*-hybridizer Mr. Izidor Golob (Kaniža, Slovenia) for donating valuable tall bearded samples of his own invention. Finally, my colleague Dr. Dubravka Sandev, together with our gardeners, helped me very much in sorting and replanting many *Iris* hybrids and cultivars scattered around the Garden, for which I am most grateful.

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SAŽETAK

Obilje bilja - zbirke Botaničkoga vrta Prirodoslovno-matematičkog fakulteta Sveučilišta u Zagrebu (3): Zbirka perunika (*Iris*, Iridaceae)

S. Kovačić

Nakon analiza zbirki domaće flore toplog staklenika (Kovačić, 2015) te kaktusa i drugih mesnatica (Sandev *et al.*, 2018) na redu je analiza zbirke perunika (rod *Iris*, porodica Iridaceae) koje su, prema dostupnim podacima, rasle u Botaničkom vrtu PMF-a od osnutka 1889. do danas.

Podatci pokazuju da su kroz vrtne zbirke prošle barem 273 svojte perunika: 24 hrvatske vrste i vrste susjednih zemalja (Bosna i Hercegovina, Srbija, Sjeverna Makedonija) donošene s terenskih istraživanja (*planta viva*) i sađene na kamenjare – biljnogeografske vegetacijske skupine (krška, mediteranska i submediteranska) s domaćom florom; 66 ostalih divljih vrsta perunika, uzgajanih iz sjemenki naručivanih putem *Index (Delectus) Seminum*-mreže razmjene između botaničkih vrtova; 15 ukrasnih kultivara, varijeteta i križanaca poznatih vrsta, dijelom uzgajanih iz sjemenki, a dijelom iz podanaka (rizoma) ili lukovica; te 168 križanaca složenog podrijetla iz skupine tzv. „bradatih" (*Barbata*, Bearded) perunika, uzgajanih isključivo iz podanaka.

S krajem rujna 2019. u Botaničkom vrtu živjelo je 168 svojti perunika u nekoliko zbirki (kamenjare s domaćom florom, sistematsko polje, klijališta, ukrasne površine, Iridarij).

Photo-table 1

Six indigenous Croatian *Iris*-species, grown in the phytogeographical rockeries with indigenous flora since the 1960s, brought from their native localities. *Iris variegata* (bottom right) is not currently in our collection. Details in Table 1. Authors: Mirna Kirin (MK) and Sanja Kovačić (SK).

Iris croatica (SK)

Iris illyrica (MK)

Iris pallida (SK)

Iris sibirica (SK)

Iris graminea (MK)

Iris variegata (MK)

Photo-table 2

Nine wild *Iris*-species, grown from seed in the nurseries, systematic fields and flowerbeds. *Iris biglumis* (middle right) is not currently in our collection. Details in Table 2. Authors: Mirna Kirin (MK) and Sanja Kovačić (SK).

Iris bulleyana (SK)

Iris crocea (SK)

Iris sikkimensis (MK)

Iris halophila (MK)

Iris sanguinea (SK)

Iris biglumis (MK)

Iris (halophila ssp.*) sogdiana* (MK)

Iris orientalis (I. ochroleuca, MK*)*

Iris kaempferi (MK)

Photo-table 3

Five *Iris* varieties, cultivars and hybrids of different taxonomic ranks, grown from the seed or obtained as living plants, planted in the nurseries, systematic fields and flowerbeds. *Iris sibirica* 'White Swirl' (upper right) and cultivars of *I. reticulata* (bottom left) are not currently in our collections. *Iris* × *germanica* (bottom right), once considered to be indigenous in Croatia, is the oldest iris still living in our collection (since 1962). Details in Table 3. Authors: Mirna Kirin (MK) and Sanja Kovačić (SK).

Iris sanguinea 'Snow Queen' (SK)

Iris sibirica 'White Swirl' (MK)

Iris x hollandica cult. (MK)

Iris reticulata cult. (MK)

Iris x germanica cult. (MK)

Photo-table 4 (abcd)

Thirty-five from a total of 168 *Iris* Barbata (bearded) hybrids grown in our collection, arranged to represent eight large groups of these cultivars, assembled by their flower patterns. A careful observer will detect sometimes very subtle differences among individual groups and hybrids. Details in Table 4. Authors: Mirna Kirin (MK) and Sanja Kovačić (SK).

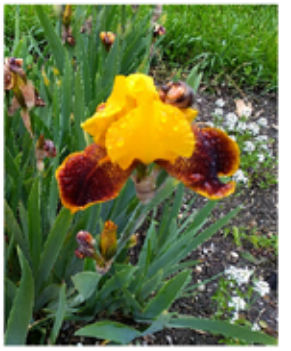
***Amoena*-group**:
Iris BE 'Gaylord' (MK)

***Debbie Rairdon*-group**:
Iris BE 'Fringe of Gold' (MK)

***Emma Cook*-group**:
Iris BE 'Fuji's Mantle' (SK)

***Variegata*-group**:
Iris BE 'Maori King' (MK)

***Variegata*-group**:
Iris BE 'High Command' (MK)



***Variegata*-group**:
Iris BB 'Whoop'em Up' (SK)

***Bicolor*-group**:
Iris BE 'Edith Wolford' (MK)

***Bicolor*-group**:
Iris BE 'Olympic Star' (MK)

***Bicolor*-group**:
Iris BE 'Wine and Roses' (MK)

***Bicolor*-group**:
Iris BE 'Color Splash' (SK)

***Bitone*-group**:
Iris BE 'Camelot Rose' (SK)

***Bitone*-group**:
Iris BE 'Député Nomblot' (MK)

***Bitone*-group**:
Iris BE 'Goldfackel' (SK)

***Bitone*-group**:
Iris BE 'Sweet Musette' (MK)

***Bitone*-group**:
Iris BE 'Sable Night' (MK)

***Self*-group**:
Iris BE 'Foxfire' (MK)

***Self*-group**:
Iris BE 'Pink Plume' (MK)

***Self*-group**:
Iris BE 'Before the Storm' (SK)

***Self*-group**:
Iris BE 'Jane Phillips' (SK)

***Self*-group**:
Iris BE 'Eleanor's Pride' (SK)

***Self*-group**: *Iris* BE 'Eleanor's Pride' – a 'tricolor' clump (MK)

***Self*-group**:
Iris BE 'Spartan' (SK)

***Blend*-group**:
Iris BE 'Chippendale' (SK)

***Blend*-group**:
Iris BE 'Laurie' (SK)

***Blend*-group**:
Iris BE 'Pagan' (MK)

***Blend*-group**:
Iris BE 'Banjo Man' (MK)

***Blend*-group**:
Iris BE aff. 'Rameses' (SK)

***Blend*-group**:
Iris BE 'Butterscotch Kiss' (MK)

***Plicata*-group**:
Iris BE 'Kona Coast' (MK)

***Plicata*-group**:
Iris BE 'Wild Ginger' (MK)

Photographs:

All photographs in Photo-tables 1, 2, 3 and 4abcd are originals, taken between 1999 and 2019 in the collections of the Botanical Garden of the Faculty of Science (University of Zagreb) by Mirna Kirin (MK), member of the "Friends of Botanical Garden" group, and Dr Sanja Kovačić (SK), senior Garden curator.

***Plicata*-group**:
Iris BE 'Waltzing Princess' (SK)

***Plicata*-group**:
Iris BE 'Eagle's Flight' (MK)

***Plicata*-group**:
Iris BE 'Blue Staccato' (SK)

***Plicata*-group**:
Iris BE 'Crinoline' (SK)

***Plicata*-group**:
Iris BE 'Queen in Calico' (SK)

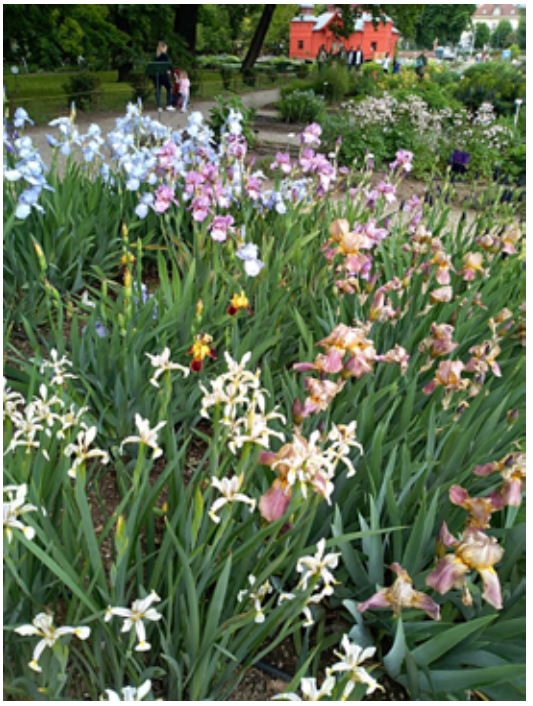
***Plicata*-group**:
Iris BE 'Winner's Circle' (MK)

Short description of the tall bearded *Iris*-groups depicted in Photo-table 4abcd, assembled according to their flower patterns (Pfeiffer 2015):

"**Self**" – flower tepals (standards and falls) are in the same colour; "**Bitone**" – tepals are in different shades (tones) of the same colour, while the falls are darker; "**Bicolor**" – standards are in different colour from the falls; "**Amoena**" – specific type of bicolor, where the standards are white and the falls are coloured; "**Variegata**" – a specific type of bicolor, where the standards are yellow(ish) and the falls are brown(ish) to purple(ish); "**Emma Cook**" – derived from amoena/bicolor breeding, but with just a band of pigmentation around the border of the falls; "**Debbie Rairdon**" – coloured standards and white falls with a band of standard colour around the edges; "**Blend**" – combination of two or more colours which are smoothly or unevenly mixed; "**Plicata**" – light ground colour with anthocyanin pigment stippled, dotted, or stitched around the margins of tepals.

Kratak opis skupina križanaca bradatih perunika (*Barbata*, "Bearded") prikazanih u foto-tabli 4abcd, prema uzorcima boja cvjetova (Pfeiffer, 2015):

"**Self**" – ocvijeće ("standards" = gornji listovi ocvijeća, neformalno također zvani i "latice", te "falls" = donji listovi ocvijeća, "lapovi") je jednobojno; "**Bitone**" – ocvijeće je različitih tonova (nijansi) iste boje, s time da su donji listovi tamniji; "**Bicolor**" – gornji i donji listovi ocvijeća različitih su boja; "**Amoena**" – skupina dvobojnih kultivara kojima su gornji listovi ocvijeća bijeli, a donji žuti do smeđi; "**Variegata**" – skupina dvobojnih kultivara kojima su gornji listovi žuti, a donji smeđi do purpurni; "**Emma Cook**" – skupina križanaca između „amoena" i „bicolor" skupina, koje oko donjih listova ocvijeća nose tek tanak prsten u boji gornjih listova; "**Debbie Rairdon**" – križanci obojenih gornjih listova ocvijeća i bijelih donjih, koji rubom nose tanak prsten u boji gornjih listova; "**Blend**" – kombinacija dviju ili više boja koje se jednolično ili nejednolično stapaju ili miješaju; "**Plicata**" – križanci svijetle temeljne boje (bez antocijanina) preko koje je rubom listova ocvijeća nanesen uzorak tamnije (antocijaninske) boje u obliku točkica, crtica ili „šavova".



Details from the Iris-collections of the Botanical Garden, Faculty of Science, University of Zagreb. (SK, May 2019)