

Conservation project of domestic cultivars of ornamental perennial plants in Prague Botanic Garden

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Abstract:

Domestic cultivars of plants, both ornamental and agricultural, belong to national heritage as well as art, literature, architecture and nature. An imposingly vast variety of ornamental perennials, alpines and annual plants were bred in Czech Republic during the 20th century, especially between 20's and 40's. However most of these hybrids were lost during and after the World War Two.

The project to conserve domestic cultivars of ornamental perennial plants started in Prague Botanic Garden (PBG) in 2005. The aim is to keep, conserve and document, as many as possible hybrids of ornamental perennials, which were bred during 20th century and which are also being bred in the present day. About 300 domestic cultivars have been collected so far. The main part is comprised by the *Hemerocallis* collection (about 120) and the *Saxifraga* collection (150).

This project is open for all persons and institutions involved in similar activities. A good promising cooperation was established especially with the Czech Perennial Society. Because it is relatively difficult to keep all collections in one place, it is necessary to cooperate with more botanic gardens – to keep parallel collections. The major problem is the determination of plants and to keep them free of diseases and pests. It is also important to evaluate new hybrids and cultivar characteristics and thereby help growers and florists with orientation towards a new plant assortment. Efforts to increase public awareness about genetic resources and educate the nation to conserve its national heritage are of no less value.

Goals and methods:

The conservation project was started in Prague Botanic Garden (PBG) in 2005, so it is still in its infancy. The project is focused especially on hardy ornamental plants cultivated in outdoor conditions and propagated vegetatively. The main aim is to reduce the number of lost of domestic hybrids and cultivars of ornamentals.

Aims of projects:

- Review of Czech ornamental plants breeding
- Description of individual hybrids from available literature
- Cooperation with professional and non-professional growers and public
- Obtaining of available assortments of hybrids (*continuously*)
- Cultivar verification (in conjunction with determination experts and breeders)
- Evaluation of assortment and completion of missing information about hybrids

A main part of project is focused on an important group of hybrids, which were bred in Czech countries in 20th century and which are still being bred so far. About 300 domestic cultivars have been collected so far. The main part is composed by the *Hemerocallis* collection (about 120) and the *Saxifraga* collection (150). The rest consists of some cultivars of *Dianthus*, *Leucanthemum*, *Phlox*, *Aster*, *Chrysanthemum*, *Lavandula*, *Primula*, *Iris*, *Thymus* and *Pinus* (Figures 1 & 2).



Figure 1. *Saxifraga x megaseaeiflora* 'Karel Čapek' (bred by F.Holenka, 1975)



Figure 2. *Leucanthemum vulgare* 'Česká píseň' ('Czech Song') (bred by Vejtasa, cca 1926)

Important cultivar groups of ornamental perennials bred in Czech Republic:

'**Chrysanthemum of Slapanice**' ("Šlapanické chryzantémy" in Czech language). This group was bred by Jan Dvořák in Slapanice city (Southern Moravia). He got more than 400 hybrids; many of them were very well regarded in Japan for example. This is very good example of the importance of a conservation project. Mr. Dvořák died last year unfortunately. He did not widely distribute his plants during his life to plant nurseries or to private collectors. Now, it seems that majority of his plants were not adequately conserved by his family and almost all are lost. There are two remaining opportunities to obtain at least some plants; to solicit them in public horticultural articles or to search among private chrysanthemum collections.

'**Carnation of Klatovy**' (Klatovské karafiáty). Its history of cultivation spans almost 200 years. Breeding started in the beginning of 19th century. The golden period came on the cusp of the 20 century, when breeders got many awards at international exhibitions (golden medal award in Vienna 1892, Brussels 1893, Antwerp 1894, Amsterdam 1895, Lyon, Hamburg).

Current situation: There is a specialized club of Klatovy carnation growers in Klatovy city, however this group has just a few members now. They grow about 60 varieties of the Klatovy Carnation. We are planning to conserve these varieties in PBG during next two years, as well as promoting this carnation by hosting their exhibition in our BG in 2008.

'**Czech breeding of Saxifraga**'. Saxifrages are very popular among Czech alpine growers. Breeding started in the twenties of the last century and continues until these days. Breeders have focused especially on the *Porphyron* group (formerly the *Porophyllum* and even earlier known as *Kabschia*). There are about 200-300 identified varieties to date. Many of them are very well received in UK, Germany, Netherlands, or Switzerland. And some European alpine and perennial nurseries offer them in their assortment. Because growing alpinists is still quite popular, many of these hybrids are available relatively without problem. The saxifrage collection in our BG includes about 130 varieties and it is increasing. We are looking for a partner BG, to keep parallel collection of these hybrids.

'**Czech breeding of Hemerocallis**'. Several private breeders focused on the daylily. Hybrids are not very extensive among nurseries or private collectors. PBG got a collection of 120 varieties in 2006.

Current Czech perennial breeding

The Silva Tarouca Research Institute for Landscape and ornamental gardening in Průhonice. (*Dahlia*, *Chrysanthemum*, *Primula*, *Pelargonium*). The collection of Czech hybrids of *Rhododendron* is kept in this institute as well.

Amateur growers – *Dahlia*, *Lilium*, *Hemerocallis*, *Gladiolus*, *Saxifraga*

Questions and possible problems

Keeping plants healthy or how to keep plants for longer periods

This question is strongly connected with the plants' state of health. Varieties of plants should be mostly propagated vegetatively, so some could have a problem with viruses or bacterial diseases. It is important to keep parallel collections. Cooperation with private growers and nurseries is an advantage of project like this in our experiences. Plants must 'live' and not be hidden away in botanic gardens or gene banks (this can happen if the concrete cultivar is not protected by law or patent, however, in old domestic varieties there is no patent protection).

Trueness of names and cultivar verification

Documentation of old varieties is generally not very good. It is quite often very difficult to find a true cultivar name. In many cases it is necessary to build on information given by growers or donators and then try to check this information in archives and old documents (if they exist).

Name of variety	Breeder/Date	Current status
<i>Lupinus polyphyllus</i> 'Vejtasovy variace'	Vejtasa, 20's of 20 th century	No information
<i>Lavandula angustifolia</i> ssp. <i>angustifolia</i> 'Pálava'	middle of 20 th century	missing?
<i>Heuchera x pruhoniciana</i>	Zeman, 1927	very rare these days
<i>Primula x pruhoniciana</i>		does not exist in original form probably
<i>Phlox paniculata</i> 'Paní Milada Stomeová'	Koniferové školky Žehušice 1929	probably does not exist
<i>Phlox maculata</i> 'Sněžka'	Vejtasa, 1932	probably does not exist
<i>Phlox x arendsii</i> 'Důbravka', 'Hana'	Vejtasa, 1935	probably does not exist
<i>Penstemon x pruhoniciana</i>	Zeman, 1927	probably does not exist
<i>Dianthus plumarius</i> 'Her Majesty', 'Bezděz', 'Květů koš', 'Sláva květů', 'První z květů'		Some hybrids are still in cultivation
<i>Convallaria majalis</i> 'Z Jaroměře'	Černý, 1954	probably does not exist

<i>Geum</i> x <i>hybridum</i> 'Inspektor Zeman'	Vejtasa, 1942	probably does not exist
<i>Geum</i> x <i>pruhonicianum</i>		probably does not exist
<i>Aster dumosus</i> 'Paleček', 'Střízliček', 'Bílý obláček', 'Ledňáček'	Vejtasa, 1938-1940	some hybrids are still in cultivation
<i>Aster novii-belgii</i> 'Martin Fulín', 'Praga'	M. Fulín, 1900	do not exist
<i>Delphinium</i> x <i>cultorum</i> 'Svatý Václav'	Varáček, 1932	do not exist
<i>Delphinium</i> x <i>cultorum</i> 'Vlkovo Bílé'	Frimmel, 1957	do not exist
<i>Dahlia</i> x <i>variabilis</i> several hundreds hybrids in 20's and 30 's of 20 th century.	Several small private breeders	old hybrids do not exist

Table 1 Examples of formerly well known domestic hybrids and their current status

Results

Current situation in PBG

Hemerocallis sp.	ca 120 hybrids
Saxifraga group Porphyron	ca 130 hybrids
Iris sp.	10 hybrids
Leucanthemum spp.	'Sněhurka', Česká píseň'
Aster dumosus	'Paleček' (?), 'Viktor'
Primula x polyantha	'You and Me' (Plavcová, 2003)
Lavandula angustifolia	'Beta', 'Krajová'
Dianthus hybr.	'Hvězda Moravy'

Thymus	'Jiskra'
Phlox subulata	'Alena', 'Karkulka'
<i>Pinus mugo</i>	about 10 selected clones

PBG selection about 10 interesting hybrids of perennials (*Hosta*, *Monarda*, *Echinacea*)

We are expected to enlarge our domestic hybrid collection of 'Chrysanthemum of Slapanice' and 'Carnation of Klatovy' in the near future, hopefully in 2007 or 2008.

Other collections of domestic hybrids of ornamentals:

Collection of some domestic varieties of *Dahlia x variabilis*, *Gladiolus* spp., *Pelargonium zonale*, *Primula x polyantha*, *Chrysanthemum* (Multiflora group), *Rhododendron* and some other woody species is kept in The Silva Tarouca Research Institute for Landscape and ornamental gardening in Průhonice.

Several collections of *Lilium*, *Hemerocallis*, *Dahlia* and *Saxifraga* exist in gardens of private growers or breeders.