

Preservation Assortments, Database of the Archive of Old Varieties and Database of Gene Pool Areas

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Introduction

Between 1997 and 1998, the Czech Union for Nature Conservation (hereinafter SOP) established a professional programme entitled: "Regional Fruit Tree Varieties" (Krajové odrůdy ovocných dřevin). Over the course of time, this programme has focused on the preservation of all old varieties typical for Bohemia, Moravia and Silesia. At the same time, it started to address the protection of the avenues and orchards of standard fruit trees as a distinct feature of the environment in the landscape of the Czech Republic. After the year 2000, the programme was opened to other non-governmental organisations (NGOs) and intensive co-operation with state nature conservation also began.

From the outset, old trees were mapped within the projects of the professional programme with the aim of capturing the diversity of the varieties present in the landscape.

The establishment of gene pool areas, which are intended mainly to preserve the varieties themselves, started at practically the same time. Within the SOP, this exclusively concerns extensive orchards of standard and long-lived fruit trees, which at the same time serve as model examples for the establishment and maintenance of such orchards. The varieties found during mapping were transferred to these gene pool areas.

As early as the late 1990s, the establishment of functional plantations had already begun. Their main functions are fruit production, support for biodiversity in the modern simplified landscape as well as other non-production functions (for example, anti-erosion protection, preservation of the typical appearance of the landscape, etc.). In addition to the establishment of new plantations, already existing orchards are also being preserved within the scope of SOP projects. The objective is not only to extend the life of old plantations, but also to provide people with enjoyment from quality fruit from properly grown trees.

Since 1998, events have regularly been organised for both the general and professional public. Practical seminars and professional conferences were first organised in the White Carpathians, later moved to Dívín, and are now being organised at various locations throughout the Czech Republic.

Between 1999 and 2016, three specialised practical methodologies were gradually published. In the period from 2012 to 2015, the Nature Conservation Agency of the Czech

Republic built on these standards with work on two normative standards. SPPK C02 003 Planting of Fruit Trees in the Agricultural Landscape deals with the establishment of new plantations of stem forms and care for them over a period of 10 years after planting. SPPK C02 005:2016 Fruit Trees Plantation Care addresses care of adult fruit trees in the open agricultural landscape.

The following was prepared in 2011: A concept of the further direction of the Programme for Preservation of Regional Fruit Tree Varieties, which represented a certain milestone of the programme. It mainly raised the question: *"What should actually be the highest objective of the Programme for Preservation of Regional Fruit Tree Varieties?"* It provided a simple answer to a simple question: *"A variety which was threatened with extinction is no longer endangered and is preserved"*. It further defined three levels for the preservation of varieties:

"1. The variety is grown in several gene pool areas in a quantity of at least 5 trees throughout the Czech Republic."

Reaching this first level ensures that the variety will not become extinct with the disappearance of the last tree in the open landscape, but it still does not mean the reintroduction of the variety.

"2. The variety is stably propagated in nurseries"

A clear objective of the SOP programme is to assist in the commercial propagation of the largest possible number of varieties in a manner that makes them more easily available to persons interested in growing them.

"3. The variety is sought-after by the public - at least several dozen trees are planted annually in functional plantations."

The offer of nurseries does not mean anything if awareness of a variety is not revived among the general plant-growing public. Revival of demand for a variety is the most important but also most difficult objective of the programme.

In order to realistically attain these three preservation levels for the largest possible number of varieties, the concept for the period from 2011 to 2021 outlines the priority of individual activities in the preservation of varieties:

1. Preparation of an assortment of varieties for preservation means making a decision as to which varieties shall be preserved
2. To cover the territory of the Czech Republic with a network of well-secured gene pool areas managed by the SOP and other subjects willing to engage in long-term co-operation.

2.1 To compile lists and numbers of grown varieties

- 2.2 To ascertain the current condition of the areas and trees
- 2.3 To estimate their prospects (property relations, staffing situations and financial situations)
- 2.4 To implement a sustainable system for recording data from the gene pool areas + important trees mapped in the open landscape.
- 3. To provide general support for the stable production of saplings of the assortment of varieties for preservation in nurseries.
- 4. To achieve a stable supply of saplings to functional areas established and treated in a quality manner.
- 5. To create a stable range of activities focussing on work with the public

Assortment of Varieties for Preservation

As the highest priority in 2011, the concept for the creation of an assortment of fruit varieties for preservation was stipulated, i.e. a definition of the subject matter of efforts to preserve the varieties.

Between 2012 and 2013, methodology for the establishment of assortments for preservation was created and subsequently certified by the Ministry of Agriculture of the Czech Republic.

According to this, a team of authors headed by Ing. Stanislava Božka PhD. with the aid of a nationwide network of co-workers prepared an initial range of varieties, which was divided into five assortments:

- 1. Priority Assortment**
- 2. Specialised Assortment**
- 3. Acceptable Assortment**
- 4. Local Assortment**
- 5. Research Assortment**

These five assortments were created mainly for apple, pear, cherry, plum and apricot trees. For almond, medlar, chestnut and English walnut trees, only some assortments have been compiled (for example, only a local and specialised assortment exists for chestnut trees). Rowan trees, service trees and mulberry trees have also been included in assortments for preservation, although the Act does not include them among fruit species. A variety that is not classified in any of the five assortments is certainly not inferior. However, it is usually preferable for efforts at their preservation to be concentrated in its country of origin.

Priority Assortment

This contains varieties with the highest protection priority. These include varieties which originated directly within the Czech Republic up to about 1950, but also comprise foreign varieties grown long-term in our country (for a period longer than 200 years), if they have won substantial popularity, are widespread and have helped to create the appearance of our landscape.

Their use in projects is highly desirable anywhere with suitable growing conditions. In the event that regionalism opposes them, this is only a recommendation of the parts of the Czech Republic in which they should be predominantly planted. It is however possible to include them in care projects at a planting site or in plantations throughout the country.

Specialised Assortment

This contains varieties with a high protection priority.

It concerns varieties of foreign origin. They are tested over a longer growing period and possess growing or technological properties that we will not find in varieties in the priority assortment. Their usage is desirable especially where it is not possible to use priority assortment varieties, for example, due to poorer growing conditions. For plum and apricot trees, the specialised assortment exceptionally also includes more modern varieties with a high tolerance to pox.

Acceptable Assortment

These are varieties with the lowest protection priority.

There are many foreign varieties that appeared in our country in the 19th century and even relatively modern domestic varieties suitable for growing on exuberant rootstock.

Their usage in projects is possible, but least preferred. They constitute a suitable alternative in case of a shortage of the priority, specialised local assortments.

In preservation assortments, each of the priority, specialised and acceptable assortment varieties are supplemented with pomological synonyms, the altitude at which the variety may be grown and its country or area of origin. For plum, apricot, peach and almond trees, sensitivity to originators of pox is also specified.

Local Assortment

The varieties with the highest protection priority in a precisely specified area are concentrated here. Each of the local assortment varieties includes an entry on the region where it may be grown which is supported from public funds. They may not be grown in a

different part of the Czech Republic. Regionalism is strict here. Apart from the defined areas, they may exceptionally be supported from public funds in gene pool areas only. Synonyms, relevant altitudes above sea level and, in the case of stone fruit, sensitivity to originators of pox shall be supplemented gradually as soon as the information is available. We anticipate gradual expansion of local preservation assortments thanks to co-operation with regional pomologists.

Research Assortment

Research assortments contain varieties that have not been adequately examined to date and are often specified under working names. These may be, for example, findings from the mapping projects, with a very interesting taste and unusual technological or growing properties. This may concern a regional speciality or a less familiar garden variety.

Research assortments also include varieties that are briefly mentioned in old pomologies, but only such which were at least regionally significant.

In summary, it can be said that their position is unclear and does not allow for categorisation in another assortment. Research assortments have been set-up to ensure that these points of interest are not forgotten and further information about them is collected. Varieties in research assortments can only be supported from public funds in specialised projects in gene pool areas or in projects for their preservation in the locations where they were found.

In their essence, research assortments are a “through-flow system” where the varieties should enter at one end and exit from the other.

The preservation assortments were published in 2016 as Annex 4 to standard SPPK C02 003. The specified standard or an assortment itself can be downloaded in spreadsheet format from the address <http://www.stareodrudy.cz/ovocnarska-literatura/>

Database of the Archive of Old Varieties

Preservation assortments define specific varieties, which should preferentially be established in the agricultural landscape of the Czech Republic. But there is a minimum of space in them for publishing additional necessary data on growing conditions, agricultural characteristics or even the history of the variety. For this reason, a select database of the Archive of Old Varieties has been prepared as basic information to support preservation assortments.

It is available free-of-charge on the Internet at the address:

<http://www.stareodrudy.cz/archiv-starych-odrud/>. It offers the opportunity to select from

several hundreds of pear, apple, cherry, sour cherry, apricot and plum varieties. For more clear organisation, the 80 selection criteria are divided into groups, which are known as selection cards. Visitors can therefore choose whether to select according to symbols, which relate to the name, origin, fruits, harvest, use, fruitfulness, tree, care, flowering, site, soil, disease susceptibility, assortment categorisation, and availability of the variety, or simply according to the photo gallery. Selections can be made according to one or all criteria, as required. Search terms are highly simplified in order to be comprehensible to amateurs. The selected variety is supplemented with a description including photo documentation from the database. As well as the selection criteria, notes on the unique characteristics of each variety are displayed in the description for each group of symbols. This description represents the first (simplest) level of information about the variety. The database further allows users to download scanned descriptions of the individual varieties as published in pomological literature. This is professional literature which is of especially high value for amateur researchers. For the present, this contains descriptions from pomologies where we have successfully resolved copyright issues. Specifically, these descriptions are taken from “Moravian Fruit” (Moravské ovoce) by František Suchý, “Bohemian Fruit” (České ovoce) by František Thomayer, a monograph of the same name by Jan Čížka, and “Folk Pomology” (Lidové pomologie) by Josef Vaněk. With the permission of Ing. Václav Tetera, scans of his descriptions from the book “Fruits of the White Carpathians” (Ovoce Bílých Karpat) and several other sources are available for download here. With time, we hope to successfully expand the range of descriptions of varieties which can be published here. We have huge interest mainly in information from low-cost anthologies, theses and dissertations and other minor sources which are difficult for interested parties to obtain.

We are also gradually adding hyperlinks for varieties to the professional websites focussing on the issues of documenting varieties. This concerns almost exclusively foreign language websites and the information contained within them is therefore also easily accessible to true enthusiasts.

Database of Gene Pool Areas

As already stated, the primary objective of gene pool areas is to preserve the varieties as they are. For an orchard to become a gene pool area, it must fulfil the requirements of the particular methodology for Inventory of Gene Pool Areas and Positions. The most important requirements include the appointment of an administrator, compilation of the characteristics of the area and implementation of the records of the position.

In 2014, SOP was integrated into the National Database of Gene Pool Areas and Plantations, in the establishment or maintenance of which it was not involved. The link: <http://www.stareodrudy.cz/genofondove-plochy/> leads to the gateway to the database of gene pool areas. It is the second application in support of preservation assortments, this time focussing on physical contact with the old varieties. We create a possibility for growers, architects, nursery operators and fruit processors to get acquainted with the varieties in various conditions.

This is again a select database. It contains the categorisation of both publicly accessible as well as private collections. Data from publicly accessible areas is fully displayed on a dynamic map on the portal Mapy.cz (you can select a general, tourist or orthophotomap). Areas inaccessible to the public are not shown on the map and the user is notified of this fact by a message on the display. However, users can obtain a complete data printout of the gene pool area including the contact details of the area administrator. Users can subsequently make an appointment with the area administrator for an individual visit. The selection criteria for areas are: accessibility of the areas, an administrator, altitude, climate, soil conditions, the region of the Czech Republic, and species and varieties present. It is possible to obtain a complete printout of the ecological characteristics of an area.

The positions of gene pool areas can be filtered according to species and varieties, preservation assortments and the achieved fruitfulness.

The database of gene pool areas is mutually linked to the Archive of Old Varieties. Users can therefore acquaint themselves with the properties of a variety from the Archive of Varieties and also immediately find out where it is grown. Conversely, if a variety in the gene pool area catches their interest, users can look up details about it in the Archive of Varieties.

Conclusion

SOP is attempting to proceed according to its own concept for the preservation of old varieties in the landscape for the period from 2011 to 2021. At around halfway through this period, the Preservation Assortments which define the varieties that should be re-planted or provided with higher protection in the Czech Republic are ready.

Further data is being prepared and gradually added to the Archive of Old Varieties, a database, which allows for the selection of a suitable variety for a given growing plan.

A network of gene pool areas, where interested parties can get acquainted with the properties of a variety directly at the growing site, is gradually being built. Gene pool areas

also have a publicly accessible database, where interested parties can find out more about the conditions of a given area and the varieties located there.

All the members of the team of authors of the database and preservation assortments will be highly thankful for their application in practical life. We firmly hope that this will lead to an improvement on previous practice where everything was planted and preserved from time to time, regardless of its cultural and historical value, ecological demands and common sense. At the same time, we welcome references to those things which have been helpful or areas where we can improve in the future.

References to cited literature:

The sources stated below can be downloaded in pdf. format from the website:

<http://www.stareodrudy.cz/ovocnarska-literatura/>

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*LÍPA, Martin. Koncepte dalšího směřování programu Záchrana krajových odrůd ovocných dřevin. Koncepte odborného programu českého svazu ochránců přírody. Praha: český svaz ochránců přírody, 2011.

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LÍPA, Martin. Inventarizace genofondových ploch a pozic. Metodika odborného programu českého svazu ochránců přírody. Praha: český svaz ochránců přírody, 2017.

Summary of Content:

Preservation Assortments, Database of the Archive of Old Varieties and Database of Gene Pool Areas. SOP is attempting to proceed according to its own concept for the preservation of old varieties in the landscape for the period from 2011 to 2021. **Presentation of the concept for the further development of the Programme for Preservation of Regional Fruit Tree Varieties for the period from 2011 to 2021 prepared by the Czech Union for Nature Conservation (SOP).** The presentation of **Preservation Assortments of fruit trees as the most important activity of this**

concept, and the sources of information available on the internet - the Archive of Varieties and Database of Gene Pool Areas. The database of the Archive of Old Varieties should enable the selection of a suitable variety for a particular growing plan.



Group planting of fruit trees has been a significant component of the of the appearance of the Czech landscape for several hundred years.



A mighty solitary tree of the Dutch Boskoop Variety. The variety is a typical member of the acceptable apple tree assortment. Although it is not an original Czech variety, it is very widespread in all traditional fruit growing areas.



The Kopore ka variety that originates from the Most region is assigned to the priority assortment with a recommendation for the Ústí nad Labem Region. Thanks to its excellent taste and ability to endure almost until Christmas, it was widespread throughout the Czech Republic and abroad in the 19th and 20th centuries.



The domestic plum clearly belongs to the priority variety assortment. However, it cannot be planted in areas widely afflicted by plum pox.



The excellent Scottish Galloway variety is known in the Czech Republic as Smlíček vzácný. It has been categorised in a special assortment because it is suitable for growing in areas at higher altitudes.



The Doupovská černá cherry variety is categorised in the research assortment. As soon as a pomological description is available, it shall be transferred to the local assortment with strict Doupov Mountains regionalism.



Jeáb oskeruše is an example of a species for which certain assortments were not compiled. One of the reasons is that oskeruše is historically widespread only in the warmer parts of Moravia and the Central

Bohemian Uplands. A clone of Radobýl jihozápad from the local assortment for the Central Bohemian Uplands.



The compilation of the preservation assortment was preceded by about 10 years of intensive work by numerous mappers and a range of amateur and professional pomologists. On the left Ing. Miloslav Láška, long-term staff member of Sempra Litoměřice. In the background Ing. Ondřej Dovala and on the right Ing. Stanislav Boček PhD. Both belong to a group of modern pomologists who specialise in work with old varieties. (Departmental Meeting, SOP 2014)



IMGP4564.jpg Old varieties are valuable mainly for the diversity of their colours, tastes and aromas.

Profile of the author:

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Co-founding member of EC Meluzína RCAB.

Since 1998, he has been actively involved in preserving the presence of standard fruit trees in the landscape. Within the scope of its activities, the ecological centre Meluzína RCAB establishes and maintains fruit tree avenues and orchards, co-operates with the owners of naturally valuable sites and participates in their maintenance.

Since 2011, he has also been the professional guarantor of the SOP Programme: Regional Fruit Tree Varieties.

In this position, he co-ordinates the mapping of trees in the landscape within the Czech Republic, methodically supports the network of gene pool areas, conducts training for persons who implement projects focussing on old varieties and maintains the database at the website www.stareodrudy.cz.

Between 2014 and 2016, he was co-ordinator of the project Revival of Old Varieties.

