



Horse chestnuts with tree peonies (Olha Pokhylchenko)

FEATURED GARDEN

CLASSIC IDEAS AND A MODERN STAGE FOR LEONID RUBTSOV'S DENDRARIUM

More than 70 years since its creation, the social and scientific value of this arboretum remains the same as originally intended – it is a green laboratory, an education center, an example of garden art, and a place for people to relax.



Leonid Rubtsov

Introduction

Rubtsov's Dendrarium (Arboretum) is part of the Mykola Hryshko National Botanic Garden of the National Academy of Science of Ukraine. Spread over 30 ha the arboretum is named after landscape architect and Doctor of Biology, Leonid Rubtsov, who created a number of projects for this and other garden's areas. Rubtsov supervised the collection of specimens, land preparation and planting on this area as well as the first stocktaking in 1967.

Rubtsov used a terraced slop of the high bank of Dnipro River in Kyiv to provide suitable

conditions for plants requiring different ecologies. This long-inhabited area includes more than twenty ancient and veteran trees, such as oaks, mulberries, elms, and horse chestnuts and the composition of the Arboretum's landscape is magnificently emphasized by the churches of Vydubecky monastery and Kyiv-Pechersk Lavra.

Leonid Rubtsov wrote in his publication "The Dendrarium and its collections" in 1971: "the arboretum aims to be a living laboratory, containing the type-specimens for species identification and providing a base for the reproduction of future plants, as well as being an education center for city gardening specialists, an example of garden art and a place for relaxation".

Developing the collection

In creating the arboretum, the efforts of garden staff were focused on collecting plants and seeds from other botanical gardens, as well as carrying out scientific expeditions to natural stands. The Garden's botanists visited places of temperate climate across the whole USSR looking for potentially interesting flora – these included the Far East, Caucasus, Central Asia, Crimea, and the Carpathians.



Magnolia Garden (Olha Pokhylchenko)

The collected seeds and plants became a basis for the Arboretum. In 1946, Leonid Rubtsov with other scientists visited Germany to select and buy plants from local nurseries. Receipts for purchasing the plants from different nurseries are kept in the garden's archive. These papers provide confirmation of the origin of the collected plants. Nowadays, the German plants are the oldest in the arboretum collection.

During the Arboretum project creation in 1947, the plants were placed by genera according to Engler's system. A species, its varieties and forms became the collection's basic unit. Specific differences between similar species were underlined through their close alignment. After stocktaking in 1967, the arboretum collections comprised 754 species with 257 varieties and forms.

Colour combinations

Rubtsov's principle of color concentration was implemented in stands of plants with seasonally alternate blooming times. The first April flowering starts in the Magnolia Garden. Next come Forsythias, which were planted together with contrasting Muscaries. During early May, the apple garden is in its heyday and in Rubtsov's time, the apple-trees were planted together with huge numbers of tulips on a lawn surrounded by trees. May is also the time of flowering for 1,500 lilac bushes and tree peonies that grow side-by-side. Plants of 22 species and 132 cultivars of lilac grow in the Syringaryi, which covers 2.4 hectares. The view from the Lilac Garden toward the Dnipro and



Crimea perspective (Olha Pokhylchenko)

Vydubetsky monastery is the most famous picture of Kyiv. Deutzias and mock-oranges succeed lilacs from late May to June.

After more than 70 years of the Arboretum's existence, we can see how talented and far-sighted Leonid Rubtsov was – the trees have grown up, but all the author's conceptions are recognizable and spectacular. People who took part in creating these collections drew planting schemes and filled cards for each specimen, leaving detailed reports in the garden's archive. All these papers are a basis for documenting the modern collection.

The collection today

Today the Arboretum's collections comprise 1,062 species, varieties, and cultivars. All the plants have grown into trees and shrubs and it is now time to restrict the introduction of new species. According to the current collection policy, Rubtsov's Dendrium is enriched only with plants from natural stands, with a focus on species from Ukraine, threatened species, and fully represented genera, such as spruce, pine, juniper, ephedra, linden, lilac, mock-orange, deutzia, and willow. Cultivars of Ukrainian selection are on the wish-list too. The social and scientific value of this place remains the same as it was intended by Leonid Rubtsov – it is a green laboratory, an education center, an example of garden art, and a place for people to relax.



Syringarium (Olha Pokhylchenko)



Lilacs with tree peonies (Olha Pokhylchenko)



Volunteers helping to build the irrigation system (Valentyna Sliusar)

These artificial stands provide an ideal opportunity to identify problems and understand how to create new optimal ecological models. More and more trees are dying every year for different reasons, including allelopathic interaction, decreasing precipitation and increasing pest and disease burdens. Trees that can live up to 300 years in optimal conditions (spruces, larches, or pines) typically last only 70-80 years in our circumstances.

Building an irrigation system

Optimised watering and mulching can revitalise the soil and improve the growing conditions for the trees. Therefore, building an irrigation system became the next stage in the Rubtsov's Dendriarium story. However, as the garden's budget didn't allow such a massive project to be implemented in a short time, this activity was only affordable with external assistance.

The challenge was taken up by Yana Bobrova, Executive Director and co-founder of "Peli can live" charity foundation¹: "Starting the 'Water for botanic garden project' was a real challenge as we had never created an irrigation system before".

After investigating the problem, it became clear that the only way to save and develop the unique collection of Rubtsov's Dendriarium was a sustainable watering solution. Unfortunately, the old irrigation system built at the time of foundation of the Botanic Garden, failed in the early '90s and could

not be restored. Thus, the only available decision was to start the construction of a new watering system.

A project group was created in Autumn 2020, consisting of the Garden's and charity foundation's management, to develop the technical plans for the irrigation system and to be able to make any required amendments quickly. Being a charity foundation, our financial resources are limited and we had to solve the problem within strict budget limits. After long discussions, we decided against the option of drip irrigation and decided to develop a more conservative system - a network of pipes and wells. In

the future, when the Botanic Garden has more financial opportunities, it will be possible to add the drip irrigation on top of the existing watering system. Another important decision made was to divide the Arboretum into 64 blocks and build the system gradually based on available financing. This approach allows us to provide water to areas of the Garden as soon as the corresponding irrigation block is constructed, rather than waiting for the entire irrigation system to be finalized. Moreover, we also have a chance to show our donors the results achieved and initiate fundraising for new blocks.

In summer of 2021 we built the first three blocks of the irrigation system. These covered the Jasmine Garden, ash trees and hickory trees. We also installed the pipeline to cover plateau areas of the Arboretum.

Fundraising

The donations we received came from very different sources. We organized fundraising through a crowdfunding platform "Kind Challenge" and we received funds from the secondary school № 5 located near the Garden, that held a charity fair to raise the money. A significant part of financing was obtained from an insurance company with Canadian roots "Colonnade Ukraine". Work by volunteers also helped to save money related to digging the trenches (423 meters) and wells (15) as well as creating a friendly atmosphere around this project.



Map of the watering system



Friends of the Botanic Garden (Andrii Gorb)

To raise further funds for the new blocks of our irrigation system, in addition to the crowd-funding and financing from the corporate donors we introduced a “Plant Your Tree” project. This allows individuals and companies to choose a tree (from the list of plants grown and provided to us by the Botanic Garden) and plant it in honor of their family or company. These trees are supported by the agreed charitable contribution to our Foundation. The names of donors are indicated on the signs next to the planted trees.

“We even participated in a marathon to raise funds for the garden”.

Thanks to financing by the EU through ISAR Ednannia in the framework of the EU4Civil Society Sustainability in Ukraine project, we created the Friends of Botanic Garden community, for whom we organized several thematic excursions (including one devoted to the birds that live in the Botanic Garden) and worked on a special photo project #waterforbotanic garden. As well as attracting several new corporate donors to this project, others have also made positive decisions to finance it. Our initial plan was to start the construction of the new blocks of irrigation in April 2022, and we started to make the necessary preparations. The last portion of required equipment was purchased on 23rd of February, 2022.

Recent challenges

The Russian invasion of Ukraine has changed our plans. We could not start the construction works as we planned, we postponed the opening of our photo exhibition and we have lost some of our committed donors as they have lost their assets due to the war. The

Botanic Garden was closed to visitors, as well as other parks and forests located in the territories suffering from the war. However, during the last weekend of May 2022, the Botanic Garden reopened its doors for the visitors, and we decided not to waste valuable time but to continue our construction.

Four new blocks of irrigation system are already working, 5 more will be opened in August this year. This is thanks to our new corporate donors: the JSC “Citibank Ukraine” and Insurance Company “Persha” as well as the other financing mentioned above and many private individuals who love the Botanic Garden and supported this project during this summer fundraising campaign. We have also received confirmation from JYSK UKRAINE of financing for the Magnolia blocks.

Today this project means much more for the volunteers of the botanic garden: it is their time to believe in a future peaceful life. And it is uniting people. Some of our volunteers arrived in Kyiv from the territories occupied by Russian invaders, some people lost their friends or the members of their families. The joint work in the botanic garden is a treatment for their’s and our souls.

Now we need help telling our story to the visitors/communities of other gardens, hoping they would like to support our fundraising campaign. Perhaps, some people/companies would like us to plant their own tree in the Mykola Hryshko National Botanic Garden of National Academy of Science of Ukraine, in the heart of Kyiv, capital of Ukraine.

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ENDNOTE

1. Charity foundation “Peli can live” was created in 2017 to implement nature protection projects. The mission of the foundation is: “Empowering force of nature for the harmonic development”. The foundation builds pelican nesting islands and insect hotels, helps preserve forests and natural ecosystems, and restores forest belts.



Opening to visitors (Yana Bobrova)