

EDUCATION IN PARKS – PLANT COLLECTIONS AND EXHIBITIONS

Beata Fortuna-Antoszkiewicz¹, Jan Łukaszkiwicz¹, Andrzej Długoński¹, Nataliia Boiko²

¹Department of Landscape Architecture, Warsaw University of Life Sciences-SGGW,
ul. Nowoursynowska 159, 02-776 Warsaw, Poland

² Dendropark "Olexandria" NAS of Ukraine Bila Tserkva, Ukraine

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Abstract

Recreational and educational functions in parks are supported by purposeful plant compositions that enhance the attractiveness of these spaces and promote cognitive development. Such compositions include established collections of useful plants, such as herb gardens and orchards, as well as ornamental plants that form the foundation of thematic gardens, including rosariums, alpine gardens, and arboretums. Plant groupings featuring rare and endangered species are significant for biodiversity conservation, offering opportunities to preserve old and disappearing varieties of cultivated plants, including fruit trees. Additionally, plant arrangements facilitate the exploration of cultural dimensions, such as utilitarian and decorative uses of plants, and contribute to the formation of comprehensive landscape sequences.

Key words: plant collections, nature exhibitions, thematic gardens, arboretum

Introduction

Integrating recreational and educational functions in parks can be achieved by introducing programmatic elements, such as intentional plant compositions, into garden spaces. While specialized buildings, structures, and artistic furnishings may complement these areas, vegetation remains the primary feature. Plant displays, designed with botanical expertise and contextual awareness, are essential. These displays often consist of established collections of useful plants, such as herb gardens, herbaria, and orchards, or ornamental plants, which serve as the foundation for thematic gardens including *rosariums*, *alpine gardens*, *arboretums*, perennial gardens and water gardens (Fig. 1). Frequently, these collections are composed of visually striking, fragrant, and colorful plants.



A-B

Fig. 1: Themed gardens: A/ Medicinal plant garden, *Chelsea Physic Garden*, London; B/ *Kew Kitchen Garden*, RBG Kew, London (photo: B. Fortuna-Antoszkiewicz, 2015)

Plant groupings that include rare and endangered species are vital for biodiversity conservation. These collections enable the preservation of old and disappearing varieties of cultivated plants, including fruit trees. Object-oriented plant arrangements also facilitate the exploration of cultural aspects, such as utilitarian, decorative, or landscape uses of plants, the presentation of historical garden design styles, garden art from non-European cultures, and the display of plants from various climate zones and natural habitats.

Material and methods

This research is based on multi-year field observations (2015-2025) conducted in Poland and throughout Europe. The study analyzed the presence of plant collections, primarily dendrological, as programmatic elements in public parks and gardens, considering their spatial context, intensity of use, and effectiveness. To illustrate contemporary approaches, examples of plant displays implementing recreational and educational functions in parks were drawn from selected European facilities.

Results

Since the earliest gardens, intentional plant compositions have been created to showcase plants with exceptional decorative qualities, such as striking flowers, ornamental foliage, fruit, and distinctive forms (e.g., specimen trees, climbers, shrubs) [Dolatowski 1999; Seneta, Dolatowski 2025]. When grouped throughout the garden, these collections enriched the space and enhanced its prestige. This approach has persisted through successive eras and remains a foundational element of scientific and educational institutions, including arboreturns and botanical gardens [e.g., Hryniewiecki, Kobendza 1932; Szmajda et al. 1995; Nowak et al. 1999; Jerzak 2007]. The rosarium exemplifies such collections and demonstrates advanced horticultural expertise (Fig. 2, 3).



Fig. 2: An example of a *rosarium* as a collection in a larger park:
A/ the historic park in Łańcut, Poland; B/ the contemporary Silesian Park in Chorzów, Poland
(photo: B. Fortuna-Antoszkiewicz, 2013-2014)

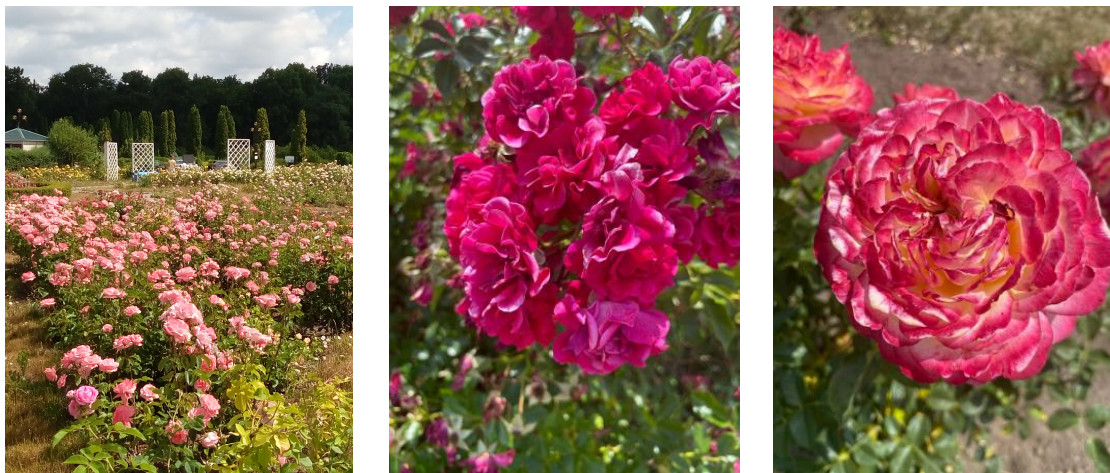


Fig. 3: *Rosarium*, Dendropark "Olexandria" NAS of Ukraine, Bila Tserkva, Ukraine.
The rose collection (built in 2008–2013, area 0.22 ha) presents 115 varieties of *Rosa hybrida* hort. from 12 groups; it is the largest collection of David Austin's selection roses in Ukraine - 56 varieties (photo: N. Boiko, 2024)

Historically, gardens have included both utilitarian and ornamental plants, offering decorative value and economic benefits. For instance, ancient Egyptian gardens featured valuable grapevines (*Vitis vinifera* L.), as evidenced by preserved wall paintings. In Mediterranean and Middle Eastern cultures, olive trees (*Olea europaea* L.), fig trees (*Ficus carica* L.), and pomegranate trees (*Punica granatum* L.) were prevalent. This led to the development of orchards, where fruit trees and shrubs are systematically cultivated under optimal conditions [Sękowski 1990; Dolatowski, Prokopiv 2011; Kucharska 2011; Chmielewska 2018; Żygała 2018]. Orchards represent a distinct form of tree cover, characterized by regular, loosely spaced rows. In certain regions, this form has become dominant, shaping the local landscape, as seen in the old olive groves of Italian Liguria (Fig. 4) and the orchard basins of the Grójec and Łowicz regions in the Masovian Voivodeship, Poland (Fig. 5).



Fig. 4: Old olive grove, Liguria, Italy
(photo: B. Fortuna-Antoszkiewicz, 2002)



Fig. 5: Orchards near Łowicz,
Mazovian Voivodeship, Poland
(photo: B. Fortuna-Antoszkiewicz, 2013)

Orchards have been cultivated since ancient times, with trees and their fruit symbolizing prosperity, peace, and beauty. Biblical texts reference the common fig, pomegranate, olive, date palm, grapevine, and apple tree among fruit-bearing plants [Darom 2007]. The advanced horticultural expertise required for fruit tree and shrub cultivation made them the most valuable and prestigious elements of commercial gardens [Jankowski 1923]. A notable example is the famous, extensive and meticulously maintained, orchards of the Counts Branicki in the "Olekhandria" park in Bila Tserkva. In the nineteenth century, both traditional fruit trees, such as apple trees, and more delicate species, including grapevines, apricots, peaches, and their select varieties, were cultivated. Decorative features and spaces for relaxation were also emphasized, reflecting the significance of the fruit tree collection within the park complex [Lippoman 1832; Drège 1904; Gałkin 2013].

In Poland, orchards were predominantly located on landed estates until the late nineteenth century, with only occasional presence near peasant cottages in villages [Chmielewska 2018]. During the interwar period, orchards were widely promoted under the slogan "Orchard by every cottage" [Jankowski 1927; Ślaski 1936; Zaliwski 1938], and plantings were established along public roads [e.g. Gałczyński 1928; Fortuna-Antoszkiewicz, Łukasziewicz 2012, 2017]. The post-war era saw intensive development of fruit cultivation in Poland, supported by specialized research and scientific initiatives [Pieniążek 1980].

Traditional fruit cultivation persists today through both professional, large-scale fruit production and the maintenance of fruit tree and shrub collections in arboreta and specialized research institutions. The primary objective of assembling such dendrological collections in garden settings is the preservation of old and endangered varieties, which are of significant value for biodiversity. Collections of rare and endangered plants serve as an essential gene pool, supporting the sustainable development of future horticulture. Notable examples of sites with valuable fruit tree and shrub collections include: the Arboretum in Bolestraszyce (one of the richest collections of old varieties, including unique local apple, pear, and edible dogwood varieties), Muskauer Park (250 old and rare fruit tree varieties, mainly apple, plum, and pear trees in the historic Nursery in the Polish section of the park) (Fig. 6), Park-Arboretum in Gołuchów (protection of old varieties and historic fruit tree specimens), Chrystkowo (conservation orchard for old apple, pear, plum, and cherry varieties in the Lower Vistula Valley), National Museum of Agriculture in Szreniawa (orchard of old fruit tree varieties), Botanical Garden of the Polish Academy of Sciences in Powsin (over 500 historic apple and pear varieties, chokeberries, quinces, and Japanese quinces), Silesian Botanical Garden in Radzionków (conservation orchards of old local fruit tree varieties, including apple, gooseberries, currants, blackberries, raspberries, dogwoods, chokeberry, mulberries, etc.) and the park-arboretum "Olexandria" in Bila Tserkva / Dendropark "Olexandria", NAS of Ukraine, Kyiv Region (mulberries, fruit shrubs and trees - the garden boasts a collection of over 50 old varieties of large-flowered apple trees) (Fig. 7).



A-B

Fig. 6: Collections of old, endangered apple varieties: A/ Bolestraszyce Arboretum, Poland; B/ Muskauer Park, Poland/ Germany (photo by B. Fortuna-Antoszkiewicz, 2016, 2018)



Fig. 7: Plant collections in "Olexandria", Bila Tserkva, Ukraine:
 1/ a group of trees of the *Morus* 'Pendula' species (in the back on the right);
 2/ a collection of fruit trees recreated since 2010 on the historic site – "The Wall" Garden, apple trees (*Malus* Mill.) (photo: N. Boiko, 2024, 2026)

Fruit tree collections that emphasize old and native varieties fulfill both conservation and educational roles. These collections contribute to the preservation of horticultural cultural heritage by showcasing a diverse array of valuable plants and demonstrating both traditional and contemporary methods of plant cultivation, including ornamental nursery practices and the art of fruit tree management (Fig. 8).



Fig. 8: Demonstration of the art of fruit tree management, RHS Garden Wisley, England (photo: B. Fortuna-Antoszkiewicz, 2015)

In general, plant collections in parks - including utility plants, ornamental species, and natural communities - are organized as selected groups based on botanical classification (genera, species, varieties), habitat (forest, meadow, marsh, aquatic vegetation), or usage (ornamental or utility plants). These collections are situated in designated areas, such as thematic gardens, or arranged along programmed routes, including pomological and dendrological paths.

Conclusions

Contemporary public parks and gardens, including those with historical backgrounds, provide not only recreational opportunities - particularly in urban environments - but also comprehensive environmental and cultural education. Vegetation, as the core component, is methodically selected and arranged to facilitate exploration and understanding of natural diversity, complex ecological relationships, and structural intricacies, ultimately highlighting its influence on human life. Through skillful spatial compositions, these spaces also demonstrate human achievements in the economic and technical utilization of vegetation, both historically and in modern contexts. Plant collections serve as an effective means of nature conservation, especially for rare or endangered species, supporting ecological balance and promoting the multicultural character of landscapes. This educational approach enhances ecological awareness and fosters aesthetic appreciation in both spatial and artistic dimensions.

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Souhrn

Rekreační a vzdělávací funkce parků jsou podpořeny účelovými rostlinnými kompozicemi, které zvyšují atraktivitu těchto prostor a podporují kognitivní vývoj. Mezi tyto kompozice patří zavedené sbírky užitečných rostlin, jako jsou bylinkové zahrady a ovocné sady, stejně jako okrasné rostliny,

které tvoří základ tematických zahrad, včetně růžových zahrad, alpských zahrad a arboret. Skupiny rostlin zahrnující vzácné a ohrožené druhy jsou důležité pro zachování biologické rozmanitosti, protože nabízejí příležitost k zachování starých a mizejících odrůd pěstovaných rostlin, včetně ovocných stromů. Kromě toho uspořádání rostlin usnadňuje zkoumání kulturních rozměrů, jako je užitkové a dekorativní využití rostlin, a přispívá k vytváření komplexních krajinných sekvencí.

Contact:

dr inż. Beata Fortuna-Antoszkiewicz

E-mail: beata_fortuna@op.pl

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