

**THE CHARACTERISTICS OF THE ACTIVITIES OF BOTANICAL GARDENS IN
THE CHANGING MODERN KNOWLEDGE SOCIETY**

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The world has stepped into the era of knowledge, where the biggest assets are new information, knowledge and skills as well as their effective use. The United Nations Organization stresses in its documents that countries have to encourage environmentally wise recreation and tourism. As the society has chosen to learn throughout the life, botanical gardens play an important role in this process. It is necessary to encourage the public interest in the valuable plant collections, to make plants an important part of the society's life. Botanical gardens have expanded their educational activities, created cognitive, educational and recreational trails as well as the necessary infrastructure. They set up conditions for independent plant diversity studies. This article sums up the most attractive and interesting methods of information transfer and ways of organising recreation used in the botanical gardens of Europe.

Key words: botanical gardens, educational activities, cognitive and educational trails.

Botanical gardens are islands of green peace and intimacy in the midst of traffic noise and factory smoke. They contain rich plant collections, scientific and educational activities are pursued there, a beautiful, cosy and safe environment is created. A botanical garden is a place where a person not only can escape from the grey city routine and aggressiveness, and learn about plant varieties, but also a place where one can appreciate beauty and goodness; a place which nurtures respect for life; where one can understand the unity of man and nature, and harmony; where one can learn a way of life that is environmentally friendly. In this cosy and safe haven a person can be alone with plants, reflect upon existence, feel the environment with all his or her senses [4-5, 7]. In botanical gardens the main focus is on the scientific work and enrichment of plant collections. However, in recent times, botanical gardens have been also expanding their educational activities, encouraging the independence of garden visitors. World famous botanical gardens are known for their interesting and creative efforts in this realm. The educational activities pursued in botanical gardens are very important for the development of a mature personality who appreciates spirituality and moral values. These activities are important particularly now that the world community has chosen a path of sustainable development. The world has stepped into the era of knowledge, where new information, knowledge and skills as well as their effective use are the biggest assets. The Council of Europe in its conclusions of the Lisbon Meeting (March 2000) noted that social and economic progress depends on people's

education. Therefore, the knowledge society is evolving, the principle of learning for a lifetime is being replaced by the principle of learning through the entire life. To ensure this continuous process effective methods of work are sought. The United Nations stress in its documents that countries have to encourage environmentally wise recreation and tourism, based on the Hague Declaration Concerning Tourism (1989) as well as the programmes of World Tourism Organisation and UNEP. To this end it is necessary to use botanical gardens wisely. Most botanical gardens deem it important not only to protect and expand plant collections, but also to provide services to the public, make plant collections accessible to everybody. Today botanical gardens are an open and accessible Institution which fulfils the functions of cognition, education, tourism, recreation and others. Botanical gardens have 'green schools', hold public events (festivities, exhibitions, concerts). However, modern educational activities are not about onetime events or publicity actions, despite the fact that they attract crowds. It is very important to understand that it is not a one-off publicity action! Cognitive, educational and recreational trails are one of the effective ways to encourage people's cognitive interests and provide conditions for independent and long-term environmental studies [3, 6, 8, 11]. Such trails are important in transferring integrated knowledge about our surroundings [1, 2, 10]. North America, Western Europe and Japan have old traditions of such trails. Interesting cognitive trails are in the Crimea. In order to make people interested in the rich plant collections of botanical gardens, the presentation of plants has to be attractive and informative.

Lithuania has four botanical gardens: in Vilnius (established in 1781), Kaunas (1923), Klaipėda (1993) and Šiauliai (1997). They all belong to universities and pursue educational activities. The conservatories of Kretinga and Vilnius Pedagogical University are also popular among the public.

The aim of our work was to find out what are the most attractive and interesting ways of transferring information about plants to the public as used in the botanical gardens in Europe, and to establish a dendrological trail for independent plant studies in Vilnius University Botanical Garden. Research was conducted in selected botanical gardens in Lithuania, Germany (Berlin-Dahlem, Dresden TU, Erfurt EGA, Leipzig U., Munich-Nymphenburg and Mainau) and Poland (Wroclaw U. and Poznan). The research was carried out by way of a questionnaire, interviews and observation. Interviews were conducted with garden employees, members of the management and visitors. Research was also carried out during seminars organized for Lithuanian teachers and flower growers, and during individual trips. [5, 7]. The dendrological trail was established in the plant Systematics and Geography Department of Vilnius University Botanical Garden. This part of the Botanical Garden occupies a territory of 7,35 hectares. It is located in the city centre. The site is unique in terms of history, ecology and geography. The Department grows over 3000 taxa. The collection of woody plants was begun in 1920. More than 200 taxa of the old collection have survived. [9]. Some of these plants, *Celtis glabrata* and *Gymnocladus dioica*, are not found anywhere else in Lithuania.

During visits to the botanical gardens we found a very satisfying infrastructure: gardens were established according to the needs of a modern person, striving to ensure that every visitor had a very good time here, felt peaceful and safe. An excursion is a traditional introduction of a botanical garden visitor into the plant world: it is led by guide and the visitor is only observing the objects under discussion. Many call such excursions 'look left, look right', because it is difficult to sustain attention for a long time. It is thought that attention declines after 15 minutes. The botanical gardens of Mainau, Munich, Berlin and Wroclaw are changing this tradition and are turning the visitor into an independent explorer, a discoverer. The gardens encourage independent

visitors' activities. The botanical gardens of Lithuania are making their first steps in this area: they establish trails, create information system, etc. They try to get their visitors interested. It is especially important to remember the needs of the disabled members of the society and make it possible for them to visit the gardens. A nice example can be found in Kaunas Botanical Garden where a trail for the visually impaired has been set up. Projects are underway in other botanical gardens.

The carefully designed trails with points of reference placed along paths help visitors to choose and walk independently through the most interesting parts of the garden. An excellent example is Wrocław University Botanical Garden where paths of different sections have a distinct edge (bricks of different colours, size, etc.). Their edges 'prompt' the visitor in what section he or she is, pointers indicate the direction to follow. Paths wind through the garden, there are no sharp turns or strict geometrical shapes. Therefore, a person can do without a guide, and the garden staff can devote more time to the improvement of the garden and research. The paving of garden paths is important: it should not be suitable for haste or running. After the rain the water should drain through the paving easily. Every effort should be put to create conditions enabling the visitor to admire the surroundings, directing his attention to the most important objects. Well-placed pointers help to find one's way in the grounds. Informative labels are very important in plant cognition. They should tell us the name of the object, the country of origin, characteristic features of the plant. The colour of the label informs about the distribution of the plant: rare or protected species of national importance are marked in one colour, for instance, orange, and those protected internationally – in another colour, for example, red. More can be learnt about the plant from the drawings accompanying the description: there could be a drawing of a leaf, blossom, fruit, etc. Additional useful information could be provided on special stands showing how people use the plant. Lithuanian teachers and flower-growers, who visited the botanical gardens of Wrocław, Mainau and Berlin, all agreed that these gardens are clearly geared towards visitors: carefully thought out layout of the garden, a good system of exhaustive and diverse information. Some Lithuanian flower growers said that if they had such a garden next to their home, they would be visiting it day and night. Other views were: "...I would like to spend at least one day in such a Garden of Eden"; "...everything is for the benefit of the people – wonderful, marvellous, impressive"; "...this is what is important in raising the level of culture of the nation". In the botanical gardens we also met many regular elderly visitors who called themselves 'garden fanatics'. Along the paths you could always meet little children, schoolchildren, students, people of different ages. The gardens are frequented by disabled people, because the paths are suitable for wheelchairs.

Students, teachers and flower growers (200 respondents in total) were asked to name the most effective ways of information presentation in the botanical garden. It was difficult to single out one particular element of the information system, therefore, most respondents named several. 89,5% respondents placed great importance on plant diversity, abundance and arrangement. Only 8,7% visitors insisted on a qualified guide, the rest preferred to study plant diversity independently combining it with recreation. Respondents stressed that informative labels were necessary for independent studies (87%) and specially designed trails (85,5%).

When creating the dendrological trail in Vilnius University Botanical Garden visitors' preferences were taken into account. 51 species were chosen from more than 250 taxa. The trail contains a relatively broad variety of the plant genera – 36 genera of 25 families. The *Pinaceae* family is the richest in species. Visitors are offered an opportunity to compare related species, find out their similarities and differences. Garden visitors are delighted to see the *Juglans regia* L. which bears fruit every year, and *Armeniaca mandshurica* (Maxim.) A.K.Skvorcov. The

visitors take their time to study the plants that are rare in Lithuania: *Liriodendron tulipifera* L., *Phellodendron amurense* Rupr., and *Gleditsia triacanthos* L. *Juniperus virginiana* L. and *Abies concolor* Lindl. et Gordon have grown to a surprising size. The largest number of plants of the dendrological trail are trees from North America (38% of all the species) and East Asia – 28%. The trails are intended for visitors of different ages and different experience, who can walk independently along the trail and perform the tasks given to them. The purpose of the trail is to provide the visitor with all-round information about plants, to help understand the relation between man and nature, to encourage to explore the environment. The tasks that are offered to perform are intended to nurture the awareness of the beauty of nature, to express this awareness in arts, develops environmentally friendly behaviour. It is hoped that the trail will help the visitor to understand intellectually and feel emotionally the beauty and importance of life. Visitors' poems to trees, drawings and other artistic expressions are exhibited in special stands.

Thus, with the changing of the society, the activities of botanical gardens also change taking into account the needs of the public.

We may conclude that the main aims of visiting botanical gardens are cognitive and recreational.

From the cognitive point of view plant diversity and abundance are of utmost importance. Also, people come to botanical gardens not just to improve their knowledge of plants, but also look for new ways of plant arrangement, new ideas for their gardens. They implement those ideas in their own gardens. This shows the degree of influence of botanical gardens on the improvement of our environment.

Most respondents would prefer independent activities in botanical gardens. Such activities are encouraged in the gardens of Mainau, Munich, Berlin, Wrocław and many others. The most important requirements to ensure independent visitor activities have been established: information system (labels, pointers, stands, flyers, garden plans), purposeful network of paths (a path-guide).

Through active and creative educational activities botanical gardens bring about positive social changes that are important in the implementation of the principles of sustainable development.

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РОЛЬ БОТАНІЧНИХ САДІВ У СУЧАСНОМУ ІНТЕЛЕКТУАЛЬНОМУ СУСПІЛЬСТВІ

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Світ увійшов в еру знань, основною рисою якої є нова інформація, знання і наука, а також їхнє ефективне використання. У документах ООН наголошує, що країни повинні сприяти розвитку туризму та здорового способу життя своїх громадян. У цьому процесі велику роль відіграють ботанічні сади. У статті висвітлені оригінальні і цікаві шляхи організації відпочинку у ботанічних садах Європи.

Ключові слова: ботанічні сади, просвітницька діяльність, пізнавальні і просвітницькі сади.

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