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MANAGING THE CATEGORIZATION AND SOCIAL SIGNIFICANCE OF SPECIES DIVERSITY IN THE UNIVERSITY BOTANICAL GARDEN

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Abstract: *The article examines the management of the categorization and social significance of species diversity in a university botanic garden. A botanical garden is a place where plants are discovered, categorized and documented for scientific purposes. The social importance of botanic gardens is increasing as plants face the threat of extinction due to various reasons. The need for the protection of the plant world is becoming greater in the conditions of global climate change, environmental pollution, excessive exploitation of agricultural lands, urbanization and the emergence of invasive species.*

Keywords: *botanical garden, biodiversity, global change, plant ecology*

JEL Codes: *I23, L38, M14*

INTRODUCTION

Plant diversity is declining at a rapid rate these days, leading to a reduction in the species diversity of ecosystems. About a third of the world's higher plant species face the threat of extinction due to various reasons: improper use of agricultural land, destructive agricultural and forestry practices, urbanization, environmental pollution, emergence of invasive species, global climate change, etc. Therefore, we need to focus our efforts on developing approaches to protect plant biodiversity.

Botanic gardens are a place for the study and conservation of plants, as well as for promoting the diversity of flora around the world. The mission of botanical gardens, along with scientific research, protection of plant species, rational use of plant resources, is also a social one. The botanical garden focuses largely on the conservation of plants, especially endangered, endemic and economically important plant species. We face challenges and responsibilities in a changing world.

EXPOSITION

The social significance of the Botanical Garden is indisputable. Although, the concept of botanical gardens originates from the botanical garden of Padua (Italy) established in 1545. Today there are about 2500 botanical gardens in the world (Rivers, M. 2017). Together, these botanic gardens cultivate more than 6 million living plant specimens, representing about 80,000 taxa, or about a quarter of the estimated number of vascular plant species in the world (Abeli, T. 2020, Heywood H. 2017). These gardens thus play a central role in the ex situ conservation and study of global plant biodiversity. The social significance of the conservation strategy for the world's threatened plant species to be preserved ex situ (Anderson, J. 2003, Heywood, V.H. 2017). Botanic gardens also have an important role in conserving species essential for human use and well-being (Ma, J. 2007, Rivers, M.; Shaw, K.; Beech, E.; Jones, M. 2015), and this role is likely to become increasingly important as climate change becomes more severe (Coetzee, B.W.T., Gaston, K.J., Chown, S.L., 2014).

Climatic observations and data in Bulgaria, which date back to the end of the 19th century, show a trend of increasing temperatures in recent decades. Phenological observations provide an additional indicator of climate change, showing that development phases start 7 to 15 days earlier in recent decades compared to previous periods. Droughts are usually an example of the most typical effects of climate change in southern Europe, incl. and on the territory of Bulgaria.

Plants are attached organisms and for this reason are particularly vulnerable to changes in temperature and humidity that are outside their normal range. Some species are not sufficiently plastic and adaptable to the new climatic conditions and there is a real danger that they will disappear from the local or global flora or that serious problems will arise with their growth and health. This is a serious social problem, because according to modern concepts of natural ecosystem management and according to legal obligations, these species and their habitats must be protected. Such efforts will require an excellent knowledge of the species' ability to cope with different climatic conditions, which creates an urgent need for additional research, because many of the native plant species are not well studied in terms of their plasticity and ability to cope with harsher climatic conditions. In addition, the response of trees to environmental conditions is different at different stages of their life, which can have serious consequences. An example of this is the low drought resistance of young trees compared to older trees, which can jeopardize regeneration and lead to a reduced presence of certain species in an area, despite the ability of older trees to withstand more -harsh climatic conditions.



Fig.1. Children learn to recognize different plants



Fig.2. Children participate in discussions

The social significance of species diversity in the university botanical garden is related to knowledge of the plant kingdom, knowledge of the benefits of plants to life on earth, and conservation of species for future generations. The range of scientific activities carried out by botanic gardens often includes conservation, propagation, horticulture, seed science, taxonomy, systematics, genetics, biotechnology, education, restoration ecology, public education, and much more. Currently, about one-third of the world's 300,000 – 450,000 vascular plant species face extinction due to a variety of devastating anthropogenic activities, including overharvesting,

overexploitation through destructive agricultural and forestry practices, urbanization, environmental pollution, land-use change, exotic invasive species and global climate change. Therefore, there is an increased need to develop integrative approaches for plant conservation, especially for these endangered plant species in the wild.



Fig.3. Participation in the International Youth Exhibition



Fig.4. The good example

The University Botanical Garden works in various directions related to botanical science: scientific research and development in various fields of botany with a view to studying the diversity of the natural flora and its conservation, studying the biological and ecological features of the Bulgarian flora, containing useful biologically active and aromatic substances and many others.

Raising environmentally engaged citizens doesn't happen by itself. Many of us often wonder what kind of planet we're leaving behind for our children. But few ask the opposite: what kind of children are we leaving behind for our planet? We are collectively responsible for fostering the stewards of tomorrow and activating the next generation is more important than ever.

Studies have shown that children today are more anxious, more distracted, and less healthy than the last generation. It may be hard to believe but the average child spends more than seven hours a day in front of a glowing screen and less than 20 minutes in active outdoor play! At the same time there is mounting evidence that exposure to nature while growing up reduces stress, improves physical and mental health, stimulates creativity, builds self-esteem, and encourages co-operation, collaboration, and self-regulation. The work of Joy Palmer, an environmental educational

researcher, found that regular exposure to nature is the single most important factor in fostering care and concern for the environment.

An important step in the protection of biodiversity is the knowledge of plants and their specific requirements for climatic factors. Increasing the ecological culture of children of different ages by organizing courses on growing plants, exhibitions, competitions, environmental protection activities - afforestation, research of rare and endangered species. Meetings of the smallest with the plant kingdom is a traditional practice in our botanical garden. Every summer, a summer children's academy "In the wonderful world of plants" is held, considering the growing interest of children in the plant world. Bringing children back to nature is a challenge we set ourselves with the student volunteers who work at the Summer Children's Academy. We are convinced that the experience they gain by caring for plants will make them responsible citizens of the planet, helping to protect biodiversity and ecological balance.

Children in early years are exploring cause and effect, and the consequences of their actions. So, this is a perfect time to introduce the positive and negative impacts they can have on the environment with some intriguing questions and thought-provoking explorations. What happens to seeds when we sow them?

If you can encourage wildlife into your early years learning landscape, there will be plenty for children to explore and look after. Better still, you can involve the children themselves in creating those habitats. This will make them feel proactive and encourage their nurturing instincts. Planting bulbs and sowing wildflower patches will entice pollinators and birds to your setting. Installing bird feeders, bird and bat boxes or hedgehog houses, as well as building bug hotels are all fantastic activities to welcome wildlife.

Understanding where our food comes from, and the work involved in producing it, is really important for children. As they grow older, this understanding will help them make informed choices about what they eat and where it comes from. Children are endlessly fascinated by growing their own plant and it doesn't have to take up lots of room.

Environmental issues don't have to be saved for special days; they can be introduced into lots of conversations. Discussions like these get little minds working, encourage empathy for our natural world and are great for developing language and communication skills, too.

Education aimed at promoting awareness and building capacity involving a wide range of groups (children, students, students, nature lovers) alongside a responsible civil society is a vital function of modern botanic gardens. These features provide unique opportunities to explore plant biodiversity, garden and perform various conservation activities in popular public spaces. Raising public awareness of the problems facing our planet can be enough to bring about fundamental changes in behavior, especially if we start with the planet's smallest citizens - children.

Botany is a fundamental science for human society in countless areas, including human health, food security, environmental protection, tourism and economic development. The world-renowned Convention on Biological Diversity, adopted at the 1992 summit in Rio de Janeiro, Brazil, emphasized three key principles: conservation of biological diversity, sustainable use of nature and fair sharing of benefits. Economy and social development are two key factors that determine the success of these principles.

CONCLUSION

Botanical gardens are an integral part of both sustainable economic development and the promotion of science, culture, education and nature conservation. These institutions are critical to the study and conservation of biodiversity that responds to pressing contemporary issues including overpopulation, climate change. Conservation of flora in botanic gardens can inspire behavioral change in a wide range of visitors, especially in their earliest childhood. Botanic gardens also create a greater diversity of green spaces in the urban environment and are important for the biological conservation of species. These spaces and their associated herbaria provide hands-on applied research with direct benefits to society, ranging from knowledge of medicinal plants to knowledge related to climate change.

Biodiversity conservation is as important as it is imperative today, in the era of the greatest extermination of biological species.

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