

# THE HEMEIUȘI ARBORETUM - „A LIVING LABORATORY”

## ARBORETUMUL HEMEIUȘI – „UN LABORATOR VIU”

**BLAGA Tatiana<sup>1</sup>, NEMȚEANU Liliana<sup>1</sup>**

e-mail: tatiana.blaga@yahoo.com

**Abstract.** *Dendrological Park „Hemeiuși” Bacău, created in 1880, with an area of 49,5ha, is situated on the right bank of the river Bistrița. The multifunctionality of conservation, environmental protection, recreation, education and scientific research, derived from many indigenous and exotic species, represented by solitary species, biogroups, orchards and comparative cultures, assigned to park a real character of „ living laboratory”. The encounter with the arboretum communicates to the visitor, in a live manner data and knowledge concerning the species in the patrimony collection, brought here from all the corners of the world, an impressive explosion of shapes, sizes and colours.*

**Key words:** *arboretum, dendrological, park, Hemeiusi, collection*

**Rezumat.** *Parcul Dendrologic „Hemeiuși” Bacău , creat în anul 1880, cu o suprafață de 49,5ha este așezat pe malul drept al râului Bistrița. Prin multifuncționalitatea de conservare, protecția mediului, recreație, educativă și a cercetărilor științifice, derivate din multitudinea speciilor indigene și exotice, reprezentate prin exemplare solitare, biogrupe, plantaje și culturi comparative, atribuie parcului dendrologic un adevărat caracter de „ laborator viu”. Întâlnirea cu arboretumul comunică vizitatorului, într-o manieră vie date și cunoștințe în legătură cu speciile aflate în patrimoniul colecției, aduse aici din mai toate colțurile lumii, o explozie impresionantă de forme, dimensiuni, culori.*

**Cuvinte cheie:** *arboretum, dendrologic, parc, Hemeiuși specii, colecți.*

### INTRODUCTION

Arboretums are collections of wood plants represented by solitary species, biogroups or small experimental stands, located in the territory by ecological, systematical or fitogeographical criteria. They show themselves under the form of original vegetal structure, created by man in strong collaboration with nature, in different landscape architectural styles (Mihalache, 1982).

Romania was a country poor in tree species and shrubs, things observed from the first Romanian forestry. This time, there were concerns of bringing wood species from different parts of the world, to try them acclimated on this occasion giving birth dendrological parks and gardens.

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<sup>1</sup> Forest Research and Management Institute Bucharest – Bacău ICAS Collective

Such a vegetal collection includes the Hemeiusi Arboretum also known as the “Dendrological park of Hemeiusi” located at the periphery of the UP Lilieci village, at a 10 km distance from Bacău.

## **MATERIAL AND METHOD**

The Hemeiusi Arboretum is covered in the ecological subregion B3-Bistrita Tarcau, being located at the west limit of the Moldavian Plateau, at the interface with Moldavia lower Carpathians, on the straight shore terrace of the Bistrita river.

Arboretum was created by arranging a meadow openly structured in terms amenajistic in 12 plots.

The climate is continental, hilly plateau characteristic attire with large hollows summer registering periods of drought and winter cold currents localized on Bistrita valley, which creates a specific microclimate, drier. The fog is a common climatic phenomenon that associated with low winter temperatures negatively influence Lemon exotic vegetation species, causing partial or total plant frostbite.

The landscape is very diversified, featuring 2 - 4m bumps characteristic meadows, including a mosaic of soils belonging to several classes and types, most of the area occupying a class undeveloped land. Of the other soils meet the cambisoi class and the hydromorphic.

Most of the exotic species in its area are received from Europe and America, and very little from Japan and China. The timber group represents 18% of the total of existing species, and the deciduous group that dominates the collection represents 82%. Observations, measurements, studies and specialised complex work realised this whole time on the arboretum are the sources used in this short presentation.

## **RESULTS AND DISCUSSIONS**

The Hemeiusi Arboretum was founded at the end of the XIXth century, in 1880. Incorporation Basics Arboretum Hemeiusi were made by German specialist Cristian Adolf of Essen Forest Academy graduate, who entered the park in a rich and varied range of exotic and indigenous species by planting saplings from seeds brought from home seeds of Darmstadt, Germany (Mihalache, 1988).

Its initial functionality was limited only to satisfy the need to create around the private residence an original, spectacular and as exotic as possible by planting some trees with unique ornamental qualities brought from far lands that contrasted with the local vegetation.

After 50 years in the administration arboretum Forest Research and Management Institute Hemeiusi under the guidance engineer A. Mihalache, who had a great contribution in enriching dendrologic collection, all over the park, with exotic species, placed in isolation, in biogroups, orchards and comparative cultures that formed over the years to source genuine scientific research.

In this period a great importance had it set up in the park arboretum nursery in order to obtain seedlings and ornamental belonging to various indigenous and exotic species that were used in creating or enriching dendrologic parks or recreational, collection for gardens botanical (Iasi, Bucuresti) to green areas in cities etc.

Its multifunctionality amplified considerably through time obtaining scientific, botanical (360 systematic units from the herbaceous flora and over 1060 systematic units from the wood flora), forestry (old climatisation centre and forestry experiments), ornamental purposes and also recreational sanogenic and learning purposes.

Experiments and research studies had as theme the Hemeiusi Arboretum since 1956, and played an important role in the development of the dendrological collection and also in implementing the results in the silvic production. Thus, with the passing of time, there were orchards (*Larix decidua*, *Pinus silvestris* si *Pinus strobus*, *Picea abies*), comparative cultures and many biogroups with exotic species of forestry interest realised in the arboretum with foreign and local sources and also indigenous species and this proved to be an important experimental base for selection and improvement works of the exotic species, being a precious source for seeds, an important production and distribution centre for the exotic and decorative seedlings.

Numerous studies and research over the last 5 decades were recovered through scientific work (books, essays, parts of thesis or articles in specialised publications), but this rich experiment field leaves place for approaching new scientific aspects.

A supported activities took place in the international trade conducted over 60 similar units or botanical gardens especially in the northern hemisphere of the globe (Mihalache, 1976).

Arboretum was a research base for various topics such as:

- acclimatization of exotic wood species forestry interest by introducing new exotic species, obtained by culture of different samples or batches of seeds received, special orders, collecting their own seeds;
- about genetic improvement spruce orchards by installing a number of 28 clones of spruce (*Picea abies*) of different origins in our country and in Europe and 13 clones of various exotic and indigenous origin spruce in North America ;
- comparative culture with various exotic forestry interest
- the production of vegetative material by grafting for creating comparative cultures with various exotic pines;
- improvement of forest species of economic interest and production forestry genetically improved seeds;
- determination of the vegetation of major forest species based on phenological phases;
- biology of flowering and fructification, methods of providing a quantitative assessment of fruiting species of oak.

Originality Hemeiuși Arboretum is on landscape style. The style in which it is done is the English with walkways curves and surfaces alternating with meadows surrounded stand in an irregular shape of the stand. Network paths plots the boundaries marked by hedges, collections of woody and shrub species and valuable collection Roza, comprising around 280 species of roses.

The large diversity that is the arboretum made possible the development throughout time of a rich ecosystem in fauna elements (vertebrate and invertebrate), who these were subjects over time in the development of valuable works scientifically, the specialists in forestry and biology.

## CONCLUSIONS

1.The large number of systematic units contained dendrological Arboretum is a valuable collection for the east of the country – Moldavia.- a living testimony to the next generation, for which it is necessary to continue to give special attention and care to maintain them.

2.The Hemeiusi Arboretum, besides its wealth in systemtical units it is also a form of “ex situ” preservation and protection of the genetic forest resources of Terra, highlighting their multiplication methods with special reference to the endangered species being at the same a living laboratory that indicates us the their value as superior forestry essences and also as ornamental species.

## REFERENCES

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