

SUMMARY

The new monograph of the Hemeiuș Arboretum presents the evolution of the dendrological collection three decades after the publication of the first similar study.

The present monographic study is structured into eleven chapters, including an English summary, the list of references and four annexes.

In the opening chapter, the term “arboretum” is defined, followed by a short background history and a synthesis of the main arboretums worldwide and at the national level.

The second chapter underlines the scientific importance of the book. The necessity of this scientific demarche derives from the importance of knowing the current situation of the Hemeiuș Arboretum, an integrated part of the patrimony of the National Institute for Research and Development in Forestry “Marin Drăcea”, as well as the importance of promoting it nationally and internationally, as a point of attraction for both researchers, students, specialists in the field, and for the general public.

In line with the research objectives the “Research methodology” chapter describes in detail the scientific methods used during the study, including analysis and synthesis of previously published information and the research procedures and data collection for “green cadastre”.

The fourth chapter explores the most important moments in the development history of the Arboretum. The Hemeiuș Arboretum was initially established at the end of the XIXth century by members of the Pașcanu-Cantacuzino family. At the owner’s request, Cristian Adolf, a specialist called from Germany, has carried out ample actions to diversify the vegetale assortment of the park, succeeding in introducing over two million seedlings of fir, larch, green Douglas, scots pine, black pine and oak. The introduction of exotic species continued until 1913. In the long history, the arboretum recorded periods of progress as well as neglections. Between 1956-1971 the arboretum had a favorable period for development, materialized by extending the exotic species in the collection but also installing seed orchards of scots pine, Eastern white pine and larch. In 1989, the list of inventoried taxa included a number of 1346 species of trees, shrubs and vines, being from this point of view the second place at the country level and the first place in the region of Moldova.

The next three chapters provide general information about the geographical position, the climatic conditions, respectively the edaphic conditions of the

arboretum. The arboretum is located at the interference with the Moldavian Subcarpathian, on an alluvial plain on the right bank of the Bistrița River, at 180 meters altitude. The territory of the arboretum is best described by the two geographical coordinates, respectively 46°37' north latitude and 26°56' east longitude.

The climatic conditions are characterized by an annual average temperature of 10.4°C, 652.4 mm annual precipitations of which 472.9 mm fall in the growing season. The full correlation between the thermal and the rainfall regime during the vegetation season (high temperatures and sufficient rainfall) is likely to favor the development of both heat and humidity loving species, such as oak, lime and ash. Over time excessive weather phenomena (prolonged droughts, winter frosts, soft snows and wind storms) caused damage to the woody vegetation, some sensitive taxa even disappeared.

Geostructurally, the territory occupied by the Hemeiuș Arboretum belongs to the Quaternary, with the lithological substrate represented by recent fluvial deposits, consisting predominantly of sands, gravels and clays. The predominant soil type is alluvial molyc, but over time, under the influence of climatic factors, they gave rise to a mosaic of soils (alluvial soils, chernozems and phaeozems), in a relatively small area.

The eight-chapter focuses on describing the vegetation of the arboretum. The fragments of spontaneous woody vegetation present themselves as intrazonal forest vegetation, comprising two types of forests characteristic of meadow forests. The introduced wooden vegetation in the form of pure groups or, more rarely, disseminated, at the lateral shelter or along the edges of alleys, gave birth to a mosaic aspect of the vegetation. Both native and introduced tree species of venerable ages present outstanding sizes. For decorative, but also scientific purposes, the landscape of the arboretum was enriched with an impressive collection of roses. The variety of existing microhabitats offers favorable conditions for the development of diverse and rich herbaceous vegetation (more than 300 species).

Complementary to the previous chapter, a brief description of the fauna present in the arboretum is provided in chapter nine.

Chapter ten describes and discusses in detail the landscape type of the arboretum. Due to the particularities of the natural and artificial components, it is listed as one of the most beautiful arboretums in the country. The age of the arboretum, the manner of composition (English style) and the landscape qualities of the existing species underlines the interesting and original character of the Hemeiuș Arboretum.

The final chapter underlines the importance and the necessity of sustainable

conservation of the arboretum. The Hemeiuş Arboretum has outstanding botanical, forestry, landscape, educational, socio-cultural and scientific importance.

The rich collection of woody (831 taxa) and herbaceous (341 systematic units) taxa, including rare, vulnerable and endangered trees, confer an important botanical value.

The forest importance of the arboretum results from being one of the oldest and most valuable centers of acclimatization and forest experimentation. In addition, it is also an important seed source and a center for the production and marketing of ornamental dendrological material in various types and forms of presentation.

The diversity and originality of the landscapes give the arboretum a remarkable landscape value.

The beauty of its landscapes, makes the Arboretum one of the most sought places for resting and recreation, thus fulfilling the social-cultural role.

From a didactic point of view, the Arboretum offers students the opportunity to carry out numerous studies and research.

The scientific value is conferred by the numerous research possibilities that it offers: *in situ* and *ex situ* conservation of valuable or endangered species, selection and breeding of exotic species, dendrochronological studies on secular specimens, etc.

The Annexes included in this work consist of the list of native and introduced species, the inventory of herbaceous flora, the list of roses varieties and the map of the Arboretum.