A LANDSCAPING APPROACH TO THE RESTAURATION AND REABILITHATION OF ARCALIA ARBORETUM PROJECT

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Abstract. In the last decades, the restoration and rehabilitation work for Romanian historical monuments have taken a quite great dimension. Approaching the historical landscape requires a close-up view of all the issues regarding re-construction of those sites, and their reinstatement in the present context. For the Arcalia Arboretum, a team of landscapers took the task of restoration all vegetation elements. First, an inventory was made for all trees and shrubs, late in the year 2014. This inventory was compared with a former inventory from the 1970's, the best preserved from the past. All the rehabilitation proposals include both dendrological and maintenance aspects.

Keywords: *arboretum, rehabilitation, historical landscape*.

INTRODUCTION

The architectural and landscape ensemble known as „The Bethlen Castle and The Arcalia Arboretum" has been in existence for over 150 years and at the present day, according to the list of historical sites and monuments belonging to Bistrița-Năsăud County, it is declared to be historical monument no. BN-II-a-A-0614. The existent bibliography does not provide any exact data about the year when the arboretum was founded. Based on the descriptions included in the poetry volume *Arokalji énekek*[1], it can be concluded that at the middle of the 18th century the arboretum was already in existence, but the buildings and the garden were much older. In 1801 the forest above the Bethlen castle was turned into an English garden. The marking of the roads, the alleys and the plantation can still be recognized. During the 19th century several exotic and aboriginal species were planted in the arboretum and new alleys and patches were built.

Nowadays, the arboretum covers an area of almost 16 hectares and it still contains a sinuous alley system, mostly overlapping the old layouts, which establishes promenade possibilities through forest areas, plantations and meadows. All along the promenade path are located samples of trees and shrubs with unique ornamental and dendrological value. Unfortunately, the low level of maintenance during the last decades has led to a strong degradation, mostly among the wooded areas.

Extended areas which were once for promenade, with decorative or topiary vegetation, are now a wildwood of spontaneous species. The ensemble from Arcalia benefits from a particular situation, meaning that even though it does not cover a very large surface compared to other arboretums in our country[2], the castle, the adjacent gardens and the arboretum are a landscape unit of great value.

[1] Iklandi, Gy. L., *Arokalji énekek* (Songs from Arcalia). Kolosváron, 1811

[2] The Simeria Arboretum: approx. 70 ha, The Bazoș Arboretum, jud. Timis: approx. 60 ha, The Hemeiuș Arboretum, jud. Bacău: approx. 50 ha, The „Dr. ing. Ion Vlad" Arboretum from Alba Iulia: approx. 20 ha, etc.

MATERIAL AND METHODS

According to the possessed data, received from U.B.B.[3], we can estimate that at the beginning of the 20th century, the arboretum had over 200 dendrological species in its own plantation, with almost 3.700 samples of trees and shrubs (Fig.1), as follows:

- approx. 80 species of deciduous trees;
- approx. 70 species of deciduous shrubs;
- approx. 15 species of evergreen trees;
- 2 species of evergreen shrubs;
- approx. 20 species of perennial flowers;
- over 15 species of annual flowers;
- approx. 7 species of ornamental grasses;
- an unknown number of spontaneous and under-spontaneous species gathered most probably from the local flora.

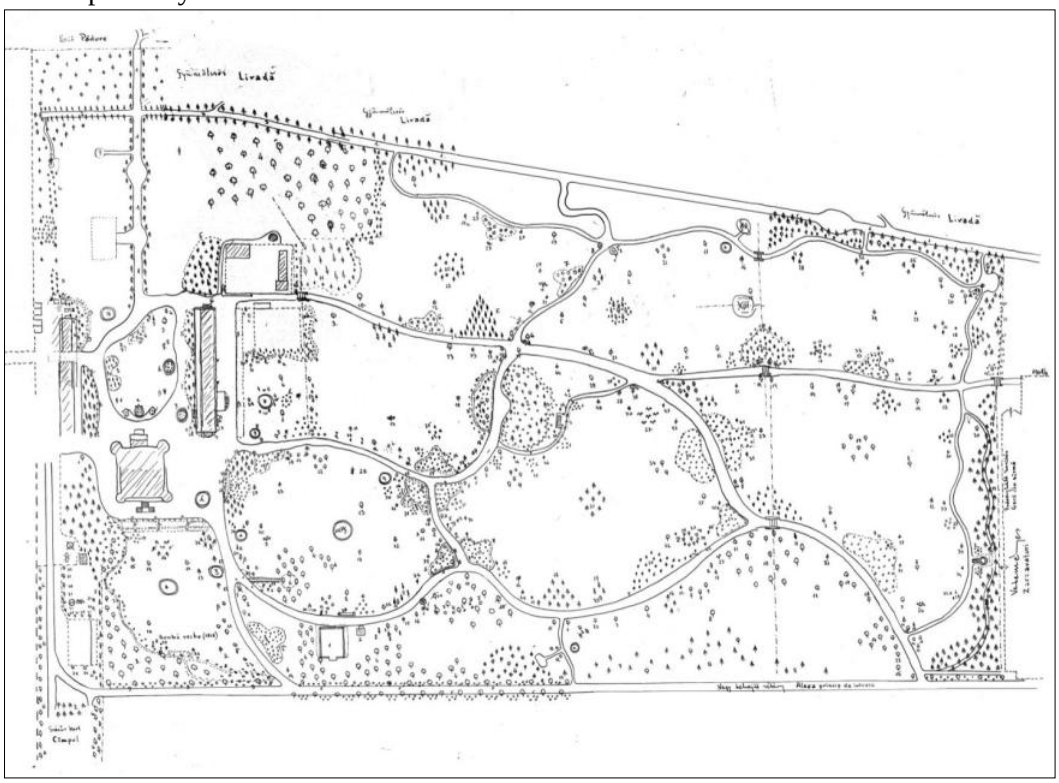


Fig. 1. The general landscaping plan of Arcalia Arboretum, dated approx. 1970-75 (image source: original, re-assembled, according to the sketches from U.B.B. Cluj)

In present days, according to the inventory performed at the end of 2014, on the arboretum territory there were only approx. 100 species left in the collection, with approx. 3.500 samples (Fig. 2), as it follows:

- 50 species of deciduous trees (1.530 samples);
- 20 species of deciduous shrubs (approx. 1.250 samples);

[3] The „Babes-Bolyai" University from Cluj-Napoca administration released to the authors a copy of a document issued in 1971-73, where there is a planting scheme and a list of species, including the approximate plantation data.

- 20 species of evergreen trees (680 samples);
- 5 species of evergreen shrubs (10 samples);
- 3 species of perennial flowers (under 10 samples);
- an unknown number of annual flowers species.

Fig. 2. The dispersion of trees and shrubs on the actual territory of Arcalia Arboretum (image source: original, according to the data from the inventory performed in 2014)

Comparing the two plans, we note the differences between the array of species from the 1970's (over 200) in relation to only 100 species left in 2014. Starting from the definition of the term *arboretum*[4], it can be affirmed that the Arcalia site fulfilled the function of an arboretum at a higher level 45-50 years ago unto the time being, meaning that in the last four decades, from the number of species among the arboretum remain only half[5]. Most of the valuable dendrological collection is located in the small courtyard surrounded by three main buildings (Bethlen castle and the other two buildings), while in the rest of the Arboretum are only sporadic samples of trees with botanical or biological importance (for example: *Quercus imbricaria, Q. palustris, Liriodendron tulipifera, Taxodium distichum, Sorbus torminalis, Abies balsamea*).

RESULTS AND DISCUSSIONS

The restoration proposal of the Bethlen Castle landscape ensemble is correlated with the premise from which it begins the process in discussion. According to THE FLORENCE CHARTER, *"a historic garden is an architectural and horticultural composition of interest*

[4] *„tree plantation in which are conserved some aboriginal species or where the species originate from different fito-geographical areas of the globe are acclimatized. In the arboretum structure are included both forest trees, and fructiferous and ornamental ones, […] The arboretums fulfill not only the educational and research function, but also the result of this scientific actions which are being developed […], through the recommendations regarding introducing some species into forest plantations, fructiferous ones or green spaces",* acc. V. Sonea, *The Small Horticulture Encyclopedia*, Encyclopedia and Scientific Ed., 1983, p. 55.

[5] In an article from 1965, the authors A.T. Szabo and O. Zăpârțan affirm that *„Botanically speaking the park presents modest abundance. After a summary determination, performed in 1964, were identified 104 trees and shrubs species and varieties. […] there were numbered and anchored on the park's map 1374 trees whose diameter exceeded 10 cm.* (*„Arcalia Arboretum"* from the publication „Botanical contributions", p.107-113)

to the public from the historical or artistic point of view, as such, it is to be considered as a monument"[6]. According to article 16 from the same Florence Charter, *„restoration work must respect the successive stages of evolution of the garden concerned. In principle,* ***no one period should be given precedence over any other****, except in exceptional cases where the degree of damage or destruction affecting certain parts of a garden may be such that it is decided to reconstruct it based on the traces that survive or of unimpeachable documentary evidence. Such reconstruction work might be undertaken more particularly on the parts of the garden nearest to the building it contains to bring out their significance in the design".*

The Bethlen castle's „patio" faces a unique problem. At this moment, it appears to be a space „suffocated" by trees and shrubs whose growth has been out of control in the last decades. For sure, in the past the situation was completely different, a fact that is certificated, on one hand, by the studied plans, and on the other hand, by the historical pictures of the site. In a 15-year-old aerial image, it can be observed that the „thickness" level of the courtyard was significantly smaller (Fig. 3).

Fig. 3. Aerial image of Bethlen Castle's courtyard, approx. year 2000
(source: Georg Gerster, www.siebenbuerger.de/ortschaften/kallesdorf)

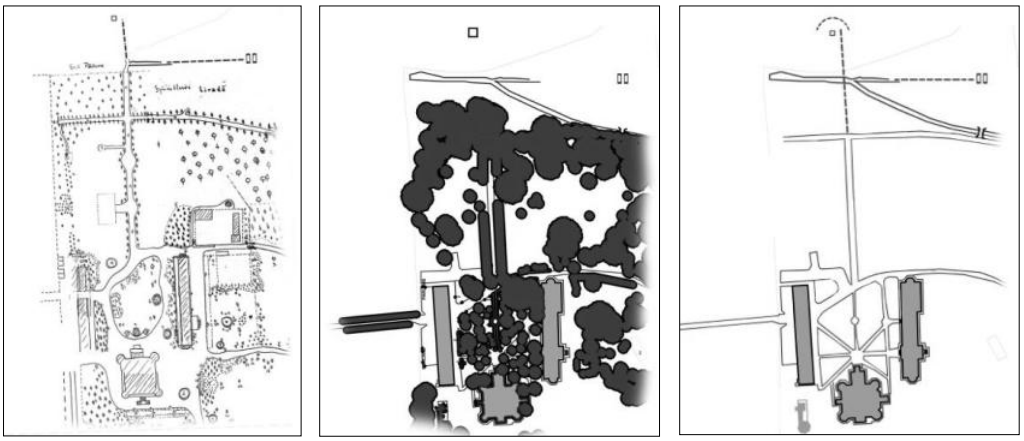
In the image can be observed that, at that time, there were samples of evergreen trees only on the E and W sides of the courtyard (the cluster of pine spruces from the N-E of the castle does not exist anymore), and the dimensions of the remaining samples of trees and shrubs were much smaller than the actual spread. Nowadays, the visual space is obscured, making it almost impossible to visualize, at the same time, all the three main buildings.

In the diagram below (Fig. 4) we note the way in which this courtyard changed from the initial state at the beginning of the 20th century until the 1980's, and further, to the existing thickness level of the vegetation.

For the designed situation, the proposal is to remove most of the trees from the courtyard, to come back to an „airy" level which can permit the full visualization of the space. The need of removing the vegetation from the castle's courtyard is also obvious from the analysis of the section below (Fig. 5).

The re-design of the courtyard's green space will be made according to the functions of the proximity buildings, but it will also be provided with vegetation which will not grow over 100-120 cm height (flower patches, topiary art).

[6] The Florence Charta, 1981, Art.1.



a. b. c.

Fig. 4. a. The courtyard in the 1970's, in relation to the Bethlen monument and tombs; b. The courtyard nowadays, of notice is the vegetation thickness; c. One possible design for the alleys, re-establishing the connection with the monument and the tombs (image source: original)

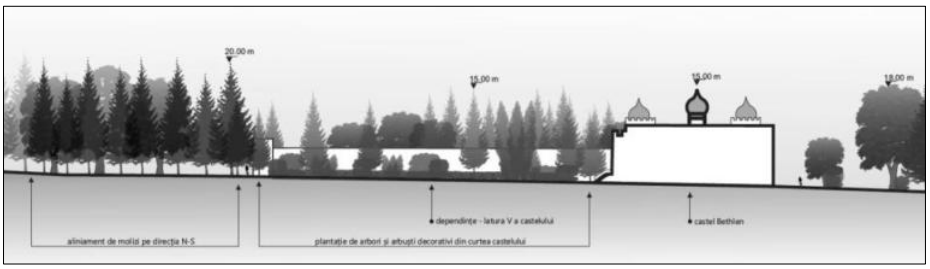
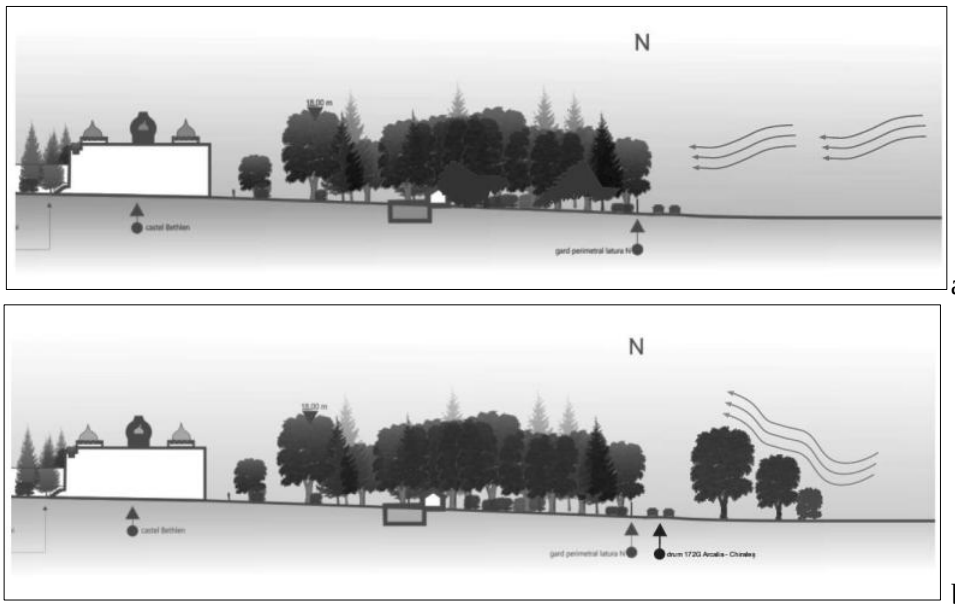


Fig. 5. A section through the N-S axis of the castle courtyard. To be noticed the actual spread of the trees, and the cover effect upon the buildings (image source: original)



a.

b.

Fig. 8. a. A section through the N-S axis of the site, towards the N side. To be noticed that the wind strikes directly into the trees. b. The existence of a progressive windbreak could absorb a big part of the adverse effects of the wind (image source: original)

Also, two paths with „historical" character are being suggested, like: re-establishing the axis which starts from the castle and goes up to the Bethlen monument, place where a beautiful viewpoint on the site can be implemented, and one path which leads us towards the two tombs belonging to the Bethlen family, in the orchard. During our visits, we noticed that in the evergreen sector from the north side of the Arboretum there is many trees (centennial) torn down by the wind, mostly during winter, due to very strong storms. On the north side of the Arboretum, more exactly on the NW[7], there is an open field with no elements to absorb the wind force. That is the main reason why it is recommended to plant some windbreaks made of trees and shrubs (Fig. 6, a and b), on the blank fields situated at the north of the county road, which will have a „lift" effect above 15-20 m height upon the wind blast.

CONCLUSIONS

The analysis of landscape conditions at the Arcalia Arboretum restoration emphasizes the importance of a twofold approach, including historical aspects, on one side, and the utility ones, on the other side, both having as purpose the development and the enrichment of the ensemble. The proposed actions, both on vegetation, and the site infrastructure, will take into consideration the landscapers' recommendation, summary related in the present article.

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[7] The main direction of the wind in this area is NW-SE