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Spontaneous vegetation in a possible green network in the West of Bucharest

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Abstract: In this paper we will present an analysis of spontaneous vegetation in Militari neighborhood in the West of Bucharest, comprised in the study of a possible implementation of a green network. The study is founded on the idea of reintegrating in the urban network the old Militari greenhouse area by using territorial resources. The area is in a process of continuous urban progress, but after the desabilitation of the Greenhouses a part of the field has gained a Wasteland character; the important mass of spontaneous vegetation growing there can be a starting point for creating a type of park design.

Keywords: ruderal plants, segetal plants, analysis, Militari

1. Introduction

Bucharest is confronted with a serious problem where its 'green lungs' are concerned, its green network being rather scarce on the whole, while this Capital's Westside is one of the most barren areas. In the context of alleviating this problem, we chose to study the option of reintegrating the land from the former Militari greenhouses in the green network - we did this in our hopes of returning this land to the city, reborn from its own ashes. This land included in the Westside has been subjected to constant fragmentation due to real estate interests, and as such its surface area has been considerably reduced over time.

2. Materials and Methods

The methods we used in studying/analysing the West of Bucharest and specially the site of Militari Green Houses, the spontaneous vegetation there and the possibility of integrating a green network in this part of the capital are:

- visits and analyses of the site;
- study of documents: books, reviews, internet sites, images;
- systemisation of analyses.

3. Results and discussions

The site of Militari former greenhouses (*Fig. 1, 2*) is in a process of continuous urban progress, but after the desabilitation of the Greenhouses a part of the field has gained a Wasteland character. Following our various analyses of the site corresponding to the former Militari greenhouses, we concluded that the most relevant aspect revealed by the land is vegetation.

Figure 1: The green system of Bucharest – the big urban parks and the site of the Militari former greenhouses where we propose another green pole for the city

Figure 2: The Militari former greenhouses site

We have classified existent vegetation into the following categories: ruderal species; segetal species; ornamental species from residential areas; ligneous species as wind and sound curtains; ornamental species from commercial and industrial enclosures; species from the Pasteur Institute premises and the greenhouses; species from the cemetery.

The first two of these, ruderal and segetal vegetation, prevail. They are considered the spontaneous vegetation on site.

Ruderal Vegetation

The name "ruderal" derives from the Latin "rudus" meaning rubble or ruins. On site, this type of vegetation develops on abandoned wastelands, on lands directly or indirectly affected by human activity, or on roadsides. [1] On the land of the former Militari greenhouses we encounter both ligneous and herbaceous ruderal vegetation.

We have the following examples of ligneous ruderal vegetation:

- Juglans regia (walnut tree) – a tree about 30 metres high;
- Ailanthus altissima (tree of heaven) – a tree about 20 metres high. A highly invasive species which develops spontaneously on disturbed lands or to secure coastlands;
- Crataegus monogyna (common hawthorn) – a shrub about 5 metres tall, with thorny branches;
- Rosa canina (dog rose) – a thorny shrub, about 3 metres tall. It is frequently found in a wide range of habitats, from plains to mountainsides, in meadows, shrubberies, woods. The fruit is edible and has medicinal properties [2], [3].

The examples of herbaceous ruderal species we found prevailing on site are:

- Plantago major (greater plantain) – frequently found in ruderal sites or meadows. Medicinal herb;
- Matricaria perforata or Tripleurospermum inodorum (scentless wild chamomile, mayweed, Balder's brow) – as opposed to German chamomile (Matricaria recutita), this species has no scent. It is a weed growing in straw cereal cultures and ruderal places.
- Achillea millefolium (yarrow) – perennial plant growing in meadows and ruderal areas, used as medicinal herb;
- Alopecurus pratensis (foxtail grass) – perennial plant, frequently found in moist meadows from hilly areas; fodder plant;
- Cirsium arvense (creeping thistle) – perennial plant. Hard-to-combat weed, found in cultures or ruderal areas from plains to mountainsides [2], [3].

Ruderal vegetation covers almost the entire area of the Militari former greenhouses and it is composed mainly from herbaceous and small plants. This category of vegetation also includes various species of invading shrubs and trees.

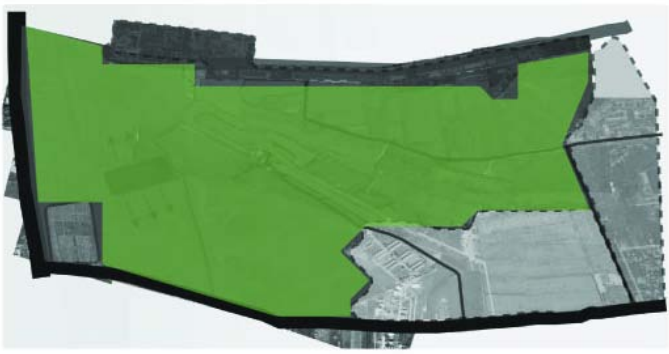

Figure 3: Militari former greenhouses site – the ruderal vegetation grows in almost the entire area

Figure 4: Militari former greenhouses site – ruderal species: Populus alba, Rosa canina and Crataegus monogyna

Figure 5: Militari former greenhouses site – prevailing ruderal species: Juglans regia and Rosa canina

Segetal Vegetation

The name "segetal" derives from the Latin "segetis" meaning crop. This type of vegetation develops on agricultural land. The plants grow either near the ploughed fields or right inside them, side by side with the cultivated plants [1], [4].
The prevailing segetal species found on the site of the former Militari greenhouses are:

- Taraxacum officinale (dandelion) – perennial plant, about 40 centimetres high. It grows in meadows, ruderal areas, but is also a weed when growing in crops. Its young leaves are edible, and the entire plant is a medicinal herb;
- Camelina sativa (wild flax, German sesame, Siberian oilseed) – spontaneous annual plant. Can be found near crops.
- Xanthium strumarium (cocklebur) – annual plant. Is a ruderal and segetal weed.
- Poa pratensis (common meadow-grass) – perennial plant, about 50 centimetres tall. Is a very good fodder plant. Grows expecially in both dry and moist meadows.
- Cichorium intybus (chicory) – perennial plant, about 1 metre tall. Grows from lowlands up to the mountainous areas, in meadows, pastures, ruderal places. Has medicinal properties and edible leaves.
- Amaranthus retroflexus (common tumbleweed) – annual plant. A weed in corn, crops etc but also in ruderal areas;
- Rubus caesius (dewberry) – thorny shrub with creeping stems, about 80 centimetres long. Found from lowlands up to mountainsides, within meadows, woods and sometimes as a crop weed. Bears edible fruit.
- Sinapis arvensis (wild mustard) – annual plant, about 60 centimetres tall. A toxic weed dangerous to animals, it is found in crops, and ruderal areas [2], [3].

On the site of the Militari former greenhouses segetal vegetation grows mainly on a smaller plot, on the farming lands, where it grows more rapidly and can become even invading. It has the tendency to extend to the entire area.

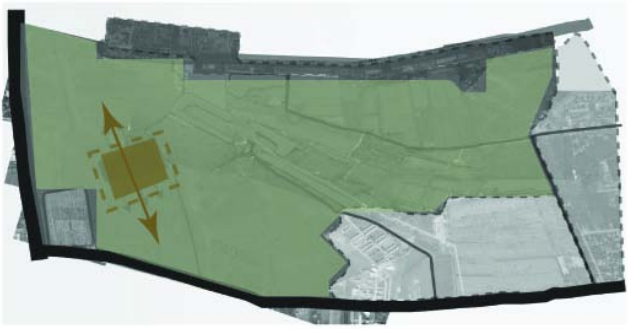

Figure 6: Militari former greenhouses site – the segetal vegetation grows mainly in the brown colored area – farming lands, but tends to extend to the entire site

Figure 7: Militari former greenhouses site – segetal species: Alopecurus pratensis and Cirsium arvense and ruderal species: Ailanthus altissima

It is this spontaneous vegetation that has managed to survive through the numerous changes brought on by local urban development, and to imprint its specific character on the studied area. This vegetation is represented by various ruderal and segetal species. The land of the former Militari greenhouses has been

constantly declining but, on the upside, it has allowed nature to flourish uninhibitedly.

Therefore, these two types of vegetation, ruderal and segetal, form the basis for our solution to implement park facilities that will then become integrated in Bucharest's green network. The presence of these species across the spacious site directed us to suggest designing a layout for the park using minimum intervention over the vegetation. This would ensure maintaining local character and creating a different value than other important city parks. We suggest the park's specific features be designed around French landscape architect Gilles Clément's theory of mobile gardens, allowing a considerable amount of land to freely transform over time according to nature itself. Landscape experts would therefore maintain a minimum role [5], [6], [7]. This area would then come to represent both an enjoyable leisure space as well as a study lab aimed at educating about plant evolution.

4. Conclusion

We wish that the space we imagined be considered an alternative to other city parks in Bucharest, and become as attractive to the public at large, being integrated in the Capital's greater green network.

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