

### INFLUENCE OF ANTHROPIC FACTORS ON VEGETATION IN V. POGOR PARK

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#### Summary

*Located in Iasi, on Coroi Street, the house of magistrate Vasile Pogor was built on the foundations of an older, 18th century building. From the very beginning, it was accompanied by a 5000 m<sup>2</sup> park, as were most of the lord's residences of the time.*

*During the last century human activity has strongly influenced the environment affecting the evolution of this site.*

*The human factor has been a major cause of deterioration. Breaking up the land plots around the park, the increased development in construction, positioning of massive structures in close vicinity of the park, spreading the asphalted areas have all lead to a dryer atmosphere, an increase in temperature and unfavorable wind currents.*

*Polution due to industrial development, increased traffic and some household activities have also influenced the vegetation.*

*Human intervention, often unconscious, neglecting maintenance, exceptional historic events have lead to a series of negative aspects.*

*We try within this study to analyze all the changes that occurred during this period and find the appropriate solutions for the rehabilitation and preservation of this valuable site.*

Keywords: park, environment, human factor, deterioration, pollution, vegetation, rehabilitation, preservation.



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## 1. INTRODUCTION

Ever since the middle of 17<sup>th</sup> century, the main tendency in constructions in the Romanian States has been that of civil architecture, influenced by classicism, which reached these lands through Transylvanian, Austro-Hungarian or Russian influences.[2]

The most substantial investments are made for monumental constructions, palaces, royal and aristocracy residences, closely related to the design of private yards and gardens.

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V. Pogor, the son – poet, publicist and mayor of Iași – hosted the famous meetings of Junimea Society, attended by the classics of Romanian literature, in the second half of the 19<sup>th</sup> century.

The City Hall Documents of Iași record the owner's preoccupations concerning construction, maintenance and designing works for all the buildings on the property, as well as the funds assigned to the purchase of vegetal items and to the payment of all necessary works for the park.[1]

## 2. INFLUENCE OF ANTHROPIC FACTORS

The initial idea for the park layout consisted of the harmonious combination between a geometrical style and a natural landscape style.[1]

The geometrical style was dominant in the central area, along the portico axis of the southern façade, which was perpendicular on Coroi Street, while the rest of the park was left to the natural landscape style.

This solution provided easy access and a simple, well directed circulation of the guests, creating at the same time peaceful nature areas, with winding alleys, open groups of ligneous species, and relaxing lawns, favorable to the setting up good spots for rest or walks.[1]

The cultural and memorial role of the park is enhanced by the presence of several secular linden trees, chestnut trees and ash trees, of a large number of statues depicting cultural figures of Iași, and also by the artistic events that are organized here.



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During the century and a half that the park has been a renowned element of the city, the city went through important economic, social and cultural transformations. In this context, human activity decisively influenced the ecological environment, and consequently the vegetation.

The economic development and the industrialization caused demographic growth by means of significant changes in the urban configuration of the city. New neighborhoods were raised, while the older ones registered a growth in the degree of land occupancy. In most cases, the 19<sup>th</sup> century land parcels were divided, allowing intensive building, at the cost of green spaces.[1]

The writings of the time speak about the urban specifics of the period – the garden-city – most often with semi-rural characteristics. Furthermore, the east, north and west neighbors of V. Pogor house were the Kogălniceanu and Sturdza family residences, both surrounded by splendid gardens.

The 20<sup>th</sup> century was the century of the modern city, which, through its structure, determined major changes in the park's neighboring areas. While in the previous century the park was surrounded by extensive gardens belonging to the Kogălniceanu and Sturdza families, we now witness as the site is restricted by a network of new roads and buildings.

The city's climatic factors include new phenomena such as atmospheric dryness and a raise in air temperature. These phenomena are due mainly to the increase in the constructions' density, most of them being made out of stone, bricks or concrete. There is an increase in the surfaces covered with asphalt or concrete, which accumulates heat from the Sun during the warm season, releasing it back into the atmosphere later on. The strong caloric radiation of the mineral surface is a factor of high stress for trees and bushes.[3]

As a matter of fact, even the alleys of the garden changed their cover, from gravel on a sandy bed, to asphalt concrete, which makes a very unpleasant contrast with the surrounding green areas.

Another source of local heating comes from the utilization of artificial fuels which emit heat into the atmosphere: from the industrial area in the south-eastern part of the city, house activities, and from an increase of the index of mechanization.

The fact that new, large, quite high buildings were constructed determines changes in the air movement patterns, thus causing strong air currents, sometimes swirling currents, with major physiological consequences on the vegetation.

Thus, on the western side of the park, a massive, 15 to 18 m high building, intended for designing activities was raised at the end of the 7<sup>th</sup> decade of last century. As early as the end of 19<sup>th</sup> century, the main building of the Military High-school, with a height of about 12 m was raised on the northern side, while on the



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eastern side, near Adela Kogălniceanu's house, several collective houses with heights between 8 and 15 m were built.

Both on the western and on the southern sides of the park, several old trees were torn during storms, thus being removed. A large number of thuja trees were deformed due to the dominant north wind or to the large quantities of snow of some winters.

The changes of soil characteristics, as a consequence of construction activities caused by Second World War, led to situations in which plantation of new trees was done carelessly, with a highly heterogeneous composition, often inauspicious: clay, debris, waste. The addition of vegetal earth is only a pale amelioration; the rigorous choice of species adapted to the local conditions of fertility, texture or pH is a necessity.

Furthermore, at the end of this war, on the inferior terrace of the park, very close to the street, the Cemetery of Soviet Heroes was founded here and lasted until 1988, when it was transferred to Eternity Cemetery.

The pollution caused mainly by the development of some industrial branches which were very active until 1989, together with the permanent pollution caused by the continually increasing number of cars, by power plants in the industrial area, but also by the activity of small consumers of methane gas is a highly complex problem.

The atmosphere is affected by a large variety of toxic gases, dust, ash, soot, oils and tars present in the form of aerosols.

The vegetation's leaf apparatus is directly affected as each polluting agent acts specifically and determines a decrease in the capacity for photosynthesis and thus affecting plant health.[3]

The meteorological phenomena, such as precipitations, wind and fog, are the vectors of pollution, trees and bushes reacting very differently.

The local deciduous trees are the most resistant to polluting agents, while resinous species are much more sensitive.

That is the reason for which one can see dry groups or single resinous trees more and more often.

In what concerns the deciduous species, one can notice a tendency towards leaf brownification and necrosis, leaf size decrease and leaf fall.

Acid rains affect the leafage, provoking necrosis, as well as the root system due to the increase of soil acidity.[3]



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As the levels of these pollutants decreased after 1990, vegetation does not display such changes as often and visibly, but the effects of pollution is accumulating, reducing its viability, its resistance to freezing, drought, and disease.

Man's uncontrolled actions can cause severe damage to vegetation.

The high inflow of people and the inadequate civic education can have destructive effects on ligneous vegetation: tearing of branches, destroying flower arrangements. A real danger is the open fire, caused by moments of relaxation, by the burning of vegetal debris or of waste.[3]

The unprofessional handling of toxic substances or of the tools and equipment used for the maintenance of vegetation and park alleys represent the final stage of the vegetal material deterioration.

Technological factors based on the knowledge of biology and species ecology allow reasonable intervention on plant interactions with the main natural ecological factors, by applying various methods of compensation, substitution, intensification or decrease of their influence.

By using proper ecological factors (light, heat, air, water, nitrogen and minerals from soil) at various stages of plant development, with the help of current maintenance means, the ecological requirements of plant species are met, increasing the functional characteristics of green spaces.

It is implicit that in this activity what matters the most is the professionalism of the person assigned to maintain the park - that is the Romanian Literature Museum. However, one cannot dismiss the importance of the economic support given by the local administration.

No matter how many emotional, evoking implications accompany the park's visitors, one cannot dismiss some aspects related to the poverty of intervention means.

The presence of sick trees or bushes, with broken twigs because of the wind, snow or blows, the unstructured vegetal composition are elements which cast a shadow on the esthetic quality of the park and on the effort of those supervising the good functioning of this historical garden.

### 3. CONCLUSIONS

It is true that any intervention on a historical garden is a highly professional undertaking which requires a profound knowledge of the history of the place, of the specific characteristics of that particular garden.

Adequate solutions should take into consideration the examination of the formal structure, of the initial idea, of the dominant surroundings, all for the originality of



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the result. It is also important to recreate the atmosphere of the time, not simply mechanically redo what is gone.[2]

Besides the maintenance operations or those for recreating the vegetal aspect of the original, it is also necessary to point out the succession of the essential moments that led to its current aspect, by introducing new plants along with the existing ones.

It is important to once again emphasize that it is only by means of specific legislation that one can provide an effective protection of the V. Pogor Park, a national heritage site. A continuous process of education is necessary, as well as an increase in civic responsibility and in the respect for perennial values.

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