

THE ANALYSIS OF VEGETATION STATUS, RATIOS AND REPRESENTATIVE VEGETAL STRUCTURES FOR THE GREEN SPACES INSIDE IASI

ANALIZA STĂRII DE VEGETAȚIE, A PONDERILOR ȘI STRUCTURILOR VEGETALE REPREZENTATIVE PENTRU SPAȚIILE VERZI DIN MUNICIPIUL IASI

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Abstract. *The study analyzes the surfaces cultivated with wooden plants (trees, shrubs, lianas) and herbaceous plants (floral species, grass species), which are characterized by a certain vegetation status, expressed by the plants' health level, the vegetative growth rhythm (in height, in thickness etc.) and by development (flowering, fruit formation etc), as well as by the ratio or the effective surface occupied by the different types of wooden plants, presented in surface units or percentages. Briefing, we can conclude that the green spaces inside Iasi present the following situation regarding the vegetation status: 54% with a very good vegetation status, 28% with a good vegetation status, 13% with an acceptable vegetation status and 5% with an unsatisfying vegetation status.*

Key words: vegetation, green spaces, analysis, ratios.

Rezumat. *Studiul analizează suprafețele amenajate cu plante lemnoase (arbori, arbuști, liane) și ierboase (specii floricole, specii gazonante), care se caracterizează printr-o anumită stare de vegetație, exprimată prin nivelul de sănătate al plantelor, ritmul de creștere vegetativă (în înălțime, în grosime ș.a.) și de dezvoltare (înflorire, fructificare etc), precum și prin ponderea sau suprafața efectiv ocupată de către diferitele tipuri de plante lemnoase, reprezentată în unități de suprafață sau procentual. Rezumând, se poate concluziona că spațiile verzi din municipiul Iasi prezintă următoarea situație privind starea de vegetație: 54% cu o stare de vegetație foarte bună, 28% cu o stare de vegetație bună, 13% cu o stare de vegetație satisfăcătoare și 5% cu o stare de vegetație necorespunzătoare.*

Cuvinte cheie: vegetație, spații verzi, analiză, pondere

INTRODUCTION

By green spaces vegetation status, generally speaking, we understand plants' health level, the vegetative growing rhythm (in height, thickness, density and healthy colour of the leafage etc.) and developing rhythm (flowering, fruit formation etc.). By green spaces component elements' ratio we understand the actual surface occupied by different wood plant types (trees, shrubs, underwood, lianas) and by the two main subdivisions (resinous and leafy trees), expressed in surface units or percentages. The dominant vegetation type is represented by one or more dominant species as volume, abundance and actual occupied surface inside that particular green space.

MATERIAL AND METHOD

The green spaces territorial analysis from Iasi city was conducted during May 2007 - May 2009, by visual monitoring activity of the vegetation status, the ratios and the vegetal structures which are representative for the green spaces inside Iasi. The observations were made every three month, in what regards the vegetation status, and annually for the ratios and dominant vegetal structures list inside the target area. The registered and processed data served for structuring the results and for their representation in percentage units.

RESULTS AND DISCUSSIONS

The observations regarding the vegetation's health status for all the green spaces inside Iasi lead to the following results:

- 54% have a very good vegetation status;
- 28% have a good vegetation status;
- 13% have a satisfying vegetation status;
- 5% have a poor vegetation status.

The improper vegetation status of some green spaces or only parts of them is related to the following items:

- **location conditions** are improper, some green spaces being placed on slippery lots, entirely eroded soils, debris deposits, salty soil lots etc. The natural improvement of the vegetation conditions lasts many years and an artificial improvement is expensive (for example, a part of the Botanical Garden's surface is represented by eroded soils; some green spaces between blocks of flats are placed on debris deposits resulted after demolitions and reconstructions etc.)

- **lack of protection and care** of some green spaces (for example, the green spaces of some schools and some sport fields where their area mingles with the planted spaces).

The dominant tree species, in all green spaces inside Iasi, proved to be:

▪ **Limetrees** (*Tilia tomentosa*, *T. platyphyllos*, *T. cordata*) – autochthonous species adapted to local climate, with vigorous growing and abundant flowering, with a great ornamental and health generating value; we observed even the existence of some varieties and natural forms. We can consider that limetree is the representative specie for Iasi.

▪ **Maple and sycamore maple trees** (*Acer platanoides*, *A. pseudoplatanus*, *A. negundo*, *A. campestre*) – are species perfectly adapted to Iasi's local climate, with vigorous growing, thick interesting leafage, with a great ornamental and health generating value.

▪ **Oak trees** (*Quercus robur*, *Q. pedunculiflora*, *Q. cerris*, *Q. rubra*) – are most of them autochthonous species, perfectly adapted to Moldavia's climate, with a long life and impressive stature.

▪ **Poplar trees** (*Populus x canadensis* – Canadian poplar), exist as many cultivars, from which some are only female type and produce the reprehended „cotton”, bad for people with allergies. They fit into the lower areas of the city

and in the future they will be replaced with ornamental forms of white poplar (*Populus alba* var. *pyramidalis*, *P. alba* var. *nivea* etc.).

From the most spread resinous species inside Iasi we can name:

- **Pine tree** (*Pinus sylvestris*) – autochthonous, extremely rustic tree, which grows on very different types of soils and is used in Iasi especially to sustain some slopes;

- **Black Austrian pine tree** (*Pinus nigra* ssp. *nigra*) – central European specie introduced in our country in culture less than the previous specie but it has a great ornamental value;

- **Oriental arbor vitae** (*Thuja orientalis*) – is frequently enough seen in Iasi's green spaces, used especially for hedges, but we suggest its limitation for the future purposes because it loses a lot as ornamental value by trimming;

- **White cedar** (*Thuja occidentalis* var. *fastigiata*) – is one of the frequently observed western presences in Iasi, proving a good adjustment to the city climate and a great ornamental value.

In the next part we will present in detail the health status of the vegetation for each zone, in order to understand better which of the ornamental vegetation zones from inside Iasi has bigger deficiencies in this field. The agreement area, which occupy 405.4 ha, present the following situation in what regards the vegetation status: 3% - have a very good vegetation status; 27% - have a good vegetation status; 59% - have a satisfying vegetation status and 11% - have a poor vegetation status.

In what regards the ratio of the component elements, the agreement zones from inside Iasi present the following situation: 2% - resinous trees; 77% leafy trees and 21% leafy shrubs.

The agreement areas in Iasi have the following tree species considered as dominant: maple tree (*Acer negundo*), oak tree (*Quercus robur*), common ash tree (*Fraxinus excelsior*), locust tree (*Robinia pseudacacia*), evergreen oak tree (*Q. petraea*), lime tree (*Tilia tomentosa*, *T. cordata*) etc.

Gardens, squares, inside gardens, inner city planted intervals, protective forest lines etc. from the territory of Iasi sum a surface of 1,113.20 ha. These area were declared „protected natural zones” by Iasi County Council's Decision no. 8/1994.

Considering the vegetation status, all of these protected natural zones show the following ratios: 31% - with a very good vegetation status (especially oak trees and sycamore maple trees), 31% - with a good vegetation status, 35% - with a satisfying vegetation status and 3% with a poor vegetation status.

The vegetal component elements' ratio for the protected natural zones in Iasi are presented like this: 8% resinous trees, 67% leafy trees and 25% leafy shrubs.

The dominant shrub species inside green spaces are: lime trees (*Tilia cordata*, *T. tomentosa* ș.a.), oak trees (*Q. robur*), maple and sycamore maple trees

(*Acer pseudo-platanus*, *A. platanoides*, *A. negundo* ș.a.), pine trees (*Pinus sylvestris*, *P. nigra*), locust trees (*Robinia pseudacacia*) etc.

We observed that the average ratio between trees and shrubs is 2.33 / 1.00, but its maximal value must be 2.00 / 1.00, fact that shows a small deficit in shrubs' number.

CONCLUSIONS

1. The vegetation's health status for all the green spaces inside Iasi lead to the following results: 54% have a very good vegetation status; 28% have a good vegetation status; 13% have a satisfying vegetation status; 5% have a poor vegetation status.
2. The dominant tree species, for all the green spaces inside Iasi proved to be: lime trees, maple and sycamore maple, oak trees, poplars, forest pine, black pine, oriental arbor vitae and white cedar.
3. The agreement area, which occupy 405.4 ha, present the following situation in what regards the vegetation status: 3% - have a very good vegetation status; 27% - have a good vegetation status; 59% - have a satisfying vegetation status and 11% - have a poor vegetation status. Dominant tree species registered here are: American maple tree, oak tree, common ash tree, locust tree, evergreen oak tree, lime tree etc.
4. Gardens, squares, inside gardens, inner city planted intervals, protective forest lines etc. from the territory of Iasi present the following health status: 31% - with a very good vegetation status (especially oak trees and sycamore maple trees), 31% - with a good vegetation status, 35% - with a satisfying vegetation status and 3% with a poor vegetation status.
5. The vegetal component elements' ratio for the protected natural zones in Iasi are presented like this: 8% resinous trees, 67% leafy trees and 25% leafy shrubs.
6. The dominant vegetation is represented by: lime trees, oak trees, maple and sycamore maple trees, pine trees, locust trees etc.

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