

COMPLEXITY AND IMPORTANCE OF VIRGIN FOREST

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ABSTRACT: *In this summary paper presented general aspects of virgin forests, their biological complexity, and their importance.*

KEY WORDS: *virgin forest, protection*

1. INTRODUCTION

The concept of "virgin forest" arose from the need to know the structure and processes of the forest unmaned by man to substantiate the forest management measures.

From the beginning to the present, man gradually and progressively intervened in the evolution of Europe's forest carpet, often being a determining factor. By deforestation it has reduced and fragmented the forests, and through forest management it has altered their composition, structure and dynamics, degrading them in structural and functional terms. At present, only a third (33%) of Europe's surface is covered with forests, and a significant part of them is represented by simplified composite and structural stands.

Larger regions in Europe, particularly in the west and south of the continent, have lost all of these forests. On the other hand, in regions that still have such forests, they are subject to strong pressures by domestic and alohtone exploitation companies.

For Romania it is a privilege that it still possesses relatively large areas of virgin and quasi-forest forests. They represent an inestimable natural capital of scientific and cultural interest not only of Romania but also of Europe and of the entire world. Virgin forest is a natural woodland where the tree and shrub species are in various stages of their life cycle (seedlings, young growth, advanced growth, maturity and old growth) and as dead wood (standing and laying) in

various stages of decay, thus resulting in more or less complex vertical and horizontal structures as a product of a dynamic process, which enables the natural forest community to exist continuously and without limit in time. In virgin forests the dynamics inherent to living systems are connected to ecological properties (including longevity) of the dominant tree species, impact of other organisms (e.g. outbreak of insects) and to the impact of abiotic factors related to substrate, climate and to the complex of topography and water table (e.g. wind, snow, flooding). Part of this dynamics is the temporary occurrence of gaps or larger tree-less stages. Virgin forests differ within the given phytogeographic zone, forming specific types of forest communities with characteristic species composition, spatial structure, dynamics and overall diversity due to site conditions related to the position above sea level and topography, macroclimate, and nutrient and water availability. Virgin forests reflect herewith the natural unity of forest community and abiotic conditions, fully rooted in their millennia-long continuous Holocene development. (fig.1)

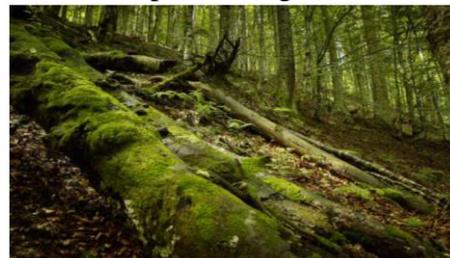


Figure 1. Appearance from a virgin forest

Through a virgin forest ecosystem, one must understand the ecosystem in which biocenosis and the resort did not suffer significant anthropogenic influences, altering the structure and processes of biocenosis and the characteristics of the resort, as well as the relationship between biocenosis and the resort.

Through a virgin forest geosystem, it is necessary to understand the geosystem in which the living layer, made up of forest biocenoses and the neo-shells (air, rock, soil, water) did not suffer significant anthropogenic influences that alter these shells (and thus the ecosystems) . However, anthropogenic geosystems may have virgin forest ecosystems if the anthroposis did not occur across the surface.

Both ecosystems and virgin forest geosystems may be primary if they have not been influenced by humans in the past neither now nor in the past, if they have previously suffered some influence, but they did not cause any noticeable changes in their structure ecosystem and geosystem processes.

For the recognition of a virgin forest ecosystem, the following criteria may be used:

- In the phytocoenosis composition, the native species, corresponding to the characteristics of the resort, participate;
- lack of old or new cages;
- the presence on the ground of trunks of dead trees, at different stages of decomposition;
- lack of grazing with domestic animals;• unaltered soil, covered with litter at various stages of decomposition;
- lack of roads or paths made by humans;• generally difficult accessibility (away from towns, chalets, horses, roads, etc.).

For the recognition of a virgin forest geosystem, the following criteria may be used:

- lack of exploited, cultivated, artificial forest biocenoses, as well as the lack of secondary biocenoses generated by human activities (secondary grasslands, ruderal biocenoses, etc.);
- soils and relief unaltered by anthropic activities, etc .;
- lack of any trace of human activity (settlements, roads, mining activities, various installations, etc.).

2. THE COMPLEXITY OF VIRGIN FOREST

The virgin forest is a highly perfected creation, exclusively under the action of natural law processes, and in which man did not intervene in any way. (Figure 1)

The main features of virgin forests are:

- ***complex texture (horizontal structure)***. It is given by the phases of natural development through which any stands and the surface occupied by each of these phases in a massive forest.
- ***irregular vertical structure***. Depending on the stages of development - it is usually more uniform in the stages of disintegration, regeneration and youth and more diversified in maturity (optimal) and aging (Fig. 2)
- ***composition of stands corresponding to potential natural vegetation***. This depends on the characteristics of the resort and the ecological behavior of the tree species, which refers not only to their relations with the abiotic environment but also to the coexistence relations between them and to the other species of plants, animals and microorganisms in biocenosis.

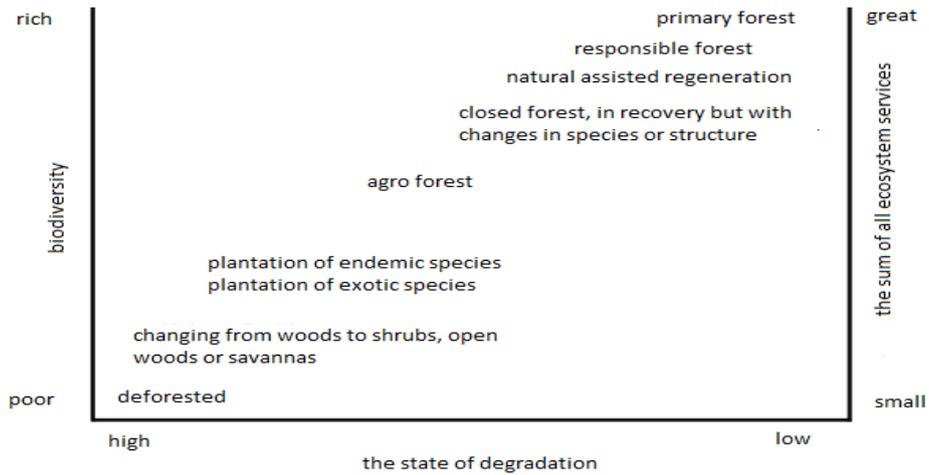


Figure 1. Nature and biodiversity of virgin forests

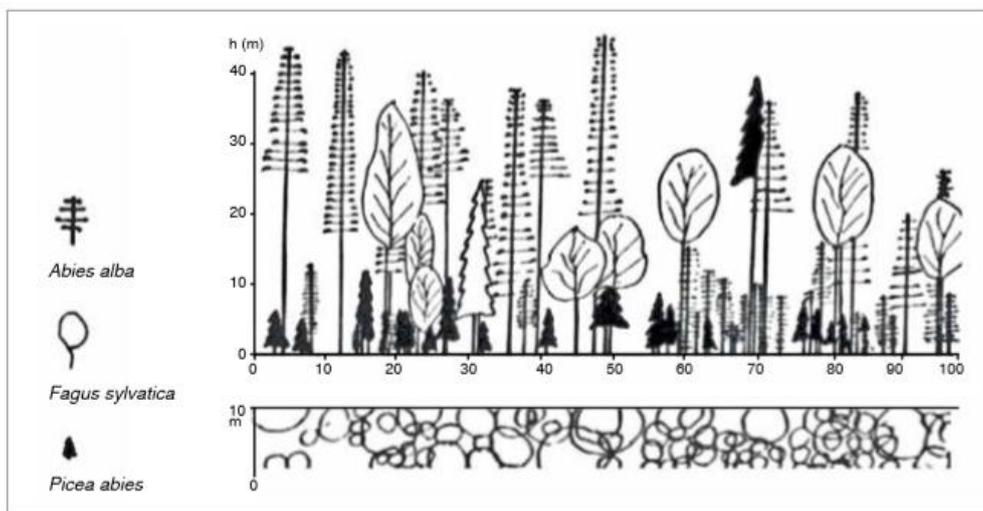


Figure 2. Vertical stratification of the trees in a mixed beech-fir-spruce tree

- **Trees of large ages and sizes.** In the virgin forests can also be found secular trees, true patriarchs and giants of the temperate world vegetal world, warehouses of precious information dendrocronological archives, worthy of study

- **High genetic diversity.** The wood species are characterized by a remarkable genetic and phenotypic diversity, manifested by the presence of many subspecies, varieties, forms, ecotypes (climatic, edaphic), provenances (populations) and hybrids with special adaptive and productive valences.

- **A large amount of dead wood,** either of dry trees still standing, but mostly of fallen trunks, at different stages of decomposition

- **High variety of ecological niches / habitats.** Due to the high diversity of the vertical structure (pluralist), the horizontal structure (mosaic), the presence of old trees and habitat trees, dead wood, etc. a wide variety of habitats for flora and fauna species is created, which explains the richness of species and the abundance of their populations in virgin forests.

- **High biodiversity.** Exceptional biological diversity is provided and ensured by the many ecological niches, biocoenoses and biotopes it encompasses.

- **The process of regeneration** in the virgin forest is usually periodic and not continuous due to the periodicity of fructification but also of stages of tree development

3. IMPORTANCE OF VIRGIN FOREST

Like any living organism, the forest has two components: a material component - mainly the wood - which is the visible part, which gives the physiognomy of the forest, the one that creates the first impression, is more accessible to knowledge and easier to evaluate, quantified, measured; and an informational component, represented by the information gathered and stored along the existence of the forest.

The intrinsic values associated mainly with virgin forests are:

- **Historic witness**, in situ, of what were and still are some of our forests

- **Valuable treasure, genes, species, and ecosystems**, "in situ" for large biogeographic spaces, well-adapted to the environment, and with great reproductive and mediogenic potential.

- **Source of scientific information** on how long and long term and natural adaptation of the original forest, created by nature, due to the correct dimensioning of the structures and the relations between the part and the whole, as well as the inputs and outputs through long trophic chains, complex and substitutable

- **Basic components of the protected natural area system.** The virgin forests are the pillars of resistance on which the conservation and nature conservation action is based, the centers in which the ecosystems remain unaltered, unaffected by anthropogenic degradation, and from which they can radiate outward the influences and forces needed to heal wounds and restore the degraded environment

- **Carbon Storage Tanks.** Vineyards have a high carbon storage capacity, both in vegetation, necrotic and soil, thus contributing to reducing the greenhouse effect.

- **Educational role.** From an educational perspective, virgin forests constitute an adequate framework for knowing and understanding the exceptional

vitality, diversity, complexity, stability, dynamics and beauty of virgin forests.

- **Natural heritage of universal value and an expression of cultural identity.** Scientists and scientific forums unanimously recognize that such forests represent a world heritage due to their natural, scientific, cultural, informational, educational and aesthetic-landscape value.

4. CONCLUSIONS

- The virgin forest is a long-lasting creation, exclusively under the action of natural law processes, and in which man did not intervene in any way.
- Virgin forests reflect this with the natural unity of forest community and abiotic conditions, fully rooted in their millennium-long continuous Holocene development.

5. REFERENCES

- [1] Cirtina D., Schiopu, C., RESEARCH REGARDING AIR POLLUTION UNDER THE INFLUENCE OF EMISSIONS FROM ENERGY ACTIVITIES OF POWER PLANTS, 12th International Multidisciplinary Scientific Geoconference, SGEM 2012, Vol. IV, Pages: 395-402,
- [2] Popescu-Zeletin, I., Functions of the forest and functional types of protection. Forest Journal, 1952, 67 (10): 17-23.
- [3] R Radu S., Bândiu C., Coanda Corina, Donita N., Iovu-Adrian Biriş, Maria-Elena Teodorescu, Preservation of virgin forests. GEEA Publishing House. Bucharest, 2004.
- [4] Stinghe, V. N., "The Forests of Transylvania", published in "Transylvania, Banatul, Crişana and Maramureş, 1918-1928". Vol. I., 1928.
- [5] Turcu, D.O., Research on dynamics of virgin tree structure and tree mortality from the Natural Springs "Nerei Izvoarele". Transylvania University of Brasov, 2012.