

ANTHROPOGENIC PRESSURE ON FORESTS IN THE GLOBAL ERA

Abstract

Of all terrestrial ecosystems, the forest is the most important and complex ecosystem. Because of humans the largest forests of the world are in serious danger. Anthropogenic pressure on the forest is becoming greater with increasing global population. Characteristic new management methods must be found, among others, naturally regenerating forests, ecological technologies in forestry, achieving various structures as close to that of natural forests. The measures presented are able to contribute significantly to stability and sustainable development of forests, if they apply and totally uninterrupted.

Keywords: forest ecosystem, globalization, demographic growth, regeneration

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PRESIUNEA ANTROPICĂ ASUPRA PĂDURII ÎN ERA GLOBALĂ

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Rezumat

Din toate ecosistemele terestre, pădurea este ecosistemul cel mai important și mai complex. Datorită oamenilor, cele mai mari păduri din lume sunt în mare pericol. Presiunea antropică asupra pădurii se intensifică datorită creșterii populației globale. Este necesară găsirea unor măsuri de management caracteristice, printre care regenerarea naturală a pădurilor, silvicultura ecologică, asigurarea structurii cât mai apropiate celei naturale. Măsurile prezentate pot contribui semnificativ la stabilitatea și dezvoltarea durabilă a pădurilor în măsura în care se asigură aplicarea lor completă și neîntreruptă

Cuvinte cheie: ecosistem de pădure, globalizare, creștere demografică, regenerare



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1. INTRODUCTION

Forests cover about 31% of Earth's surface is an integral part of global sustainable development. More than 1.6 billion people depend on forests for their livelihoods, and 300 million people live in these ecosystems. The forests are home to more than two-thirds of known terrestrial species and most threatened species on the planet. Since the total area of forest, Europe, and South America have about 25%, while only 5% are Oceania (Bran et al., 2013).

Absorbing 2.4 billion tons of carbon in a single year, forests serve to slow global warming. Unfortunately forests are covered by one of the major choices you have to make people (Bran et al., 2009). It may be to identify a balance between the desire to exploit forest resources and land, and the important roles they play in planetary life support system.

Forests include vegetable formations extremely complex and diverse, arranged in several layers, as well as the flora and fauna that they host. Forest's natural wealth, whose role in the national economy and whose multiple functions in maintaining the ecological balance are difficult to assess. For centuries, the forest was seen as a source of raw materials.

Because of humans the largest forests of the world are in serious danger. Half of the original forest has been destroyed and things are about to get worse if the current rate of deforestation is not slowed. This would be catastrophic not only because of the fact that many species have their habitat in the forest, but also because forests play an important role in regulating the planet's climate.

2. MAIN ANTHROPOGENIC THREATS FOR FOREST ECOSYSTEMS

Only 12% of the Earth's forests coating retains intact forest ecosystems. These are the tropical forests, mangrove, coastal and swamp. More than 75% of these intact forests are in three countries: Russia and Canada, boreal forests, and in Brazil, the Amazon forest. Canada has approximately 4.02 million km² of forest land, more than 90% of the land is public property. Russia has experienced a series of fires in recent years have alerted not only local, but also all the neighboring states. Examination of issues and exchange experiences on forest tragedy in Russia are marked with the "Megaforest" involving ten countries holding 75% of the world forest (USA, Canada, Russia, Brazil, China, Australia, India, Indonesia Congo and Cameroon).

Of all terrestrial ecosystems, the forest is the most important and complex ecosystem. The key feature of trees is biomass, given their great capacity for assimilation. Forests have important protective

functions of which are distinguished hydrological function, the function of soil protection and ensure soil stability, improve the function of climatic factors and purifying the atmosphere. In this regard it is noted that forest ecosystems have the ability to retain and neutralize largely gaseous pollutants (SO₂, SO₃, fluorine compounds) and also changing their mode dispersion.

Forests are the key factors in maintaining ecological balance, climatic and hydrological having a regenerative capacity 3-5 times greater than any natural ecosystem.

Anthropogenic pressure on the forest is becoming greater with increasing global population. The need for new agricultural land in countries in Africa, Latin America, Asia, or to crops, pastures, buildings have reduced areas under forest.

There is a deterioration of habitat, biodiversity loss and increased aridity. Overall deforestation leads to soil erosion, favoring increased emissions of carbon dioxide as not filtered through the process of photosynthesis.

Ignorance of the people, ignoring the value of forests, poor management of natural resources and poor environmental laws are several factors that allow large-scale deforestation. Deforestation causes permanent changes of climatic conditions, desertification, global warming, greenhouse effect, population displacement (Pana et al., 2011).

Every minute 26 hectares of forest are lost and it is not difficult to see that if things continue in this way we have a planet devoid of forest. This would be catastrophic not only for that many species you have habitat in the forest, but also because forests play an important role in regulating the planet's climate.

In the period 2000-2010, deforestation has led to gross loss of 13 million hectares of forest per year, warned the United Nations Food and Agriculture Organization (FAO). At such a rate of deforestation, tropical forests may disappear completely in less than 100 years. Conversion of agricultural land, unsustainable wood cutting, lack or mismanagement of land and building settlements near forests are the most common reasons for forested areas suffer.

In the last 20 years we have lost 6 million hectares of primary forest through logging, illegal trade of coal, pasteurization and urbanization. For many specialized species losing their habitat is pushing them to the brink of extinction, others have been lost forever.

3. ENVIRONMENTAL POLICIES DEALING WITH DEFORESTATION

Policies dealing with methods of reducing emissions from deforestation and forest degradation (REDD) have been addressed as one of the major solutions to tackle climate change. The central idea of REDD

is using funds from developed countries to finance projects involving reducing deforestation and forest degradation in developing countries. This can be achieved through complex financial mechanisms.

This action man favored unleashing of natural factors such serious consequences, as the forest biocenosis was more fragile and aggressive external factors. In areas with extreme conditions, the process of deforestation has transformed entire regions steppes, savannas and deserts (Nastase et al., 2009).

As a result of deforestation, 20-100 thousand tree species are threatened with extinction. Afforestation fails to balance this balance. In the U.S. almost half of the afforestation is declared commercial forest timber producing or capable of producing.

Habitat degradation is due to changes in land use, namely the conversion of land use in the lower classes. Changing habitats event occurs as a result of cumulative effects global or regional pollution due to direct and arrangement (the transport, industrial and tourist).

Pollution by pesticides, hydrocarbons, heavy metals, PCBs, nutrients induce changes in population structure and strength. Pollution is the landfill which means the removal of the affected area has a number of 30-300 species / ha, without considering soil microbiological population.

One major risk of natural phenomena is to landslides. They affect the slopes, the most widespread and putting on a variety of events.

Term landslide defines both the motion, movement of rocks or deposits on the slopes and the resulting landform. Landslides gravitational processes are generally fast modeling of land slope, moving materials are separated by a plane or planar slip systems from stable, untrained in motion. They can occur in any type of terrain that favorable conditions in terms of lithology, moisture and slope angle.

Floods are processes drain and overflow of water from riverbeds in the meadows, where they occupy large areas used by humans for agriculture, habitat, means of communication. Production is due to the entrance in white flood large amounts of water from rain, melting snow and glaciers sharp mountain.

Deforestation promotes rapid water leak on the slopes and production of floods.

4. FORESTS OF ROMANIA – MAIN PRESSURES

In Romania, the forest occupies a total area of about 6.2 million ha, representing 26% of the total. Abuses and corruption in the restitution of forests are well known in many articles and even official document of the Chamber of Deputies, which found that in one year over 1559 people abuse the

National Forest in 1103 hectares in residential areas. They continued to take abusive forests that have not belonged to politicians, government, police and judiciary. They were true residential areas in forests declared by law of social protection around Bucharest and county capitals in protected areas, forests lakes area. To make deforestation prohibited by law, these private forest districts were established and achieved through the application of the forest management planning in forestry and timber trade is still the owner of the forest.

Romania is monitored by the EU, together with Bulgaria, for how to spend such funds, but while Bulgaria were carefully managed forests in Romania has been a process of destruction and deforestation that has passed and the African countries.

To stop the catastrophic effects of global warming climate generalized scientific research and political power have concluded that urgent action is needed to preserve existing forests and their resettlement in areas where there were before.

From FAO data shows that state forests are a serious condition worldwide. Over 40% of the approximately 1.5 billion hectares of the world's forests are in various stages of decay and destructive actions continues. Between 1990-2000 annual disappeared from Earth on average 9,4 million hectares of forest. In Romania deforestation are more active than African and desertification is present.

Applying a forestry regime for the protection and conservation of forests has been a concern of great empires and the brightest personalities in history. Some specialists consider that errors of some civilizations and empires, through deforestation, have even led to their disappearance (Eduard and Curea, 2009).

The volume of forest resources is dependent on the area occupied by forests and forest type. After FAO data, the forests of South America and Europe have a high productivity per hectare (92-94 m³ / ha / year), while in Africa it reaches only 8 m³ / ha / year.

In terms of area covered with forests worldwide, it is estimated at 4.02 billion hectares, with notable differences from continent to continent. Northern Hemisphere is much richer than the southern forests, although South America has the largest areas covered by forests (874.1 million hectares). A high degree of afforestation have Russia and North America.

The distribution of forest resources in the Member is assessed by afforestation. Therefore were classified into four categories:

- State highly afforestation (over 30% of the total area). Most countries in this category are located in the equatorial region or the northern hemisphere, the area of spread of conifers.

- States with an average degree of afforestation (20-30%) contain numerous countries on all continents; most are located in Europe - Romania (26%), Germany, Poland, France, Belgium, but also in Asia - India, Thailand, Turkey, or Africa - Burkina Faso, Ethiopia, most Central American countries, plus Mexico.
- State of afforestation low (10-20%), the operation must be limited to the amount of annual growth, the European countries situated in plains and hilly regions.
- States with a very low degree of afforestation (below 10%), which imports large quantities of wood are numerous in Southwest Asia, tropical Africa, Europe and isolated several small states on the other continents.

At European level, Romania ranks 13 in terms of percentage of afforestation, being 5.1 percent below the European average of 32.4%. In terms of forest area relative to the number of inhabitants, Romania is ranked 10 in Europe with 0.30 ha / capita, first come the Nordic countries (Finland, Sweden and Norway) (Nistoreanu, 2004). Caring for the protection and preservation of "green gold" is more obvious to the whole world. An increasing number of people realize that the destruction and degradation of forests have serious consequences for the present and future of mankind incalculable.

Forest regeneration is a must both globally and in Romania. Expanding the forests through afforestation is no other forest vegetation outside forest areas and degraded land.

Analysis on the situation in Romania afforestation carried reveals a worrying situation in terms of sustainable development wooded areas recorded a dramatic decrease after 1990, from 25 489 ha to 10 106 ha in 2010.

TABLE 1. WOODED AREA

Year	1990	2000	2001	2002	2003	2004
Area (ha)	25489	12701	13539	16448	14772	14100
Year	2005	2006	2007	2008	2009	2010
Area (ha)	14389	15533	10176	11244	10962	10106

Source: <http://statistici.insse.ro>

The table 1 data can be represented in the following chart (fig.1):

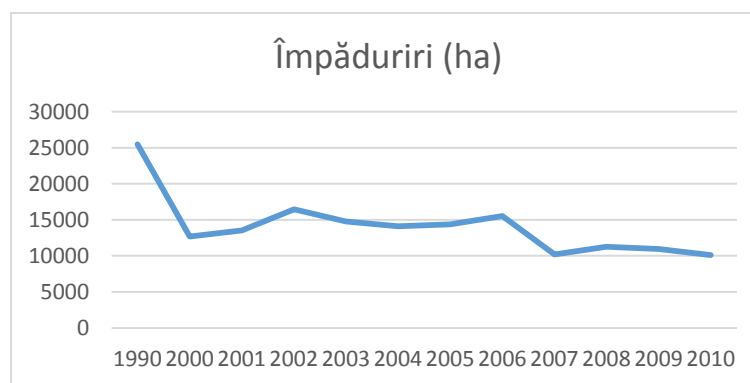


FIGURE 1. AFFORESTATION

Other ways to increase the surface area covered by forest vegetation can be:

- Afforestation unfit for efficient agriculture

According to studies made by the National Research - Development Institute for Soil Science, Agrochemistry and Environment Protection there are estimated 2170 hectares of degraded land, most of which are located in hilly and mountainous. Large areas of degraded lands are in the Piedmont Plateau, Subcarpații Wallachia Somes Plateau, Plateau Transylvania, Moldavia Subcarpații Plain and Plateau Moldova, Dobrogea (Ardeleanu et al., 2012).

One of the main functions of the forest is the protection of soil against erosion, improve water balance and ensure the purity of water, air, climatic factors improve, while producing sources of raw materials for the needs of the population and the national economy. Between forest and soil is an interrelation through its forest roots contribute to disintegration of rocks, soil formation, maintenance and improvement of the structure edaphic humidity. Forests protect rocks, land sliding and deep erosion, debris, sands mobile, land prone to avalanches and swamps, steppe and steppe zones, high altitude land with vegetation or exposed to extreme industrial pollution (Candea et al., 2006).

Forest soils are rich in substances for plants resulting from plant and animal residues that accumulate annually. Deforestation during the years 1920 - 1948, especially in Vrancea, Vaslui, Arges, Olt, Gorj, Dolj, Mures and Cluj was one of the main causes of erosion expansion in Romania. Installed on degraded forest ecosystems are mostly artificial, temporary or transitory type the regional ecosystems, the main objective of halting land degradation processes and improving conditions.

- Establishment of protective forest watercourses and passageways, the crops against pests and climatic factors to protect against land erosion on slopes

In our country the first concerns the study of economic efficiency of use of forest belts in agriculture were initiated in the early twentieth century. Windbreaks provide effective protection of agricultural field

when placed in a grid. Installing forest belts to protect agricultural fields left the idea of fixing the sands and sandy soils due to their mobility, to wind erosion hazard. Opportunities for improving forest vegetation areas by creating protective forest is currently limited due to the lack of cadastral plans, records owners in the towns and landowners refusal to allow the establishment of forest crops. Making agriculture and forestry cadastre would lead to the establishment of important protective forest areas with favorable economic and social effects. Completion of the cadastre for Agriculture and Forestry will lead to the creation of large areas of protective forest with favorable economic and social effects.

In order to prevent damage caused by natural factors pests, reduce soil erosion, improve water retention capacity, improve air quality and production of wood in the National Rural Development was included Measure 221 First afforestation of agricultural land. This measure aims to increase forest areas in order to improve environmental conditions in rural areas through sustainable use and management of land through afforestation.

5. CONCLUSIONS

In conclusion, the main problem faced by protection forests are related to imbalances characteristic of these ecosystems, disturbances which are generated only by natural factors, but also the management of these forests, which contributed greatly to the disruptive action of these factors.

Because the factors that generate imbalances continue to exist, have not been found yet effective solutions because the problems have been addressed individually, without taking into account the close relationship existing between them. Therefore, the solutions cannot be truly viable than those aimed at increasing the stability of forests, but taking into account the numerous phenomena acting over a long period in these forests.

In this respect, a change in the management used in the past is needed. Characteristic new management methods must be found, among others, naturally regenerating forests, ecological technologies in forestry, achieving various structures as close to that of natural forests. The measures presented are able to contribute significantly to stability and sustainable development of forests, if they apply and totally uninterrupted.

REFERENCES

Ardeleanu, G., Popa, D., Popa, C. (2012). "Global crisis and the need for green economy. Case study: Romania", *Revista Economică*. Suppl (1), pp. 68-74.

- Bran, F., Ioan, I., Rădulescu, C.V. (2009). "Economical and financial instruments for reducing greenhouse gases emissions", *Theoretical and Applied Economics*, 12 (541), pp. 45-48.
- Bran, F., Rădulescu, C.V., Ioan, I. (2013). "Values and environmental ethics – pillars of changing human behaviour toward sustainable development", *Journal of Knowledge Management, Economics and Information Technology*, 3(1), pp.194-202.
- Candea, M., Bran, F., Cimpoeu, I. (2006). *Organizarea, amenajarea și dezvoltarea durabilă a spațiului geografic*, Bucharest: Umiversitară Publishing.
- Eduard, D., Curea, S.C. (2009). "The place and role of the sustainability indicators in the transition process to a model of sustainable development", *Theoretical and Applied Economics*, 5(534), pp. 20-27.
- Năstase, M., Popa, C., Petrescu, C.D. (2009). "Integration of environmental policy into the European energy policy", *Theoretical and Applied Economics*, 12(541), pp. 61-65.
- Nistoreanu, P. (2004). *Premise ale dezvoltării durabile în economia românească*, Bucharest: ASE Publishing.
- Pana, A., Ghidiu-Bita, I.M., Curea, S.C., State, F. (2011). "Capitalization of forest resources – analysis of wood products and the exploitation of wood", *Proceedings of the 16th International Business Information Management*, Kuala Lumpur, pp. 679-688.