

ROMANIA'S FORESTS ARE IN DANGER OF EXTINCTION

Florentina BURLACU¹

¹PhD student, The Bucharest University of Economic Studies

Abstract

Forests are the lungs of the planet and are vital for maintaining life on Earth. Their destruction means the destruction of all the living beings on Earth, be it the creatures that inhabit the forests or the people living in villages and towns. The desire of some for enrichment generates unimaginable damage to the ecosystem. In order to have a future on this planet we must understand that humans can't breathe money and we must take urgent drastic measures to defend the forests.

Keywords: Forests, Romania, Deforestation, Illegal logging, Destruction.

Introduction

This subject was chosen because our life depends on the trees and the oxygen that they give through photosynthesis. All the animals and human beings on this planet need the oxygen produced by trees and plants to breathe and stay alive.

Also, forests significantly diminish the amount of water from precipitations that flows to the surface of the soil. This feature, along with the soil stabilization effect due to the roots of the trees, makes the forests to be the main ally to avoid catastrophic floods that may be caused by heavy rains.

Illegal logging affects the environment, the economy and the society as a whole. The loss or degradation of forests will result eventually in the loss of habitats and biodiversity.

The forests of this country are in extreme danger from legal and illegal logging. Illegal logging is destroying the forests of Romania at an alarming rate. The authorities are overwhelmed and can not take measures or will not take measures.

The objective of this article is to draw attention to one of the most important problems this country has: the deforestation of the Romanian forests. In order to stop the illegal logging and the legal forest cuttings, which are just as destructive, action must be taken immediately - draft laws and legislate in order to protect Romania's forests.

In this article it is used mainly the qualitative method in order to obtain the extensive data about the importance of forests in our lives and in our planet's life. With the help of the qualitative method was presented the contribution of the forests to local and global economy, the multiple values that people give to the forests, the impact that deforestations have to climate change and the complexity of the deforestation process.

The quantitative method is also used, particularly with regard to the statistical data analyzed in this study. The statistical data presented in the two tables from the second part of this paper are provided by the National Institute of Statistics. The data utilized in this analysis are grouped according to Romania's four macroregions, in these tables there are also used five years intervals starting with 1990, exception being the last year - 2017, which was the last year with available data.

The techniques used in this study are the analysis of the theoretical works in this field - „Core values underpin the attributes of forests that matter to people”, „On the accuracy of

international forest product statistics”, „Deforestation and Climate Change”, „Forest Politics: The Evolution of International Cooperation”, „A review of the effects of forest management intensity on ecosystem services for northern European temperate forests with a focus on the UK”, „Deforestation, Environment, and Sustainable Development: A Comparative Analysis” - and a case study on Romania’s forests based on „The Synthesis of the Audit Report on „The patrimonial situation of the Forest Fund in Romania, during 1990-2012” and the data from the National Institute of Statistics.

1. Literature review

In recent years few environmental issues have attracted as much attention as global deforestation and the effects that it has on the ecological wellbeing of the Planet Earth. According to several estimates’ forests cover about 10% of the Earth's surface and 20% of the continental surface, excluding Antarctica and Greenland (Bequette 1997, p. 80; Abramovitz 1998, p. 16 in Vajpeyi, 2001, p. 1).

Forests constitute a crucial part of the global ecosystem and the global economy. They provide the largest natural habitat for wildlife. Current estimates indicate that forests host from 50% to 90% of the species of living organisms on the Earth (Schwartzman and Kingston 1997, p. 8 in Vajpeyi, 2001, p. 1).

Forests absorb carbon dioxide (CO₂) from the air and store it in their systems, thus they control and regulate fresh air reserves and their flow. Forests also provide medicinal plants, help in flood control and stop soil erosion, provide timber and wood for energy and fuel for the nearly 1 billion people around the globe (Strada 1999, p. 314 in Vajpeyi, 2001, p. 1).

The contribution of forests to local, national and international economies is significant. The international trade with the 150 nonwood forest products is worth 11.1 billion dollars per year, while the trade in wood products - paper, timber, etc. - generates approximately 142 billion dollars per year (Abramovitz 1998, p. 10 in Vajpeyi, 2001, p. 1).

Buongiorno (2018, pp. 541–551) tried to estimate the accuracy of international forest product statistics. He checked the consistency of the reported consumption of wood and fiber with the production of wood products. For a number of 180 countries Buongiorno approximated the consumption of industrial roundwood and of paper-making fibers nearest to the reported consumption, given the reported production of sawnwood, wood-based panels, pulp and paper and paperboard, and prior estimates of the input–output coefficients. But the results of his study showed that the consumption was under-reported in 57 countries and over reported in 44 countries.

It is stressed the fact that „the main source of the discrepancies was in the production statistics rather than trade. Only in some instances was the presumption of illegal logging consistent with the discrepancy, or lack thereof, between reported and estimated consumption of industrial roundwood” (Buongiorno, 2018, pp. 541-551).

In Romania for the 3-year average 2013, 2014 and 2015 the reported consumption of industrial roundwood was 4762 m³, or 32% less than the estimated. But in the same time there were registered positive numbers in the consumption of total paper-making fiber: 52t or 12% and in the consumption of recovered paper: 51t or 16% (Buongiorno, 2018, pp. 541-551).

Romania ranks eighth in the top of the countries with under-reported consumption of industrial roundwood. This inferred under-reported consumption of industrial roundwood

in Romania could be linked to illegal logging. The reported production fell short of the estimated in the consumption of industrial roundwood because Romania is used for the purchasing of raw materials not finished products.

The benefits that people receive from ecosystems are called Ecosystem services (ES). Sing et al. (2017) emphasize the fact that „understanding the impact of forest management on their supply can inform policy and practice for meeting societal demand.” (Sing et al. 2017, pp. 151-164).

Sing et al. (2017) are convinced that low intensity management is unsuitable for high biomass production, but instead it provides high or moderately high levels of other services. On the other hand, a higher intensity management impacts negatively on biodiversity, health and recreation and water supply services. Combined objective forestry provides high or moderately high levels for all services except biomass. The authors state that a diversity of management approaches is needed to maintain multiple ecosystem service provision. The Ecosystem Services framework „offers opportunities to forest management by revealing areas of conflict or co-production and potential trade-offs that may arise from adjusting management intensity” (Sing et al. 2017, pp. 151-164).

Anderson et al. (2018) emphasize the fact that the managers of public forests are required to balance multiple values of forests. The development of policies in order to represent these „can be impeded by uncertainty regarding how to understand and describe values relevant to forests.” The authors of this study are examining forest values at two levels of abstraction: core values of people (principles that guide in life), and valued attributes of forests (qualities of forests important to people) (Anderson et al. 2018, pp. 629-640).

This paper demonstrated „a broader range of core values relevant to forest management than previously recognized: security (safety and stability of society) and hedonism (pleasure and sensory gratification) were expressed in addition to biospheric, altruistic and egoistic values.” The associations between core values and valued attributes revealed the fact that biospheric values underpin variation in the importance given to production and natural attributes of forests. Also, the core value of security underpinned multiple valued attributes. „By revealing a comprehensive yet succinct range of values associated with forests, this research supports development of forest policy congruent with expectations of society” (Anderson et al. 2018, pp. 629-640).

Climate change mitigation strategies have focused on reducing greenhouse gases emissions, especially carbon dioxide (CO₂). A major source of CO₂ emissions is the process of deforestation. Reducing deforestation in order to decrease CO₂ emissions is seen as one of the least costly ways to mitigate climate change (Kindermann et al. 2008, pp.10302-10307 in Gorte and Sheikh, 2010, p. 1).

Researchers have found out that the higher the levels of carbon dioxide and the temperatures the greater is the need to use a larger quantity of water by the plant. The combination of drought and the need for more water could stress forests and cause changes in the ecosystem. Deforestation on large scale reduces evapotranspiration by plants (water loss to the atmosphere), a phenomenon that reduces the formation of clouds and precipitation (Hansen et al. 2001, pp. 765-779 in Gorte and Sheikh, 2010, p. 7).

Deforestation is a complex global issue. This complexity arises from two general factors. First, deforestation introduces a wide range of political actors, from government to international civil society, each entity having a direct or indirect stake in forest use. These actors include: government departments; private profit-making companies, including

transnational corporations; UN programs, such as the United Nations Environment Programme (UNEP); intergovernmental organizations, including UN specialized agencies such as the Food and Agriculture Organization (FAO) and intergovernmental organizations operating outside of the UN system; and non-governmental organizations (NGOs) such as conservation groups and research fora, that operate at the international, national and local levels. The structures of local government, community institutions and traditional authorities may also be key political actors at the local level. In addition, various hybrid and ad hoc fora with an interest or a stake in the forests may emerge occasionally. Therefore, there is a diverse range of actors competing frequently, they are involved in forest politics, although specific actors vary from one area to another (Humphreys, 2014, pp. 1-2).

Second, the complexity of deforestation arises from its connection to other issues. Deforestation is both an outcome and a causal factor. As an outcome deforestation is the end product of an array of political, economic and social dynamics arising at the international and national levels. These dynamics rarely act in isolation, rather they interact in complex ways. As a causal factor, deforestation contributes to other environmental problems, such as global warming, soil erosion and the destruction of biodiversity (Humphreys, 2014, p. 2).

In the next section it will be shown the real situation of the Romanian forests, and in this sense, it will be presented statistics that reflect the existing ecological disaster in Romania. The statistical data comes from three sources that have a credibility hard to dispute: National Institute of Statistics (INS), the Romanian Court of Accounts and Greenpeace Romania.

2. Romania's forests in statistical data

Table 1. Area of forest land fund by land category, forest species, macroregions, development regions and counties

Forestland categories and forest species	Macroregions, development regions and counties	Years						
		Year 1990	Year 1995	Year 2000	Year 2005	Year 2010	Year 2015	Year 2017
		MU: Thousands hectares						
		Thousands hectares	Thousands hectares	Thousands hectares	Thousands hectares	Thousands hectares	Thousands hectares	Thousands hectares
Total	TOTAL	6371	6368.8	6366.5	6390.6	6515.1	6555.1	6564.9
	MACROREGION 1	2148.6	2148.8	2149.5	2158.6	2242.2	2256	2259.7
	MACROREGION 2	1728.5	1729	1726.3	1743.9	1742.9	1747	1749.4
	MACROREGION 3	687.2	687.2	685.8	683.7	685.5	685.2	685.9
	MACROREGION 4	1806.7	1803.8	1804.9	1804.4	1844.5	1866.9	1869.9
Forest land area	TOTAL	6252.3	6244.7	6223.1	6233	6353.7	6398.8	6405.8
	MACROREGION 1	2119.7	2118.1	2112.3	2121.8	2203.8	2216.7	2218.7
	MACROREGION 2	1687.8	1685.8	1673.8	1680.4	1681	1688.3	1694.3
	MACROREGION 3	672.2	668.1	665.1	663.4	665.6	667.3	667.6
	MACROREGION 4	1772.6	1772.7	1771.9	1767.4	1803.3	1826.5	1825.2
Coniferous tree forests	TOTAL	1928.8	1902.9	1856.2	1872.7	1940.9	1930.7	1924
	MACROREGION 1	811.5	804.7	789.5	795.9	867.8	862.8	858
	MACROREGION 2	692.8	688.6	671.8	668.3	670.7	665.5	665

Forestland categories and forest species	Macroregions, development regions and counties	Years						
		Year 1990	Year 1995	Year 2000	Year 2005	Year 2010	Year 2015	Year 2017
		MU: Thousands hectares						
		Thousands hectares	Thousands hectares	Thousands hectares	Thousands hectares	Thousands hectares	Thousands hectares	Thousands hectares
	MACROREGION 3	129.6	127.5	127.5	132.3	124.4	131.4	132.2
	MACROREGION 4	294.9	282.1	267.4	276.2	278	271	268.8
Broad-leaved tree forests	TOTAL	4323.5	4341.8	4366.9	4360.3	4412.8	4468.1	4481.8
	MACROREGION 1	1308.4	1313.3	1322.9	1325.9	1336	1353.9	1360.7
	MACROREGION 2	995	997.3	1002	1012	1010.3	1022.8	1029.3
	MACROREGION 3	542.4	540.5	537.5	531.2	541.2	535.9	535.4
	MACROREGION 4	1477.7	1490.7	1504.5	1491.2	1525.3	1555.5	1556.4
Other land	TOTAL	118.8	124.1	143.4	157.6	161.4	156.3	159.1
	MACROREGION 1	29	30.7	37.1	36.8	38.4	39.3	41
	MACROREGION 2	40.6	43.1	52.5	63.5	61.9	58.7	55.1
	MACROREGION 3	15	19.1	20.7	20.3	19.9	17.9	18.3
	MACROREGION 4	34.2	31.2	33.1	37	41.2	40.4	44.7

Source: National Institute of Statistics.

MACROREGION 1: North-West, Center.

MACROREGION 2: North-East, South-East.

MACROREGION 3: South-Muntenia, Bucharest-Ilfov.

MACROREGION 4: South-West Oltenia, West.

The National Institute of Statistics defines forest fund as „the total area of forests, lands meant for afforestation, those serving the needs of crops, production or forest administration, of ponds, brooks, as well as of other areas with forest destination and non-productive lands contained in forest arrangements on January 1st, 1990 or included in these later including surface changes according to the fulfilled input-output operations, under the law, no matter of ownership right” (The National Institute of Statistics, 2018, <http://statistici.insse.ro/shop/>). According to the National Institute of Statistics forest area represents „all lands with an area of at least 0.25 ha covered with trees. Trees must reach a minimum height of 5 m at maturity in normal conditions of vegetation. Area of other lands belonging to the forest fund includes the non-forested lands serving the needs of crops, production or forest administration, land occupied by constructions and related yards, land in regeneration class, ponds, brooks, land meant for afforestation, non-productive land, strip border, land temporarily removed from forest fund and forest lands owned by various physical and legal persons without definitively ownership title and for which there are administratively or in court actions claim in court exists” (The National Institute of Statistics, 2018, <http://statistici.insse.ro/shop/>).

Table 1 presents the evolution of the forest area in Romania starting with 1990 and until 2017. It is used the data recorded every five years as the reference period (1990, 1995, 2000, 2005, 2010, 2015), 2017 being the last recorded year. The analyzed statistical data from the first three years taken as reference (1990, 1995, 2000) shows that there was a slight decrease in the total number of hectares of forest. Then, starting with 2005-2010, 2015 and 2017 – the values record an increase in the number of hectares of forest area.

Table 2. Area of the land submitted to afforestation schemes by forestation category, macroregions, development regions and counties

Afforestation categories (by forest species)	Macroregions, development regions and counties	Years						
		Year 1990	Year 1995	Year 2000	Year 2005	Year 2010	Year 2015	Year 2017
		MU: Hectares						
		Hectares	Hectares	Hectares	Hectares	Hectares	Hectares	Hectares
Afforestations – total	TOTAL	25489	13117	12701	14389	10106	11846	10736
	MACROREGION 1	6845	3368	5853	4917	3257	4043	3853
	MACROREGION 2	9992	3989	3444	5673	3944	5298	4532
	MACROREGION 3	2767	2347	1396	1165	1171	965	926
	MACROREGION 4	5885	3413	2008	2634	1734	1540	1425
Coniferous trees	TOTAL	9262	4895	5865	5418	5257	6183	6117
	MACROREGION 1	3594	2068	4154	3260	2410	2982	2953
	MACROREGION 2	3216	1293	1017	1410	2110	2366	2355
	MACROREGION 3	424	392	192	139	231	226	209
	MACROREGION 4	2028	1142	502	609	506	609	600
Broad-leaved trees	TOTAL	16227	8222	6836	8971	4849	5663	4619
	MACROREGION 1	3251	1300	1699	1657	847	1061	900
	MACROREGION 2	6776	2696	2427	4263	1834	2932	2177
	MACROREGION 3	2343	1955	1204	1026	940	739	717
	MACROREGION 4	3857	2271	1506	2025	1228	931	825

Source: National Institute of Statistics.

The National Institute of Statistics explains that afforestation represents „all works done for planting of seedlings or sowing a land area in order to create new forest trees, both on forest lands that has been exploited mature stand and on lands without forest vegetation” (The National Institute of Statistics, 2018, <http://statistici.insse.ro/shop/>).

Table 2 presents the evolution of the afforestation in Romania starting with 1990 and until 2017. The statistical data shows that initially, after the '90, there was a decrease in the number of hectares submitted to afforestation, then starting with the year 2005 the values record a fluctuation that is maintained until the end of the analyzed period.

According to the data published in The Synthesis of the Audit Report on „The patrimonial situation of the Forest Fund in Romania, during 1990-2012” made by the Romanian Court of Accounts, during 1990-2011 the volume of illegal logging in the forests of Romania was extremely high, yet with some annual fluctuations. The most affected were the state-owned forests (Romanian Court of Accounts, 2013, p. 99).

If the volume of the cuts from 1990-2011 period is studied it can be seen that there was a peak year 1992 - 281.517 m³ and a minimum of 51.900 m³ in 2008. According to a study by Greenpeace, in Romania are cut over 3 hectares of forest every hour. The data and information from Romsilva show that daily are cut on average 41 hectares of forest, most of which are illegal cuts (Romanian Court of Accounts, 2013, p. 99).

The total volume of illegal logging in state forests and private property during 2005-2011 is 633.500 m³, according to the data provided by the Ministry of Environment and Romsilva. Considering the average volume of 217 m³ of wood/ha, in the period under review was illegally cleared a forest area of 291.932 hectares (Romanian Court of Accounts, 2013, pp. 99-100).

Going back in time until 1990, according to a report made by the Federation for the Protection of Forests, the volume of forest cuts is covering an area of over 366.000 hectares, during 1990-2011 were cut illegally and were used over 80 million cubic meters of wood (Romanian Court of Accounts, 2013, p. 100).

Calculating with the lowest price (70 Euro/cubic meter of firewood) it shows that the value of these cuts is over 5 billion Euro. This figure is far from the real one, since most of the felled trees from the forests of Romania were exported in countries of Europe, North Africa, Asia, etc. at prices much higher than the minimum price set for firewood (Romanian Court of Accounts, 2013, p. 100).

Conclusions

This phenomenon of illegal cutting of the forests has grown in the last 28 years in Romania. Illegal logging and poor forest governance have led to severe deforestation in our forests. Almost half of the illegal cutting was located within national parks and other protected areas.

Because the damages caused to Romanian forests are very high it would be necessary to take drastic measures, just like the ones Albania took. Albanian Parliament passed a law banning the deforestation of forests for 10 years. A solution to the situation in which Romania is found at the present time can be the passing of a law banning deforestation for 10 or 15 years. Romanian Parliament members and politicians will be able to find a breach in the community law that may allow the legislative to adopt and implement such an important law for the protection of Romania's forests.

It is also imperative to increase penalties for illegal logging and to set up well equipped patrols to combat the theft of wood. Drone surveillance may be the solution to cover vast distances and to intervene in time in the exact spot in which trees are cut.

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