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FOREST CRIMES AS A THREAT TO SUSTAINABLE FOREST MANAGEMENT

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From ancient times to the present day, forest public relations has been an issue on the agenda. This relationship's purpose was initially needed for shelter and nutrition; however today this process has changed with urbanization, overpopulation and understanding the new functions of forests. When land ownership became a tool of production, offenses occurred in order to convert forestlands to agricultural lands. So the vast majority of the world's forests have been lost for this reason. Today, deforestation is occurring in tropical countries that are expecting to gain agricultural area. The purpose of this study is to investigate the relationship between urbanization and the qualitative and quantitative characteristics of forest crimes, which are a major obstacle for sustainable forestry. Although forests cover about 27 % of Turkey's territory, the forests are losing viability; the status of wood raw material per unit area and the total area of the country in the ratio of productive forests are becoming critical in Turkey. Turkey's rugged terrain and factors such as human interventions, fires, deforestation for agriculture, illegal cuttings, or improper grazing reduce existing forests or cause deterioration of their structure. In the past, deforestation, as a result of human interventions in Turkey, was done by forest villagers who live in rural areas. The forest crimes depend on various socio-economic reasons and have many adverse effects on the sustainability of forest and forest existence. In developed countries, illegal interventions such as opening, grazing, cutting, occupation, use, settlement, or hunting crimes have been largely eliminated because of the absence of cadastral problems, the existence of more responsive people to protect the environment and forests and a rural population, which has a higher standard of living. In the last 20 years, there has been both a dramatic decrease in the population living in rural areas and a decrease of forest crimes in rural areas. On the other hand, legal and illegal forest attacks have been increasing due to urbanization in this process. This study was conducted to evaluate Yeşilirmak river basin forest crimes of the last 11 years. Yeşilirmak river basin occupies 3 964 375 ha, which is approximately 5 % of Turkey's total area and 519 km in length.

Keywords: *rural development, forest offences, urbanization, forest-public relations, Turkey.*

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INTRODUCTION

Forests, as a part of the world's ecosystem, are one of the passengers traveling on the same train as human species. However while man is the main passenger of train, forests, in the form of coal, fuel the train's heating system. One day, when the coal resources are exhausted the train will not be able to move. The constant move of the train depends

on the continuous source of energy. Therefore the most important word as of late is «sustainability», which is essential for the continuity of life. There are a number of definitions currently in use. There is some consensus that a transition to a sustainable way of life means taking steps to try to reduce the risk of environmental and related problems that will seriously affect or jeopardize the human species at some future time to thereby ensure that

future generations have a reasonable prospect of a worthwhile existence (Anthony, Nicholas, 1997).

Illegal use of natural resources is a major threat to biodiversity globally (Gavin et al., 2009). Wildlife and forest offenses are a complex phenomenon with many layers and dimensions. The main causes of forest crimes in Turkey are; rural poverty, property conflicts, demographic, cultural and historical reasons (Şen, Ünal, 2003; UN..., 2012). According to official records, about 10 % of the population in Turkey live in forest villages. In fact, this proportion is even more limited and declining because urban life attracts more and more people every year. Especially among the younger population there is tendency to migrate due to business, education, and attractiveness of cultural and social life in cities. On the other hand, forest villagers have the lowest share of national income in Turkey. Agriculture and animal husbandry are the basic livelihood of forest villagers. However, forest villagers' agriculture areas are inefficient, unproductive and erosion-prone areas, which are not suitable for irrigation. Livestock breeding activities are also unproductive in forest villages. Therefore, there is a dependency on forest and its resources. They meet their fuel, wood, timber and non-wood products like fodder and mushroom requirements and illegal hunting by taking these from state forests.

Although some of these problems are caused from rural poverty, other crimes can be caused by cadastral conflicts. Almost all forests (99.9 %) belong to the state in Turkey. However, there are disputes about the validity of the Ottoman-era deeds. Therefore settlement in forests and clearing for several purposes are seen as controversial in forest areas. There are a lot of such disputes in the Eastern Black Sea Region in Turkey (Ayaz, and Alkan, 2009).

Due to demographic reasons, the main argument of this paper, will be discussed in the next section. Especially after 1950, rural migration has been prevalent in Turkey. The main cause of this migration is the appearance of industrialization around the major cities such as Istanbul. There is extensive literature on the forest villagers' economic problems, migration trends and development policies (Anil, 1974; Geray, Acun, 1980; Gümüş, 1993; Türker, Yazıcı, 1994; Akesen et al., 2002).

MATERIALS AND METHODS

Yeşilirmak river basin comprises approximately 5 % of Turkey's total area and its length is 519 km and ranked 3rd among the 25 river basins across the

country in terms of land area. The largest share of 60.6 %, compared to the economy of the basin, is the services sector. The agriculture sector is around 20.0 and 19.4 % in the industrial sector. The altitude of 3500 meters in the mountainous regions of the basin has decreased to the level of the sea coast of the Black Sea. Yeşilirmak basin consists of province centers like Amasya, Çorum, Samsun and Tokat and important districts are Yozgat-Akdağmadeni, Gumushane-Kelkit and Kose, Giresun-Alucra-Şebinkarahisar and Sivas-Koyulhisar'dan (Fig. 1).

The total area of the Yeşilirmak river basin is 3 964 375 ha and has 16 Department of Forests which are Samsun, Vezirköprü, Ünye, Akkuş, Almus, Corum, Akdağmadeni, Sivas, Tokat, Niksar Erbaa, Koyulhisar, Şebinkarahisar, Erzincan, Torul, Amasya Forest Management Directorates. If ranked in terms of size, Tokat, Amasya, Corum Forest Management Directorates are the first three places, while Ünye, Vezirköprü and Akkuş are located at the end. The basin has a rich diversity of plant life.

Anthropogenic impacts and damages have an important role in this variety. There have been long-term and heavy pressures in the basin as a result some of the climax vegetation, which has emerged, and depending on the structure of secondary plant communities, the ecological balance has been lost and damaged. Yeşilirmak river delta, which provides a variety of coastal sand dune and wetland habitats, is the largest delta system in Turkey's Black Sea coast. As a result of extensive drying, the Yeşilirmak river delta mostly converted into agricultural land (Anonymous..., 2013).

In this study, in Turkey and study area, the changes of forest crimes in the basin over the years were evaluated. Changes of the forest crimes in Turkey and rural migration trends are also shown graphically.

RESULTS AND FINDINGS

Demographic outlook. The rural-urban populations reversed, starting especially after industrialization began in the 1950s in Turkey. In the 1950s, 75 % of the population lived in rural areas, compare that to today in which more than 75 % live in cities (Fig. 2).

Previously the rural populations migrated towards Istanbul and the Marmara region in 1950's and were directed to various European countries in the 1960s, such as Germany, in particular. It is estimated that around 5 million Turkish immigrants live in Europe today. After the 1980s, the tourism and the services sector began to develop as a

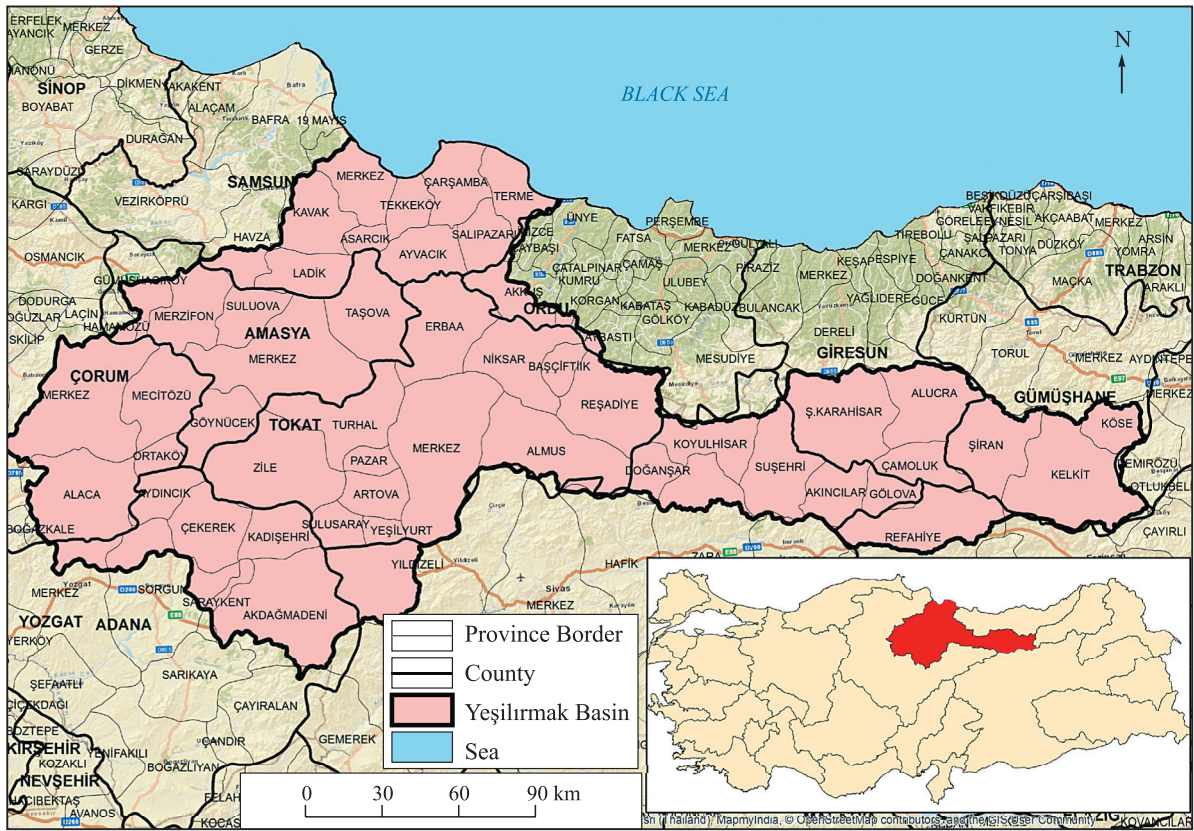


Fig. 1. Yeşilirmak river basin in the map of Turkey.

result of economic liberalization and the migration directed to cities such as Antalya, Mersin, and Izmir in the Mediterranean and Aegean coasts (TUIK, 2012). 1950–1955 (5.8 %) and 1980–1985 (6.4 %) periods were the rapid migration periods of the rural population. Due to industrialization during the years of 1950–1955 and the effect of tourism between 1980–1985, rural migration has accelerated. Such regional imbalances, rapid population growth, less income distribution share for the agricultural sector and politics have an important influence on immigration in rural Turkey (Başel, 2007).

Forest offences. Since the existence of humanity in the world, relationships between forest and people have occurred and continued to shape our environment. This relationship initially began as free housing and nutrition, however the private ownership of forests began to restrict the free uses. The protection of hunting grounds is known to be the first restrictions (Erdönmez et al., 2010). Previously, the forests were the subject of the common property. Especially in Europe, it is used and shared freely by the nomadic communities as common property. During these periods, there were irregular and free uses of forests by people. Grazing in forests, clear cutting, irregular utilization, tree felling and forest destruction continued into the medieval times. Land common property ended due to the spread of feudalism and the confiscation by landlords in Europe. It is known that the first laws banning the free uses of forests in 13rd century. After the industrial revolution, the increase in the importance of forests as a raw material enacted new laws and prohibitions. With these laws; some activities began to become banned, such as clearing of forests for agricultural purposes, illegal production for commercial purposes and transportation.

The private ownership of forests was not common during the Ottoman Empire. It was free

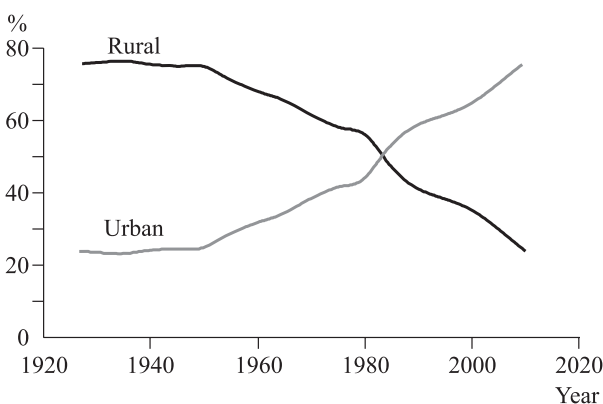


Fig. 2. Rural and urban population changes between 1927–2010.

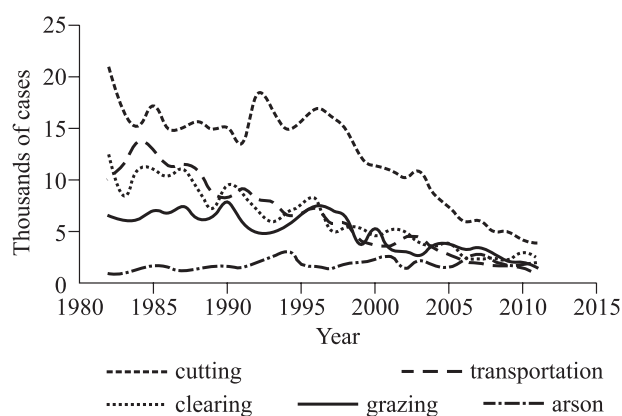


Fig. 3. Changes in the trend of arson and forest crimes during the years 1982–2011.

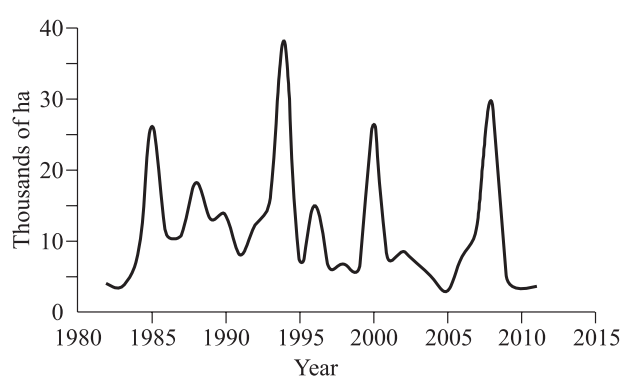


Fig. 4. Burned forest areas by years 1982–2011.

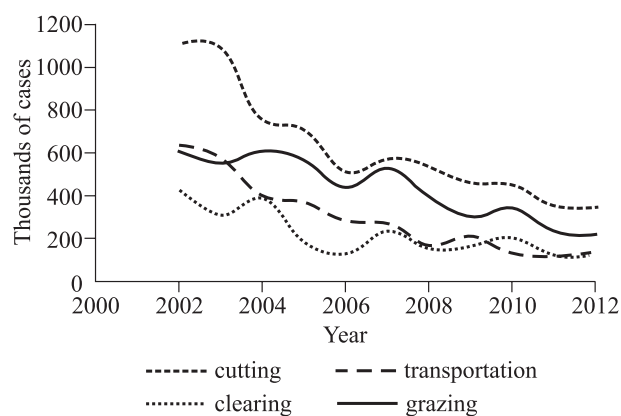


Fig. 5. Changes trends of some forest crimes in study area by years 2002–2012.

to use forests except for the needs of the state (*cibali mübaha*). This freedom continued until the law of forest in 1870. The new forest law did not place *cibali mübaha* in the section of classification of forests. Even if rights to benefit from forests of forest villagers are preserved by certain legal arrangements, uncontrolled use forests continues even today. Today, forest crimes are defined by the forest law, and they have heavy penalties. However,

forest crimes have not been able to be prevented in the last few decades because of the tradition of *cibali mübaha*. On the other hand, there is a continuous decrease in forest crimes especially after the 1980s (Fig. 3).

Graph shows the amount of forest crimes over the years last 30 years. The most common crimes in the forest such as cutting, transporting, clearing, grazing and forest burning can be followed in the trend graph. All forest crimes have decreased except arson. Despite the burning of forest, crimes generally follow a horizontal track but tend to increase. Arson was the lowest level in 1982 (950) but it was at its highest in 1994 (3239). The average burning the forest is 1853 fires in a 30-year period. Although there has been a decline in recent years in terms of the burning forest area in Turkey, there is a irregular trend in 30-year period that shows in graph (Fig. 4)

Although the records were found, in the last 10 years, a similar trend like Turkey's crime status is observed in the study area. Fig. 4 shows a remarkable reduction in all types of crimes in study area too.

Due to the study area is not fire sensitive area. Therefore, the number of arson crimes is very low. As we have seen in Fig. 5 forest crimes such as cutting, transporting, clearing and grazing decreases rapidly due to rural migration. All of the cities in the basin have migrated to urban (Fig. 6).

DISCUSSION

The rural population in Turkey has declined since 1950. This situation has had a positive impact on natural resources such as forests. Crimes by rural people against forests are generally illegal using, clearing or burning for agricultural purposes, livestock grazing or illegal using for commercial purposes.

There has been a reduction in all of these crime types, except fire. Additionally, the conversion of abandoned agricultural land to forests has resulted in an increase of Turkey's forest area.

On the other hand, there is an improvement of the forests health due to decreasing of illegal clearing and cutting of forests. However, there are also negative effects of rural migration. Besides reduction of agricultural production, the importation of animal products, difficulties in finding workers to do jobs in agricultural or forest area, drying natural pastures without providing contribution to the national economy, there are also negative effects of migration to urban areas. People who have migrated from rural areas to cities

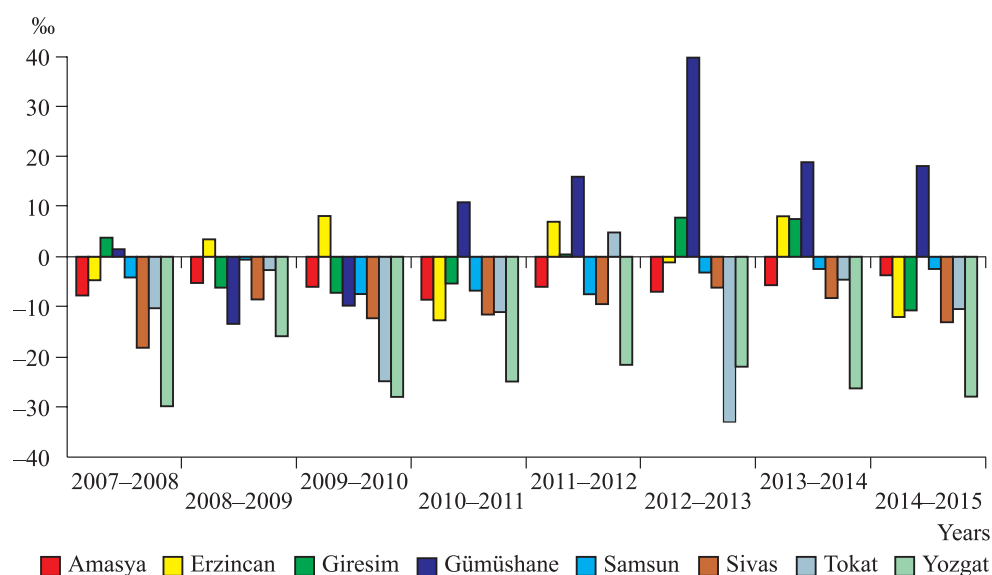


Fig. 6. Provincial rate of net migration in the study area in 1975–2000, %.

have to live in unhealthy suburbs in low-income households. In addition, migrants may experience social problems due to incompatibility with urban culture. Overcrowded cities cause many problems including traffic, environmental health, education services, and, social security. Urban area also have been growing rapidly towards the natural resources around the cities. This situation undoubtedly greatly damages forest natural resources. Illegal cutting is generally seen near big cities, like Istanbul and the Mediterranean and Aegean regions, where tourism has developed rapidly.

In addition, thousands of rivers hydroelectric power plants have been established due to the increase in energy needs. These plants have changed the water regime of rivers and environmental destruction has occurred. New roads and bridges due to increased traffic have greatly damaged the forests in and around the cities. Due to the short-term programs of the governments, rural nature-human conflicts have moved to cities today. The rapid development of tourism in south and east part of Turkey has increased the number of forest fires and other types of forest crimes.

CONCLUSION

According to official records, 27 % of Turkey's land area is forest. However, half of the Turkey's forestlands have been corrupted by anthropogenic influences and they are unproductive forestlands. The first measure to solve these problems is to improve the unproductive and corrupted areas. Policies should be developed in order to live an

average living standards in rural areas, and measures must be taken to reverse urban migration. Solving urban problems should be done without damaging natural resources. The basic solution to the traffic problem is public transport systems. Public transportation should be encouraged and extended rather than individual transport. As a result, people would not be able to come out victorious in the war with nature. Humanity needs to find new ways to live in harmony with nature instead of fighting.

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ЛЕСНЫЕ ПРЕСТУПЛЕНИЯ КАК УГРОЗА УСТОЙЧИВОМУ ЛЕСОПОЛЬЗОВАНИЮ

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Цель данного исследования – изучение взаимосвязи урбанизации с количеством и особенностями лесных преступлений, которые являются серьезным препятствием для устойчивого развития лесного хозяйства. Хотя леса занимают лишь около 27 % территории Турции, увеличение запасов древесины, количество древесного сырья на единицу площади, соотношение площади продуктивных лесов и общей площади страны имеют решающее значение для Турции. Сильно пересеченная местность Турции и такие факторы, как вмешательство человека, пожары, вырубка лесов для сельского хозяйства, незаконные рубки или неправильный выпас скота, приводят к сокращению площади существующих лесов и ухудшению их структуры. В прошлом леса в Турции вырубались для собственных нужд в основном местными жителями, проживающими в сельской местности. Лесные преступления, происходящие в настоящее время, зависят от различных социально-экономических причин и оказывают значительные негативные воздействия на устойчивость и существование лесов. В развитых странах лесные преступления, такие как незаконные рубки, выпас скота, незаконное использование недревесных ресурсов леса, браконьерство, расширение территорий населенных пунктов путем самозахвата лесных земель, были в основном ликвидированы из-за отсутствия кадастровых проблем, более высокой сознательности людей в отношении защиты окружающей среды и лесов и более высокого уровня жизни сельского населения. За последние 20 лет в Турции наблюдаются резкое сокращение населения, проживающего в сельской местности, и уменьшение лесных преступлений в сельских регионах. С другой стороны, законные и незаконные воздействия на леса усиливаются в связи с ускорением процессов урбанизации. Данное исследование проведено в бассейне р. Есилирмак с целью выявления лесных преступлений за последние 11 лет. Площадь бассейна р. Есилирмак составляет 3 964 375 га – около 5 % от общей площади Турции – и имеет протяженность 519 км.

Ключевые слова: *развитие сельских территорий, лесные преступления, урбанизация, общественные лесные отношения, Турция.*