

The contribution of the cadaster to the protection of urban forests. The case study of Seich Sou.

Vordoglou M.^{1,*}, Samara T.², Tsitsoni T.¹

¹ Aristotle University of Thessaloniki, School of Forestry and Natural Environment, Laboratory of Silviculture, P.O. Box 262, 54124 Thessaloniki, Greece

² Forest Research Institute of Thessaloniki, ELGO-DEMETER, 57006 Vassilika, Thessaloniki, Greece;

*corresponding author: e-mail:vordogloumaria@gmail.com

Abstract

This paper studies the way in which modern land-forest map design contributes to the protection of urban forests generally and the Seich Sou urban forest of Thessaloniki in particular. We also examine the role of cadastre and forest maps in protecting urban forests from abuses such as pressure for housing, which are particularly acute due to their proximity to urban centers. Particular emphasis is given to the Seich Sou urban forest, which provides important protection from erosion and pollution to the city of Thessaloniki. Thessaloniki is characterized by a low proportion of green areas per inhabitant and a high pollution burden. The history of the forest, its ownership status, its legal framework of protection, the problems it faces, as well as the role of the cadastre and forest maps in their resolution are presented. Finally, we conclude by proposing ways of strengthening the protective framework governing Seich Sou, as well as the urban forests of the country in general. The rational management of urban forests via the development of good forest policy with tools such as cadastre and forest maps can be the key to protecting urban forests effectively and exploiting their multiple benefits in perpetuity.

Keywords: land register, forest maps, urban forests, Seich Sou, protection

1. Introduction

Nowadays, peri-urban forests are of great importance having an aesthetic, ecological and social role. Unfortunately, they are becoming vulnerable more and more due to the declining of open spaces and increased residential pressures which are particularly intense due to their proximity to urban centers (Vlahaki and Tsitsoni, 2015). They present multiple benefits such as recreation, protection from floods, air pollutants and soil erosion (Spanos et al. 2010).

Thessaloniki is characterized by a low proportion of green areas per inhabitant and a high pollution burden, so Seich Sou peri-urban forest plays an important role providing protection from erosion and pollution to the city (Ganatsas et al. 2002). However, the ownership status of the forest isn't absolutely defined leading to long-term judicial conflicts and a loose protective status. The role of cadaster and forest maps is extremely

important. On the one hand cadaster give information for use of land. It is also well known that economic growth of each country depends information about land and natural resources management. On the other hand, forest maps give information about character of each area and this cannot be altered after their ratification as definitive (Drosos, 2014). The main objectives of the present study are:

- Examining the role of cadaster and forest maps in protecting urban forests, particularly Seich Sou. Identifying the problems that it faces, its legal framework, administrative acts, judicial decisions.
- Finding proposals-solutions that will contribute to peri-urban forest's protection.

2. Material and Methods

2.1. Study area

The study was carried out in Thessaloniki the second biggest city of Greece. The peri-urban forest Seich Sou is an artificial forest and was selected as a study area because it is a vital greenbelt for Thessaloniki, city with many environmental problems (Tsitsoni et al. 2010). Seich Sou forest is located in the north-east part of the city, occupying an area of 3033,969 ha (almost 30.000 str.). It is also located in southern and western part of Hortiatiss mountain (Hatzichristaki and Zagas, 2011).

2.2. Review of administrative decisions

In the present study review of administrative decisions concerning the peri-urban forest Seich Sou was realized, in order to find out the main problems of ownership status that it faces. The most important decisions are the following:

- In 1921, an area of 1.300 str. was declared as reforestable in region of "Chilia Dendra". Then, forest restoration and reforestation were held.
- In 1935, the above-mentioned reforestable area was widened, occupying 14.500 str.
- Next, in 1973 the borders of the reforestable area were changed. The new one area was of 29.790 str. However, a part of this area, 652 str. of allotments, were distributed to citizens by local authorities. Only 14 cases have been specifically excluded from the total reforestable area.

- Afterwards, in 1979 the above allotments and cultivated areas were excluded from the reforestable area (Aggelidou et al. 2018).
- Later, in 1990, a new decision redeclared as reforestable the whole area, within areas that weren't forests or forestlands. In the meantime (1979-1990), some owners of these areas had already built in their fields. Unfortunately, on July^{7th} 1997, a huge fire broke out and burned 55% of the forest (Ioakeimidis and Kaimaris 2013). General secretariat of Central Macedonia region declared as reforestable 14.869 str. that were burnt and 1.117,80 str. that weren't forestlands. But, Council decision 3643/1999 canceled the two overmentioned decisions (Aggelidou et al. 2018).

3. Discussion

- As reported by other studies (Tsitsoni et al. 2004; Psilovikos 2010; Staurinou et al. 2017) we found many problems due to anthropogenic pressures, ineffective protection and insufficient planning. Peri-urban forests face serious threats, due their proximity to urban centers (Beriatos, 2002; Staurinou et al. 2017). Especially Seich Sou is characterized by a non-well defined ownership status.
- The continuing conflicts concerning the forest areas constitute a real social problem in Thessaloniki. It is crucial to find the best solution for those owners having legal title (allotment). Expropriation or land exchange maybe could solve the problem.
- Successive regulation changes (updates, abolitions, modifications) to a long-lasting problem lead to delay and confusion.
- The urban sprawl should be tackled with limitations. Well-defined borders of the area by laws would be helpful to protect effectively the peri-urban forest, as reported by other studies (Staurinou et al. 2017)
- Additionally, the contribution of cadastre, forest maps and forest cadastre to the protection of urban forests and especially Seich Sou is of high importance. After the ratification of forest map as definitive, the creation of an updated forest cadastre is needed, immediately.
- As it seems, urban forests present special needs. The rational management of urban forests via the development of good forest policy with tools such as cadaster and forest maps can be the key to protecting urban forests effectively and exploiting their multiple benefits in perpetuity (Beriatos, 2002). Finally, the establishment of public body expertised in management of peri-urban forests would lead to a more effective protection, opinion already mentioned (Beriatos, 2002).

References

- Aggelidou E., Gkalfa O., Fassas T. and Giannakis A. (2018), Management study of peri-urban forest Seich Sou, Forest Service of Thessaloniki (in greek).
- Beriatos I. (2002), Urban forests, the green "walls" of greek cities: a policy for their protection and management 6th Panhellenic Geographic Conference of Hellenic Geographical Society Thessaloniki, October 3th-6th, 8(14)
- Drosos V. (2014), Cadastre (forest maps) and spatial land uses planning, strategic tool for sustainable development Second International Conference on Remote Sensing and Geoinformation of the Environment (RSCy2014), August 12th, Pafos, Cyprus.
- Ganatsas P., Titsoni T., Zagas T. and Tsakalimi M. (2002), Evaluation of the urban green space in Thessaloniki city. Proceedings of the 10th Panhellenic Forest Science Conference, May 26th-29th, Tripoli, Greece, 627-637 (in greek).
- Hatzihristaki H. and Zagas T. (2011), Contribution of natural and seedling regeneration at the restoration of the fire-disturbed section of Thessaloniki's forest "Kedrinis Lofos", Aristotle University of Thessaloniki, School of Forestry and Natural Environment, Thessaloniki (in greek).
- Ioakeimidis S. and Kaimaris D. (2013), Observation of the changes and the degradation of the forests after the fire with the use of Remote Sensing and GIS: Study of the suburban forest of Seich-Sou, Thessaloniki, Greece. 13th International Conference on Environmental Science and Technology, CEST 2013. Athens - Greece.
- Psilovikos T. (2010), Adaptation of technical works of forest road construction in forest of high dangerousness for fire, Aristotle University of Thessaloniki, School of Forestry and Natural Environment, Thessaloniki.
- Spanos I., Ganatsas P. and Tsakalimi M. (2010), Evaluation of post-fire restoration in suburban forest of Thessaloniki, Northern Greece, *Global NEST Journal*, 12(4), 390-400.
- Staurinou V., Tsitsoni T. and Tsakalimi M. (2017), The protective and recreational role of peri-urban forest and its connection with the city. The case study of Thessaloniki. Sixth International Conference on Environmental Management, Engineering, Planning and Economics (CEMEPE 2017) and SECOTOX Conference, Thessaloniki, Greece, June 25th -30th, 947-954.
- Tsitsoni T., Tsakalimi M., Ganatsas P. and Zagas T. (2004), Effect of post fire treatments on the natural regeneration of *Pinus brutia* in northern Greece, Proceedings 10th MEDECOS conference, April 25th -May 1st, Rhodes, Greece, Arianoutsou & Papanastasis (eds), Millipress, Rotterdam.
- Tsitsoni T., Tsakalimi M., Simeliadou E., and Fouska M. (2010), Structural analysis of mixed stands coming from natural regeneration and plantations after fire, *Web Ecology*, 10, 32-37.
- Vlahaki D. and Tsitsoni T. (2015), Silvicultural models of urban greenery management in the Municipality of Thessaloniki, Aristotle University of Thessaloniki, Department of Forestry and Natural Environment, Thessaloniki.