



# History and management of peri-urban pine forest in Xanthi

Panagiotis Mouchtaridis, Forester  
Pantelis Theodoridis, Forester  
Stavroula Kapsali, Forester

E-mail: [ddas-xan@damt.gov.gr](mailto:ddas-xan@damt.gov.gr)

**NUOVI APPROCCI PER LA GESTIONE  
SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
Firenze, Sala Giordano - Palazzo Medici-Riccardi

**Reforestation – Afforestation:** Resettlement of forest plants to an area where forest vegetation existed, which was totally destroyed or degraded to a significant degree by

- ➔ Land clearing
- ➔ Overgrazing
- ➔ Illegal cutting
- ➔ Mining operations (quarry)
- ➔ Fire



**The purpose** of afforestation is to restore disturbed forest ecosystems by

- retaining the soil and preventing the development of surface erosion
- balancing the water economy
- preventing water drainage and hence floods
- aesthetically improving the landscape



**NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
Firenze, Sala Giordano - Palazzo Medici-Riccardi



In our country the period of systematic reforestation began in 1950, with the staffing of Forest Service with Foresters and planting 25.000 ha

with the method of planting in pits for mainly protective and aesthetic purposes.







City of Xanthi before reforestation







City of Xanthi before reforestation

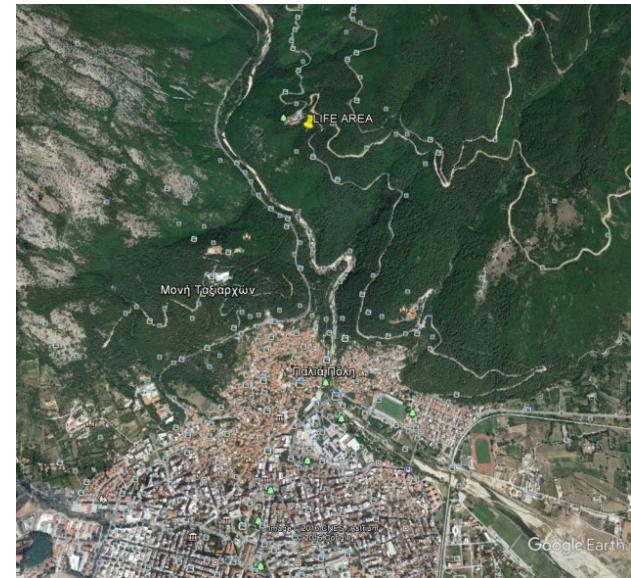




The peri-urban forest of Xanthi is located in an area of 2.336 ha appr. and is a part of Xanthi Gerakas Kimmerion public forest. It has been nominated as a protective forest according to 3788/23-03-2006 Order of E.M.THRACE Prefecture Secretary-General (Government Gazette 300/Δ'/13-4-2006). A large part of the area, ie 1.126 ha, has been declared reforestable under the decision of the Minister of Agriculture No. 136779/14-11-1947 (Government Gazette 193/Δ'/15-12-1947).

Most of it is proclaimed a wildlife sanctuary with the No. 3335/28-6-2001 (Government Gazette 931/B'/19-7-2001) at 1.590 ha.

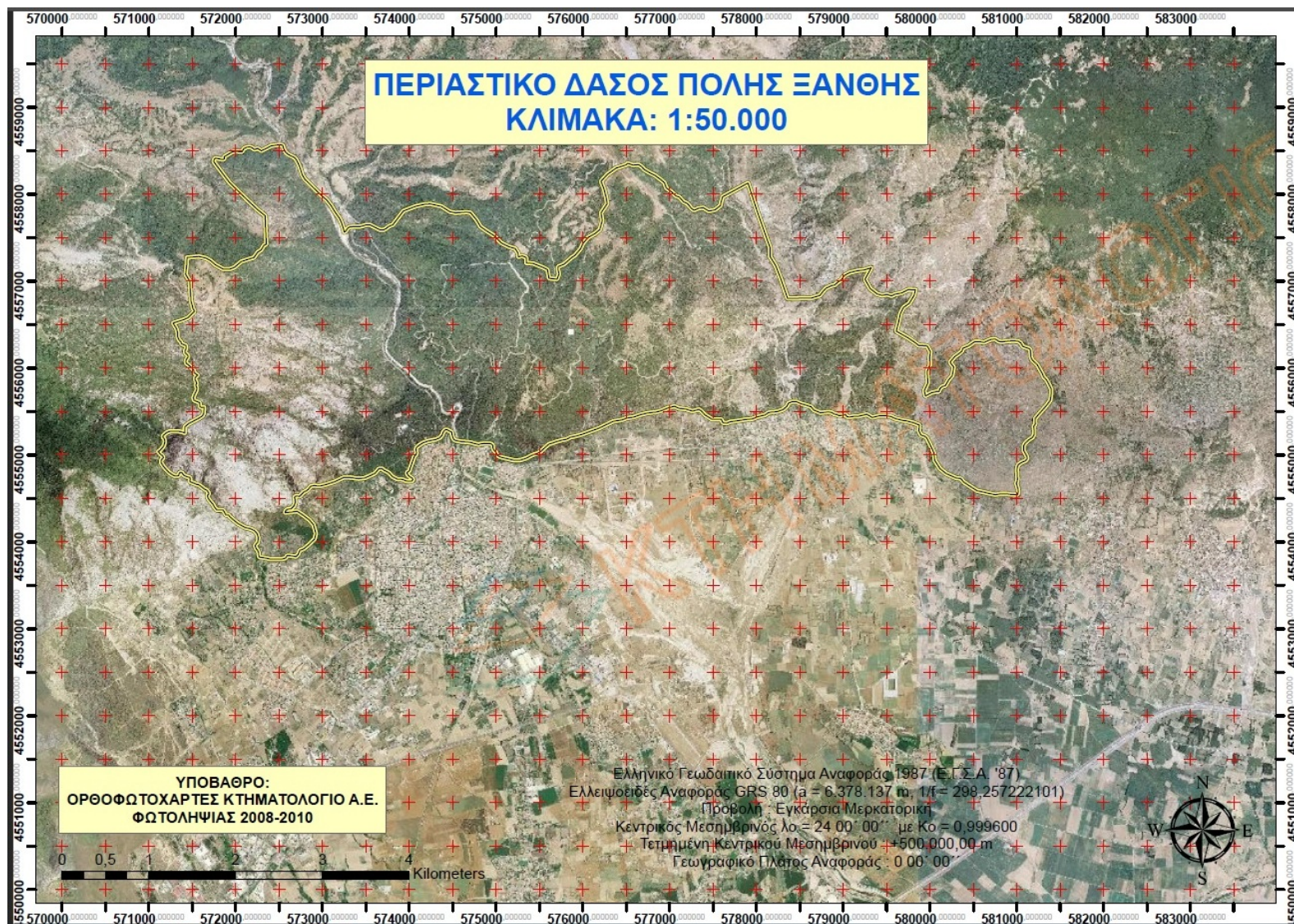
A considerable number of animals and non-animal species and micro-organisms live in this forest.



**NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
Firenze, Sala Giordano - Palazzo Medici-Riccardi

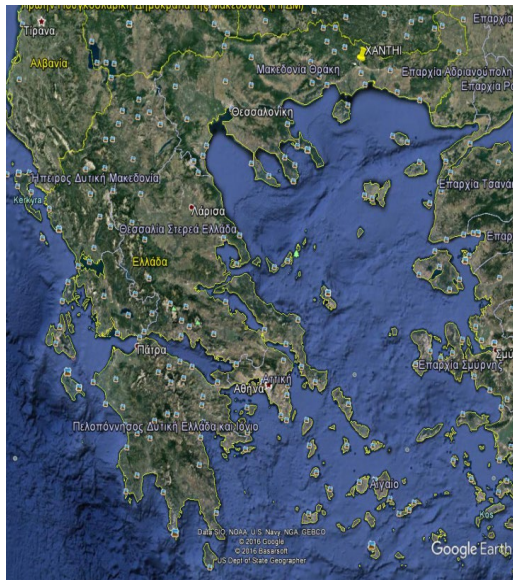




**NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
 Firenze, Sala Giordano - Palazzo Medici-Riccardi





## PERI-URBAN FOREST OF XANTHI

The first attempts to plant the hilly areas of the North of the city of Xanthi from the forest service of Xanthi began from 1936 and continued at various times until 1973. The last reforestations took place in the years 1977-1980 parallel to the bed of Kosinthos river near the first bridge about 4.5 km from the city of Xanthi



**NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
Firenze, Sala Giordano - Palazzo Medici-Riccardi

The form of the forest is high, homogeneous by area, forest of coniferous pine trees, coming from reforestation, mixed with a basement of naturally occurring broadleaf species (mainly oak). The species of pine trees that are the peri-urban is mainly the Calabrian pine and in lesser proportions *pinus maritima* and black pine.



Also there are individual species or sessions and scrubs of different species of native broadleaf species such as *Fagus*, *Ulmus*, *Acer*, *Carpinus* etc. as well as in some places, after reforestation, *Robinia pseudoacacia*. Several species of shrubs such as *Quercus coccifera*, *Juniperus*, *Styrax officinalis* and various other types of semi-shrubs are also being developed.



The role of the peri-urban forest of Xanthi is multiple

## Environmental benefits

**Limitation of air pollution :** A 25m<sup>2</sup> folio surface can cover one day's oxygen needs for a person. Generally, on a green area of one hectare, including trees, shrubs and grass, 600kg of O<sub>2</sub> is delivered in 12 hours, while 900kg of CO<sub>2</sub> is captured. Similar green areas reduce by 45% the pollutants from C, N and S oxides, the main pollutants we encounter in agglomerations.

**Effect on microclimate conditions :** Tree leaves retain, reflect, absorb and transmit solar radiation. A tree full of water supplies daily 400L water in the form of water vapor to the atmosphere. In heat conditions, appropriate urban and suburban green can lower the temperature by up to 5 degrees.

**Enriching ground water table :** When there is no vegetation on uncovered surfaces, rainwater flows rapidly through surface or through sewers and thus does not enhance aquifers. On the contrary, the existence of vegetation ensures the connection with the aquifers, while the watersheds are reduced. Part of the rainfall is retained by the leaves and another penetrates the ground, where a part is retained by it and another enriches the underground water table.



**NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
Firenze, Sala Giordano - Palazzo Medici-Riccardi

- **Wind protection** : Trees and shrubs can regulate the movement and speed of the wind by acting as an obstacle, deflecting or adjusting its direction. The effect and degree of regulation varies according to tree species, height, shape, density and consistency of the foliage and the current arrangement of trees and shrubs.
- **Soil retention** : Various forms of vegetation have the potential to hold the soil and keep it together. This avoids landslides and erosion, both in non-urban areas, in suburban and urban areas, such as parks with intense relief or uncovered and untouched surfaces.



**NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
Firenze, Sala Giordano - Palazzo Medici-Riccardi



- **Noise reduction** : Zones of green areas isolate areas with significant noise pollution, such as motorways, factories, school yards, railways. Each square meter of green reduces the noise by 0.17 decibel.
- **Fighting dust** : Due to the slowing of wind speed through vegetation, dust suspended in the atmosphere is deposited on the leaves from which it is then rinsed with rain. Trees can hold as much as 75% of pollution from dust and smoke.
- **Protecting biodiversity** : Green zones play an important role in preserving biodiversity as they are a haven and habitat for many species of fauna in an area.
- **Aesthetic improvement** : The presence of a green belt can help the harmonious relationship between structures, people and the natural environment.



**NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
Firenze, Sala Giordano - Palazzo Medici-Riccardi

**Work:** Forestry can provide employment opportunities for urban residents and is particularly important for poorer countries.

**Production of tangible goods :** Within the peri-urban forest, forestry management practices are applied for the sustainability of the crops, so we produce wood products mainly of fire wood.





## Social and economic benefits

- **Health:** The improvement the forest brings to climatic conditions, soil and water has a positive impact on the health of city residents.
- **Education:** The benefits and functions of vegetation for a city can be the subject of environmental education and sensitization through botanical gardens and environmental information parks.
- **Recreation :** Green areas such as parks, spinney's, and suburban forests are recreation, relaxation and escape from everyday tension.

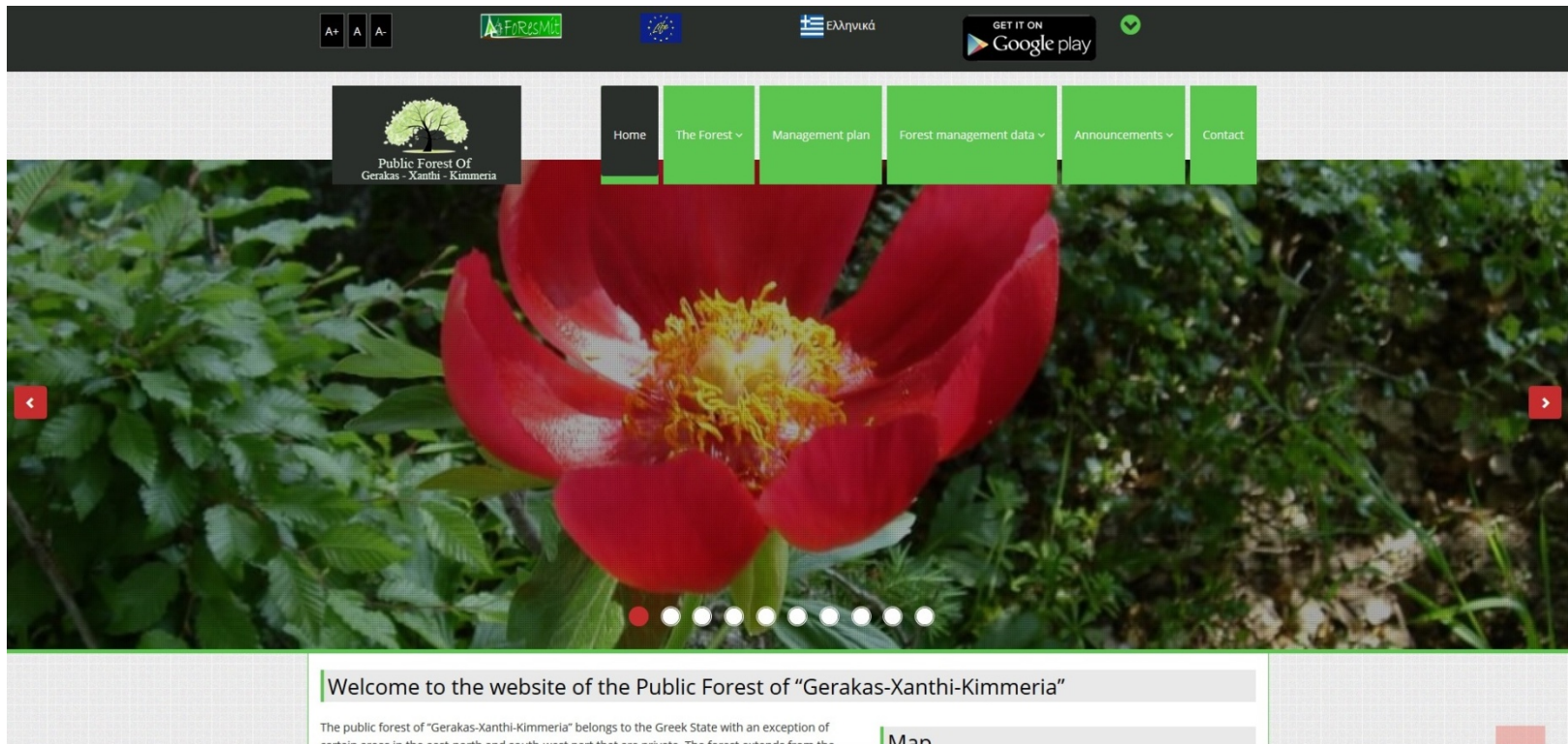


**NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
Firenze, Sala Giordano - Palazzo Medici-Riccardi

Information about the peri-urban forest and also about the Public Forest Complex of Xanthi – Gerakas - Kimmerion of Xanthi Prefecture are in the web site

[www.xanthigerakas-forest.gr](http://www.xanthigerakas-forest.gr)



**NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
Firenze, Sala Giordano - Palazzo Medici-Riccardi



## MANAGEMENT OF PERI-URBAN FOREST

The forest service until today, through the management studies, intervenes in the peri-urban forest as follows :

Weak thinning's and pruning's in the pine overstory to the height of 5 meters, with the removal of mainly dead, bad, dry and diseased trees.

On the broadleaf understory there are thinning's and cultivation operations. The result of thinning's of the understory is a uniform distribution of broadleaf.

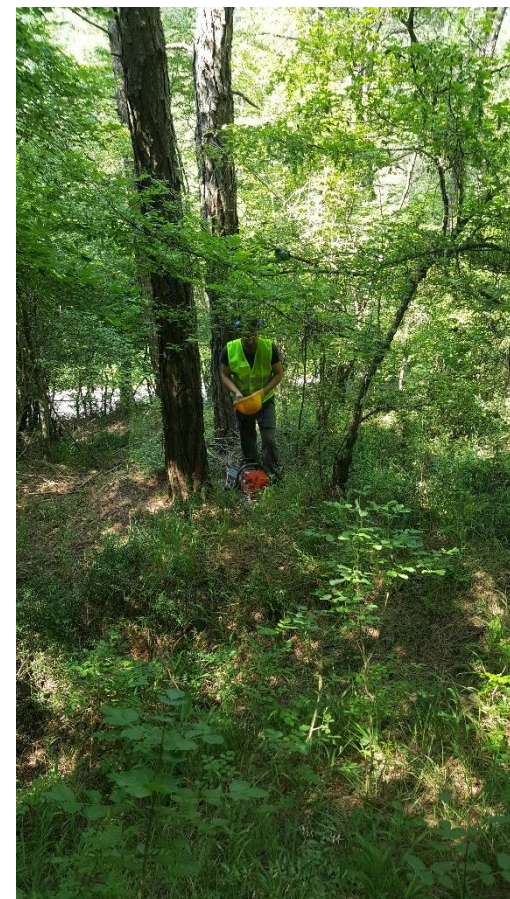
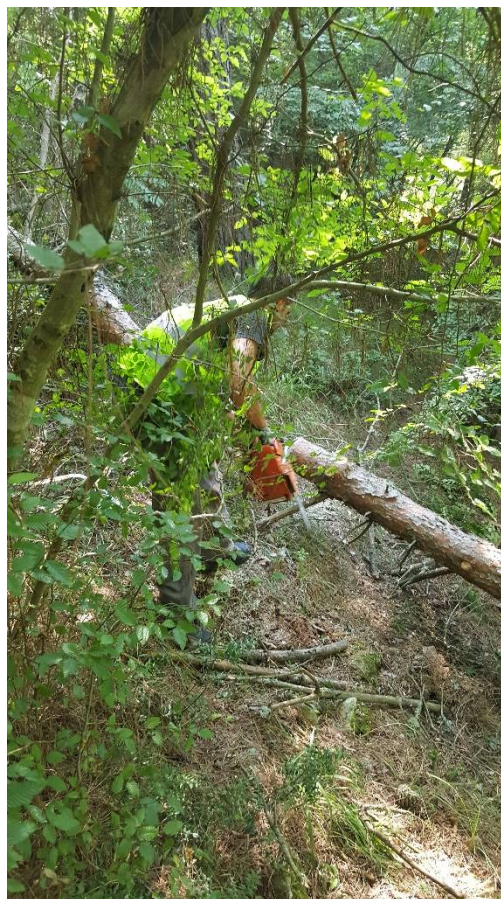


**NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
Firenze, Sala Giordano - Palazzo Medici-Riccardi



All the above are focusing mainly on fire protection of the forest and furthermore the city.



**NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
Firenze, Sala Giordano - Palazzo Medici-Riccardi



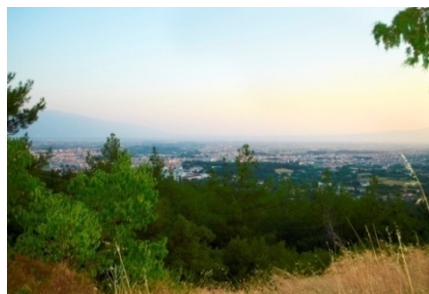
# PERI-URBAN FORESTS AT DECENTRALISED ADMINISTRATION OF MACEDONIA & THRACE

Peri-urban forest's outside Xanthi are also in other cities of the Decentralized Administration of Macedonia - Thrace such as in Drama, Kavala and Komotini.

The similar age of the Pine trees and the similar structure of the forests demonstrate the fact that the Forest Service was following the same afforestation policy.

Main species where *Pinus nigra*, *Pinus brutia*, *Pinus halepensis*, also there are *Cupressus sempervirens*, *Quercus coccifera*, *Olea europea silvestris* and *Spartium junceum*.

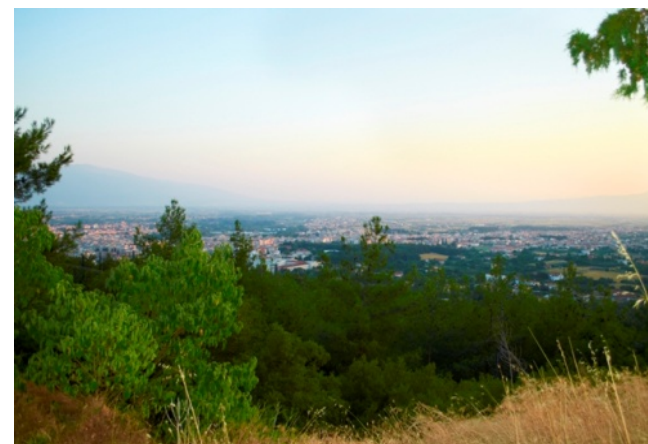
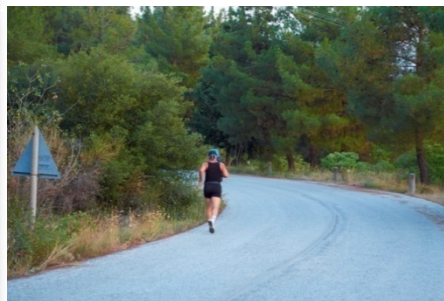
Many city dwellers visit the forest for recreational activities, such as hiking and cycling.



**NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
Firenze, Sala Giordano - Palazzo Medici-Riccardi

## PERI-URBAN FORESTS OF DAMT



**NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
Firenze, Sala Giordano - Palazzo Medici-Riccardi



In most of the cases of peri-forest forests across Greece, these are now "aged", so a special forest management study is required to ensure that they fulfill their multiple role and purpose.

In the framework of the implementation of the European LIFE Foresmit program, new forestry practices and, in general, a different management approach of Xanthi's peri-urban forest have been implemented with innovative, more aggressive interventions that have proven to mitigate climate change but also help to quickly succeed them from formerly broadleaf forests.



**NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
Firenze, Sala Giordano - Palazzo Medici-Riccardi

# THANK YOU



**NUOVI APPROCCI PER LA GESTIONE SOSTENIBILE DEL PINO NERO:**  
*biodiversità e mitigazione*

MARTEDÌ 14 MAGGIO 2019 | 9.30 - 16.30  
Firenze, Sala Giordano - Palazzo Medici-Riccardi