

## **Multimethodical approach for the influence of forest fire on hare (*Lepus europaeus*) at Kassandra, Chalkidiki, Hellas**

A dissertation for the Requirements of the Degree Master of Science that is in progress to the Department of Forestry & Management of Environment and Natural Resources, Democritus University of Thrace, Hellas

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### **Introduction**

The widespread abandonment of traditional land use in most Euro-Mediterranean regions during the 20th century has led to the growth of extensive and continuous forest and shrubby areas that are very susceptible to fires that can spread rapidly (Blondel & Aronson 1999). Fires can increase landscape heterogeneity by fragmenting continuous blocks of older forest and by initiating local perturbations leading to younger successional stages. However, fires are sometimes so extensive and severe that they reduce structural diversity and homogenize landscape at a regional scale (Trabaud & Galtié 1996, Chuvieco 1999).

Brown hare (*Lepus europaeus*) is a species that is favoured from the heterogeneity of vegetation structure (Tapper and Barnes 1986, Smith et al. 2004). In Central Hellas the highest densities of hare can be found in rangelands and forests with openings (Sfougaris et al. 1999). The hare constitutes the most important sedentary hunting species of Hellas (Thomaidis et al. 2002) with high importance for the economy (Sokos et al. 2002).

Few studies have taken place in Mediterranean ecosystems for the influence of forest fires on mammals (Sgardelis and Margaritis 1992), and none for the brown hare.

### **Aim of study**

A huge forest fire took place at Kassandra's Peninsula at 21/8/2006. The ecosystem is typical Mediterranean of maquis shrublands, alepo pine and cereals. Aim of this research is to compare the population and physiology of hare in burned and nearby unburned areas the first two years after the fire.

### **Methods**

The influence of forest fire on hare is going to be studied with the following methods:

#### 1) Population indexes

The population of hare will be appreciated with two methods: 1) spotlighting (Verheyden 1991, Langbein et al. 1999), and 2) pellet counts (Litvaitis et al. 1985). In the points where the hares will be located, it will become analysis with the help of GIS.

#### 2) Reproduction

The reproduction of female hares will be found after examination of uterus (Bray et al. 2003). In total, about 40 female hares will be collected in burned and unburned areas (night and day killed).

### 3) Body condition

The body condition of hares (night and day killed) will be found after examination of quantity of kidney's fat (Keith et al. 1984, Banks et al. 1999).

### 4) Food quality

The quality of food of night-killed hares (proteins, lipids, etc) will be examined with chemical methods (Banks et al. 1999). Will be connected cases (3) and (4).

### 5) Stress indicators

The stress of killed animals will be detected with the excretion of corticosteroids in faeces of night-killed hares (Teskey-Gerstl et al. 2000).

## **Management implications**

This research will help in the decision-making about the hunting and management of hare populations after fire.

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