



**Mediterranean Desertification
and Land Use**

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**DESERTIFICATION IN THESSALY (CENTRAL GREECE):
A SOCIO-ECONOMIC PERSPECTIVE**

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"Desertification in Thessaly (Central Greece): a socio-economic perspective"

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Grazing pressure and fire are the driving forces leading to land desertification. In Greece, since antiquity, the shepherds used fire as a practice to increase pasture. However, if this treatment lasts for a long time, the recovery mechanisms of the system no longer work and the only plants that can survive are those which resist both fire and grazing. Most of them are unpalatable.

The case of Thessaly constitutes an example of the results of human impact on land desertification. Thessaly covers the Eastern part of Central Greece. It consists of a large level area (the Thessalic plain), which is surrounded by the mountain range of Pindos from the West, the Andihasia Mts. and Kamvounia Mts. from the North, the Olympus Mt. from the North-east, the Ossa Mt. and Pilion Mt. from the East, and the Othrys Mt. from the South. The climate of Thessaly, according to Thornthwaite classification, is characterized as semi-arid with a small water surplus in winter and high potential evapotranspiration and thermal summer activity (Karras 1973). The typical natural plant formation in this climate is evergreen sclerophyllous shrublands (Pantis and Mardiris 1993).

Asphodel semi-deserts cover the 30% of the lowland pastures of Thessaly (Pantis 1987) and according to Pantis and Mardiris (1993) they are the final degradation stage of the evergreen-sclerophyllous formations of this region.

In elder geological times, the mountains that now border the Thessalic plain were continuous and did not allow the outlet of water from the plain to the sea. Thus, a large lake was formed, that covered the whole plain. Later on, several geological upheavals (earthquakes etc) resulted in the creation of the gap of Tempi, between the Olympus Mt. and the Ossa Mt., from where water was poured out to the sea. In this way, the Pineus river was formed, which leads water from the plain and the surrounding mountains into the sea, together with its affluents. A plain with a fertile soil was thus revealed.

Since historical ages the economy of Thessaly depended almost entirely on agriculture and animal husbandry. It was the only Greek region with so many open plains, which resulted in the creation of large land ownerships, named *tsiflikia* (the term is equivalent to the Italian *latifundia*).

Thessaly was occupied by Turks in 1393 and was liberated and given back to Greece in 1881. After the occupation of Thessaly by the Turks, the greatest part of the land became Turkish property. Farm labourers in the Turkish *tsiflikia* preferred animal husbandry to

agriculture (Tsopotos 1914). Therefore, a great part of cultivable area was used for pasture. Except of the farm labourers, the population at that time consisted also of stock-farmers and nomads who moved their flocks from the mountains to the plain every winter.

An important increase of livestock capital and production in the Thessalic plain took place during the 15th century (Asdrahas 1982). During the 16th century, the rural population of Thessaly lived in prosperity. At this time the area of pasture lands, winter quarters and meadows increased (Tsopotos 1912,1914, Zographos 1923). During the 17th and the 18th century, due to brigandage, diseases and unfavourable weather conditions, the rural population decreased (Bjornstahl 1779, Kostis 1993).

At the beginning of the 19th century, animal husbandry flourished again. In 1815, the livestock capital in the *Mouzakia* valley only was 3 millions sheep and goats. In 1816, the number of sheep and goats of the 58 flocks of *Domokos* was 194378 (Asdrahas 1982). Animal husbandry is mainly nomadic at this time. Nomads were mainly members of the Greek race named "*Vlahoi*". They came from *Samarina*, *Perivoli*, *Smixi* and *Avdela* to overwinter their flocks in the Thessalic plain and they established periodically in the level villages. *Vlahoi* from *Avdela* moved their flocks to spend the winter in *Elassona*, *Pharkadon*, *Damasi*, *Zarko* and *Grizano*, while the big winter quarters of those who came from *Perivoli* were *Velestinos*, *Mikro Perivolaki*, *Agnanderi* and *Yperia*, with 400 families, as well as the region of *Trikala-Kalambaka* (Wace and Thompson 1989). New meadows were added to the plain, at the east of *Larissa* and in *Ano Meria*, near *Ano Volos* (almost 300 families). Animal husbandry cannot be considered intensive during this period, since the areas available for grazing are extensive and grazing pressure is periodic due to nomadic stocking. Thus, grazing pressure on natural ecosystems is not intense (Holland 1989).

However, the expansion of pasture lands against the cultivated ones made *Constantinople* to recall in 1875 a former decision of 1856 (law about land, No 68), which excluded *tsiflikia* from the obligatory disposal of land, if the latter was not cultivated for three years, because of the risk of abandonment of cultivation and the total change of cultivated land in pastures (Tsopotos 1912).

After the liberation of Thessaly in 1881, the Thessalic plain was almost entirely divided in very large *tsiflikia*. Large areas within the *tsiflikia* were rented as pasture lands (Vergopoulos 1975, Karavidas 1978).

During the period of the liberation of the northern departments (1881-1913), the "*peasant issue*" was one of the most serious problems, the Greek state had to face. *Tsiflikia* were a serious obstacle to national development (Vergopoulos 1975). The farm labourers lived under tyranny and poverty. The land owners preferred to expel the farm labourers and

turn their fields into pasture lands, due to the uncertainty of cultivation and the fear of rebellions (Tsopotis 1912, Zographos 1923). On the other hand, the income from renting rangelands was bigger and more stable for the land owners (Karavidas 1978). The 2/3 of the sheep and goats spending the winter in the Thessalic plain were nomadic. Thus, there was a great demand for pasture lands. Moreover, the agricultural production until then was organised on the basis of fallow lands and alternate cultivation.

For all the above mentioned reasons, "*tsiflikia*" and "*tselingatá*" (=large ownerships in livestock) were interdependent and complementary to each other. The same lands were used for cultivation and grazing in alternate years. As a result, very large areas were left uncultivated (Vergopoulos 1975, Karavidas 1978).

In 1896 the Greek government started the expropriation of land, which was completed in 1917 with the "*Peasant Reformation*". In 1917, 11.9 millions stremmas were expropriated, the 5.2 millions of them (43.7%) being pasture lands. At the beginning of the 20th century, only the 22.4% of the total area of Thessaly was cultivated (Vergopoulos 1975).

At the same time of land expropriation, shrublands were given to shepherds and nomads started to settle permanently in certain areas (Vergopoulos 1975, Sivignon 1975). There were several reasons that led to these decisions. After the liberation, the territory of Vlahoi, who were mainly shepherds, was divided. Thus, they had to pay custom duties in order to move their flocks from the summer to the winter rangelands. Furthermore, the phenomenon of brigandage between the Greek and the Turkish territory was increased.

However, the organisation of shepherds in permanent settlements did not mean that they adopted agriculture (Sivignon 1975). The shrublands at the hill slopes, that were given to them, were unsuitable for cultivation and were used for grazing (Nitsiakos 1987).

Thus, at the beginning of the 20th century the nomadic animal husbandry was reduced and grazing pressure was intense in certain areas, because it lasted throughout the year (Sivignon 1975, Nitsiakos 1987). The Thessalic plain was given to cultivation, especially after the establishment of the refugees in 1922. The land of *tsiflikia* was divided in small farms and was given to families. Animal husbandry was degraded from socio-economic point of view. The division of land and the reduction of rangelands resulted in the increase of the rents.

Thus, the balance between agricultural production and animal husbandry was destroyed (Zographos 1923), the pasture lands were decreased and the nomads either became land owners or they were registered in the local communes and obtained the right to graze their flocks in the communal pasture lands (Psychoyos 1987, Rokos 1988). This resulted

in the intensity of grazing pressure on the natural ecosystems and the increase of desertified areas.

Now there are no sheep and goats in the Thessalic plain. Shepherds are mainly at the low hills at the west of Velestino, at the foot of Andihasia Mts., of Olympus Mt., of Othrys Mt. and of Ossa Mt. (Psyhoyos and Papapetrou 1987).

Nomadic sheep and goats were 600707 in 1923, 492292 in 1961 and 277015 in 1980. Thus, there is a reduction of nomadic livestock of 52% during the period 1923-1980 (Data from Vergopoulos 1975, Asdrahas 1982 and the National Statistical Service of Greece).

Due to the intensity of grazing and the fires, that are used as a practice to increase pasture, most of the hills surrounding the Thessalic plain are now at final stages of desertification. They are covered by asphodels and other unpalatable plants and in many cases the parent rock is revealed.

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