

Soils and native vegetation in a hilly and mountainous area in Central Greece

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Abstract

Soils and native vegetation were investigated in twenty five sites in the hilly and mountainous province of Elassona, Central Greece. Soils are located between 300 and 1200 m above sea level and consist from coarse alluvial material and weatherable material of hard limestone and schist. Most of them are acidic of coarse texture that enhances leaching of exchangeable cations. Soil organic matter content is higher than that recorded in lowlands. Available phosphorous was low in certain soils and this was attributed either to its fixation in the clay minerals or from the parent material heredity. Iron and cooper content was also low in one third of the samples, and the manganese concentration was low in the 75 % of the samples. Results from the annual plant analyses shown low nitrogen content, and partial deficiency in calcium, potassium and magnesium which reflects the particular soil and climatic conditions. Furthermore, samples from perennial plants were selected from sites where vegetation is degraded and nitrogen and manganese deficiency were observed. With regard to micronutrients, concentration of iron, cooper, zinc and boron was found in normal levels.

Fig. 1. Part of the province of Ellassona, Greece



Fig. 2. Distribution of plant available iron

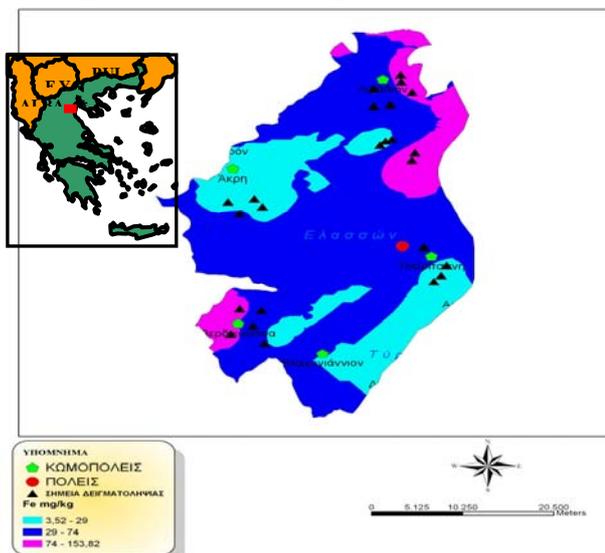


Fig. 3. Distribution of exchangeable potassium

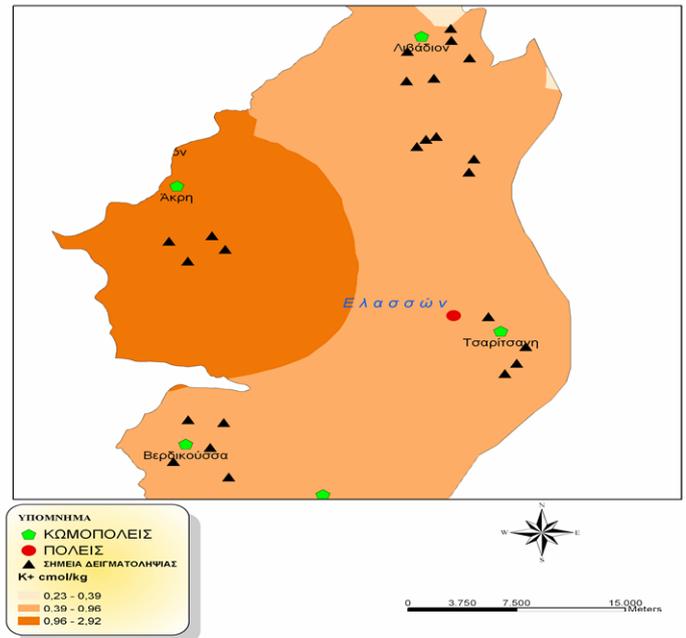
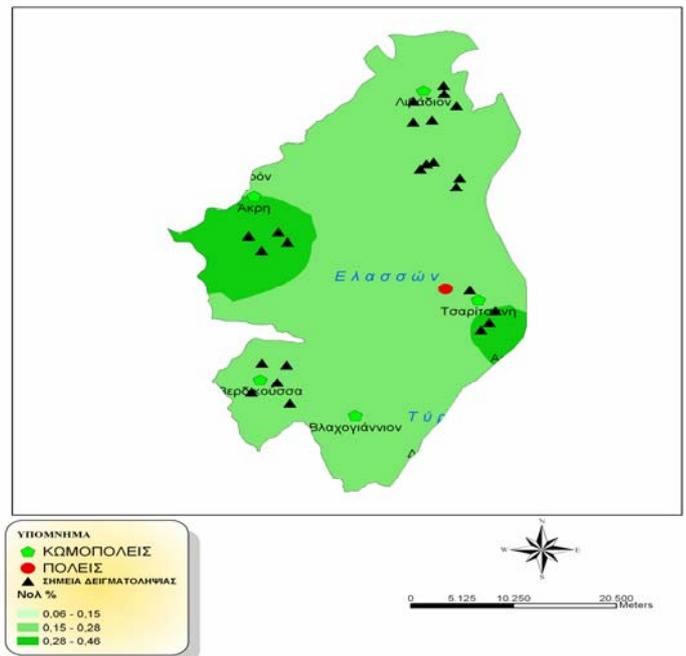


Fig. 3. Distribution of total soil nitrogen



Conclusions

Measures and practices are suggested to improve soil fertility and the degraded vegetation, such as: liming of acidic soils, rational water management, crops of low water requirements, banning of overgrazing in areas vulnerable to erosion, cover crops in sloppy areas during the winter, establishment of permanent shrubs, reforestation of certain mountainous areas and training of farmers. However, results of this study can assist local authorities and extension services in managing effectively natural resources in a rational and sustainable manner.