

Mixed grazing in upland woodlands: a management practice reducing habitat loss and forest fire risk

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Introduction

In the context of supporting a PhD thesis focusing on soil carbon sequestration in mountainous woodlands and grazed forests of mountainous Evrytania, as a vital ecosystem function for mitigating the effects of the climate crisis, a systematic inventory and comparative study of pasture types in the mountainous community of Stenoma, Municipality of Karpenisi has been carried out.

Historically, pastoralism, as a productive basis of the local mountain economy and the social and cultural identity of the community of Stenoma, is recorded since Byzantine times and is reflected in the community's cultural elements (watermills, threshing floors, stone bridges, fountains, etc.) and religious monuments, as well as in the century-old oak forests and monumental trees preserved in the area.

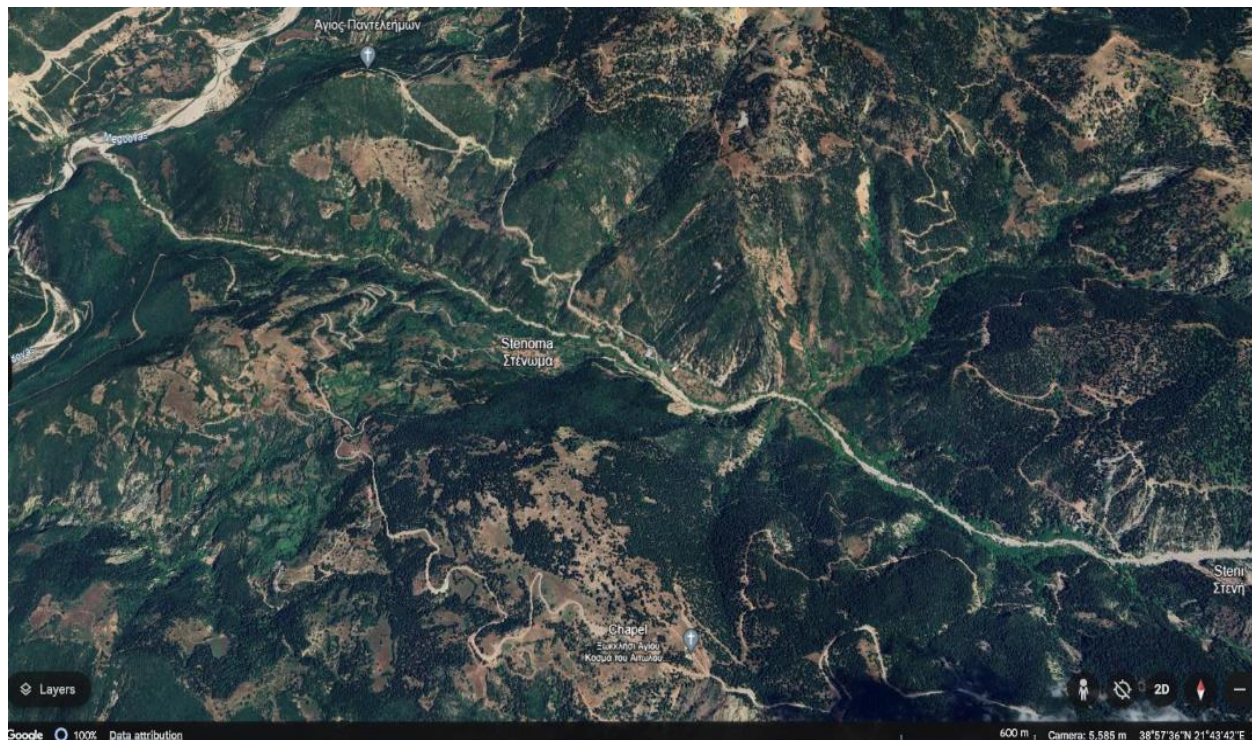


Fig. 1. On the left the river Tavropos; in its catchment area extend the farms and pastures of the community of Stenoma, with agroforestry habitat types forming a multifunctional cultural landscape of multiple values (Google Earth mapping, 2023).

With the principles of community management and experiential sustainability, the locals managed to maintain a large number of flocks of goats, sheep and mixed flocks, making use of natural resources, in areas (private and public) from the mixed deciduous forests in the riverside zone of the Tavropos (Acheloos catchment), the oak belt around the settlement, to the cold coniferous forests and the high alpine zone of the Tymfristos mountain (NATURA2000, Velouchi) meadows, shaping the landscape.

Threats and problems

Despite the gradual decline of the mountain population after World War II and the Civil War in Evritania, the community managed to maintain its traditional structure and the herding families managed collectively the public pastures, maintaining extensive transhumance (Lappa 2021). Since the 1980s and early 21st century, under the pressures of urbanization, herds have been steadily declining and large numbers of goats have been replaced by cattle grazing, supported by subsidy policies. The now few livestock farming families in the community, maintaining traditional practices, local breeds and combining extensive livestock farming with forestry, manage to provide products of high nutritional value, while supporting a wide variety of microhabitats, species and ecosystem services.

The health and sustainability of these grasslands has been threatened over the last decade by the incompatible siting of industrial wind energy and solar panel projects. The local community is agonizing and making a concerted social and legal struggle to cancel the wind and solar panel permits that tie up their pastures, changing their character forever.

The mountain pastures of Tymfristos have a high percentage of ecotone cover and the multiple ecosystem services are being tested by the abandonment of livestock farming and the subsequent loss of small-scale diversity (alpine grasslands, anodic shrublands, etc.) and the increased risk of large forest fires.

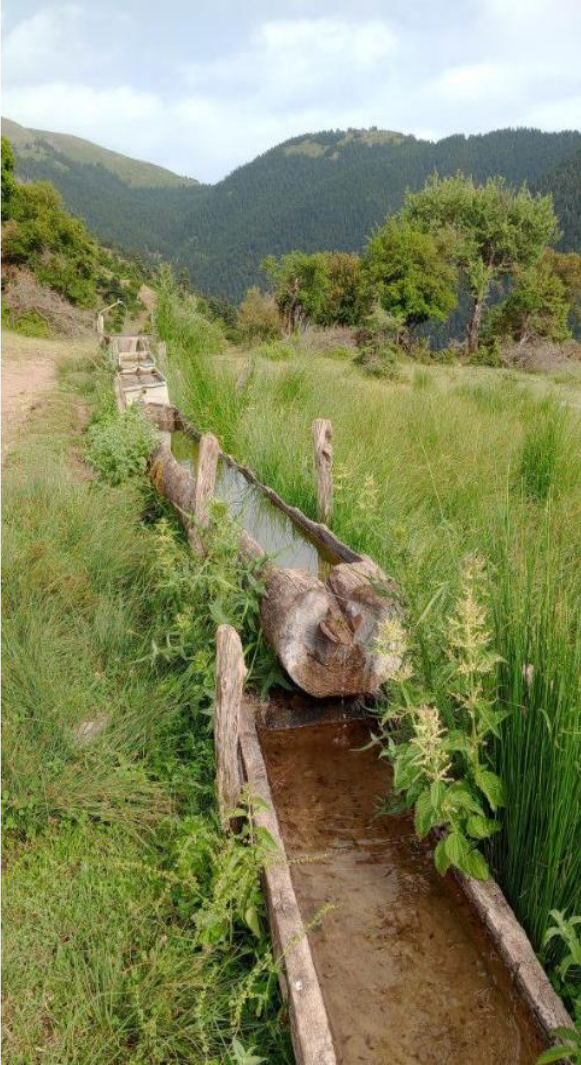


Fig. 2. Watering troughs in oak and spruce ecotone woodlands. In the background you can see the grassland areas threatened by the establishment of wind turbines. (photo Lappa B., 2024)

Fig. 3. Shepherd dogs guard each herd. Conflict with wildlife is constant, as the dense forests of the area provide habitat for wild ungulates and carnivorous mammals. Shepherd in an open spruce woodland in Zygos Stenoma. In the background are the alpine meadows of the Tymfristos pastures. (photo Lappa Vas. 2024)



Conclusions - proposals

For the protection and conservation of mountain forest grasslands, holistic management is required, compatible with local traditional land use, supporting traditional livestock and beekeeping, as well as the establishment of a systematic programme of long-term monitoring of habitats and their ecosystem services. This will help to strengthen local communities and make both people and the natural environment more resilient to the pressures of the climate crisis.



Fig. 4-5 The farmers of the community cooperate with the Laboratory of Agroforestry and Forest Soil Science of the Department of Forestry & Natural Environment Management, and maintain family livestock units of extensive traditional livestock farming. During the summer period, they move their herds to the anodasic woodlands of Tymfristos, faithful to the intangible cultural heritage of their ancestors (Photo Lappa Vas. 2024).



These objectives are served by the Evrytania Regional Agroforestry Innovation Network (RAIN) supported by the Agroforestry Laboratory in Karpenisi and established under the AF4EU programme, activating farmers and beekeepers in the sustainable management of agroforestry systems in the mountains of Evrytania (<https://af4eu.eu/rains/rain-activities>).