



## Review assesses the state of the art regarding the use of livestock for ecosystem management in Mediterranean landscapes

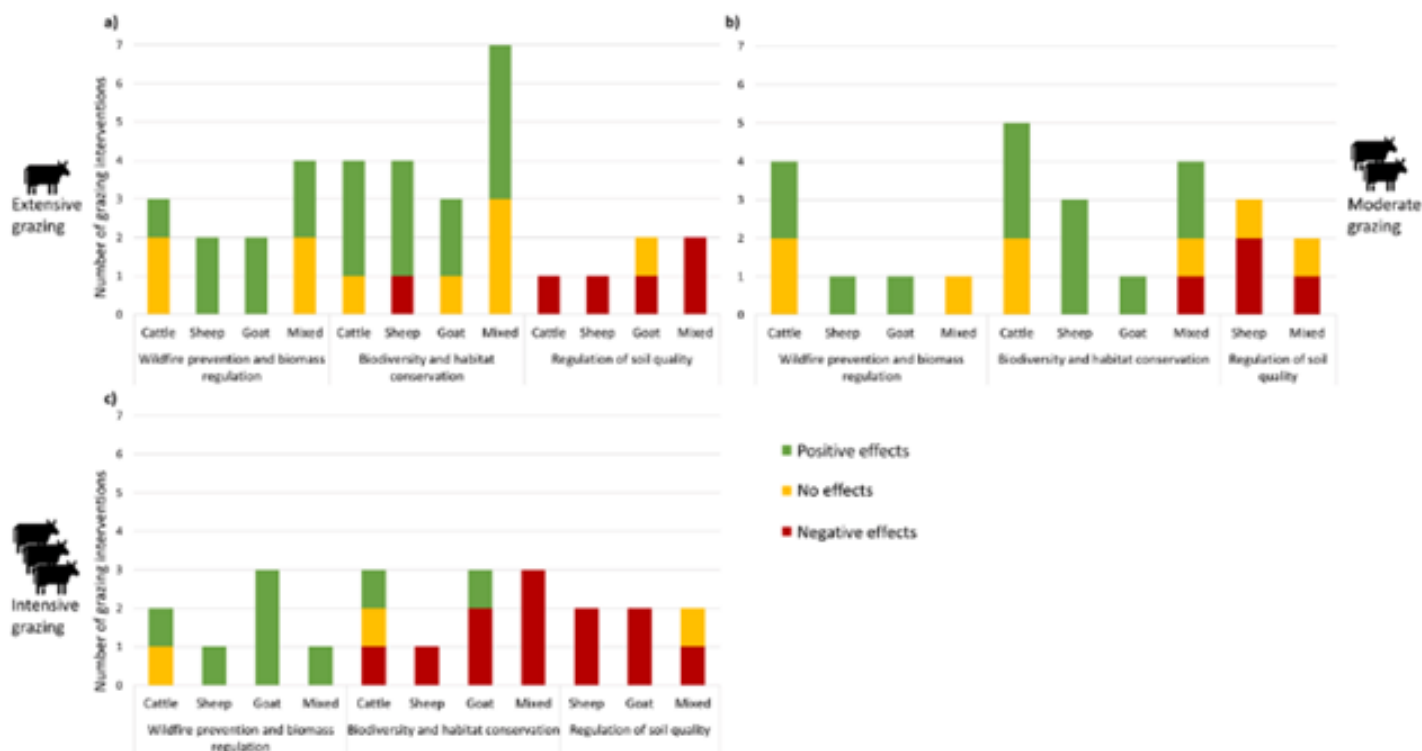
### Introduction

In the Mediterranean basin, the structure and species composition of traditional landscapes have historically been shaped and maintained by human-driven disturbances, such as extensive livestock grazing. The cessation of these activities, which have partially replaced the role of natural disturbances, may lead to vegetation overgrowth and biomass accumulation, with potential adverse impacts on biodiversity, ecosystem functions and services. Recently, the use of livestock for ecosystem management, with the purpose of maintaining grazing disturbance and the associated ecosystem processes, has been gaining traction. Nevertheless, there is still limited evidence on the performance of such grazing interventions. This review assesses the state of the art regarding the use of livestock for ecosystem management in Mediterranean landscapes. It examines the association between the regime and duration of grazing interventions and their reported effects on ecosystems. The list of reviewed interventions (68 interventions, retrieved from 47 studies) covered a diverse range of landcover systems (from grasslands to forests), of grazing regimes (characterized by different levels of grazing intensity and livestock species), and of duration of grazing (from short-term, < 5 years to long-term grazing, > 20 years). Wildfire prevention and biomass control, biodiversity and habitat conservation and the regulation of soil quality are the main reasons for the use of grazing interventions.

### Lessons learned

The results of this review suggest that the use of domestic herbivores in ecosystem management can contribute to wildfire prevention and biomass control, with these positive effects fading away in long-term grazing interventions. Goats seem to perform better than cattle for biomass control. Overall, the retrieved data revealed heterogeneous findings on the use of domestic herbivores for ecosystem management in Mediterranean landscapes. The use of grazing for wildfire prevention and biomass regulation generally yielded positive outcomes, with lower performances observed in longer grazing interventions. On the other hand, using grazing for biodiversity and habitat conservation generated a diversity of outcomes, which were generally positive for extensive and moderate grazing regimes and significantly negative for intensive grazing regimes. Finally, outcomes for the regulation of soil quality were mainly negative, and a common

trade-off with other ecosystem services, which calls for dedicated research that contributes to improved livestock management to avoid and mitigate these impacts.



**Fig. 4.** Total number of grazing interventions and reported outcomes for each type of assessed livestock species and reported outcomes, for the three grazing intensities, per assessed ecosystem service (only the services with sufficient data were analysed). Mixed - grazing intervention assessing the effects of mixed species herds, including sheep and goat, sheep and cattle and cattle and goat.

*Figure 1. Total number of grazing interventions and reported outcomes for each type of assessed livestock species and reported outcomes, for the three grazing intensities, per assessed ecosystem service (only the services with sufficient data were analysed).*

The information presented in this factsheet was developed by the FOREST4EU partner, drawing on the innovations and knowledge generated by the indicated operational group with their explicit authorization.

### Further information

<https://www.terraprima.pt/pt/projecto/23>



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