

HERBIFORESTS

How living forests can mitigate our climate and biodiversity crises



Forests and grasslands functioning as one coherent ecosystem in Romania's Southern Carpathians. STAFFAN WIDSTRAND / REWILDING EUROPE

The European Green Deal advocates more European forests. To help mitigate both our biodiversity and climate crises, these forests need to be far more than simple tree plantations. Natural forests are complex mosaics of indigenous tree stands, woodlands, open areas and transitions to bushy and herbaceous vegetation. Such mosaics – with all their associated plants and animals – function as a living ecosystem. Large herbivores are key architects of these landscapes, contributing to biodiversity, facilitating spontaneous regeneration and carbon storage, and serving as natural fire brigades. This handout provides some recommendations for the EU, using preliminary results from the ongoing GRAZELIFE project.

ABOUT GRAZELIFE

The GRAZELIFE partnership¹ was formed at the request of the European Commission. It is currently putting together recommendations which, if implemented, will enable the EU to better support climate adaptation, biodiversity, management of fire risk, human-wildlife coexistence and the provision of ecosystem services through effective grazing practices. While GRAZELIFE focuses on large herbivore-based land management, some preliminary project outcomes are highly relevant to the forestry sector, Common Agricultural Policy (CAP), EU Biodiversity Strategy, and the European Green Deal.

RESULTS

On management of fire risk

- Dense forest plantations and contiguous shrubby landscapes (often the result of land abandonment) are more vulnerable to large-scale or impactful fires than grazed habitats and mosaic landscapes;
- Large herbivores can remove understorey vegetation, thereby preventing the build-up of fuel for catastrophic fires and creating natural firebreaks. As such, large herbivores often represent a cost-effective, nature-based solution for fires that can replace or complement active management by humans;
- Combinations of herbivore species with different feeding behaviours (i.e. mixed

herds) are more effective at reducing flammable fuel loads than herds of single species;

- Targeted grazing – i.e. short and intense grazing as performed in pastoral systems – can effectively contribute to fire prevention.

Implications and recommendations:

- CAP instruments that favour mixed herds should be expanded and strengthened, especially in areas currently undergoing land abandonment;
- Payments for ecosystem services related to fire management by grazing should be available to herd managers and included in CAP and/or fire-related policies;

¹ The GRAZELIFE partnership comprises 15 Universities, NGOs and companies from 11 countries across Europe (see www.grazelife.eu).



Forest plantations with artificial firebreaks in Sierra de Gata, Spain.

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A grazing "fire brigade" working at landscape scale in Bulgaria's Rhodope Mountains.

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On carbon storage and sequestration

- Natural forests (particularly old-growth forests) have large carbon storage capacities;
- Natural grasslands also have the ability to sequester carbon, and are sometimes more effective at this in the long-term than forests. This is due to the lower fire risk and the rapid intake of carbon in fast growing herbs and its accumulation in the soil via herbivores and dung beetles;
- Grasslands that are very intensively grazed have a low capacity to sequester carbon due to biomass removal and soil erosion. Extensification of grazing can improve carbon sequestration capacity.

Implications and recommendations:

- Carbon storage, rather than sequestration, should be the main focus of poli-

cies for forests, given the large storage capacities of natural forest mosaics and old-growth forests;

- Policy instruments should be favoured (e.g. within the CAP) that facilitate extensive rather than intensive grazing.

On biodiversity

- A mosaic of forests and grassy vegetation, which is associated with extensive grazing practices, creates habitat heterogeneity and thereby promotes biodiversity;
- Grazers add unique features to these landscapes, such as dung pellets, trails and wallows, that form habitats for thousands of animal and plant species;
- At high densities animals graze unselectively, causing excessive disturbance and erosion and leaving only a few unpalatable plant species. Plant and animal diversity is therefore diminished.

Implications and recommendations:

- Management systems should allow and support landscape mosaics containing forests and grasslands across successional stages, to support the heterogeneity required for healthy ecosystems.

On forest regeneration

- In most parts of Europe, soil quality and the seed sources of trees are good enough to allow natural forest regeneration, even in naturally grazed landscapes;
- Natural forest regeneration in grazed landscapes minimises the risk of soil degradation by ploughing (for planting trees) or as a result of catastrophic fires (see above);
- On poor soils (for instance in some Mediterranean regions), where soils have been heavily eroded or where tree species have gone extinct, targeted seeding or tree planting can enhance forest recovery;

Implications and recommendations:

- Rethink the idea of merely planting trees and support the landscape-scale development of natural forests with naturally occurring populations of herbivores;
- This scale should be large enough to support the entire life cycle of natural forests, in which processes such as storms, fires, diseases, debarking and harvesting are balanced by spontaneous regeneration and local planting of missing species;
- As salaries are a major contributor to forestry costs, the spontaneous regeneration and grazing of forests can significantly reduce management costs associated with planting and prescribed burning.

Land abandonment is now taking place across large swathes of rural Europe. This trend offers a unique opportunity to recover complex forest ecosystems with herds of wild herbivores at a scale of many millions of hectares. CAP instruments exist that can support extensive and sustainable grazing, as well as (better) management of forests. But these will require sharpening and expansion if they are to operate more effectively and efficiently.



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