



CONTROLLED GRAZING



ADDRESSED
HAZARDS



PROTECTED CRITICAL
INFRASTRUCTURE



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Controlled grazing

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Primary functions and key services

Controlled grazing contributes to infrastructure resilience by:

- **Soil health improvement:** prevents compaction, enhances organic matter, and promotes soil structure (Li et al., 2023).
- **Erosion control:** maintains vegetation cover to stabilise soil and reduce surface runoff.
- **Water quality protection:** reduces nutrient leaching and runoff into water bodies (Li et al., 2023).
- **Increased forage productivity:** helps to maintain healthy pasture ecosystems (Chausson et al., 2020).

Infrastructure Protection:

- **Irrigation systems**
- **Rural roads**

In addition, it protects pasture lands, which are an important economic activity in a number of regions.

Hazards mitigated by this NbS

Climatological hazards:

- Moderate mitigation of drought by improving soil moisture retention and reducing land degradation.

Meteorological hazards:

- Moderate mitigation of wind erosion through the maintenance of vegetative ground cover.

Hydrological hazards:

- Limited mitigation of surface runoff by enhancing soil infiltration capacity.
- Moderate mitigation of soil erosion by stabilising land with rotational grazing techniques.

▶▶ What is it?

Controlled grazing is a sustainable land management approach that strategically regulates livestock movement and grazing patterns to prevent overgrazing, enhance soil health, and promote biodiversity. By implementing techniques such as rotational grazing, stocking density management, and pasture rest periods, controlled grazing ensures balanced forage consumption, minimises soil degradation/erosion, and supports long-term agricultural productivity. This approach integrates fencing systems, livestock monitoring, and adaptive management practices to maintain ecological balance and improve resilience against climate-related hazards.

(Chausson et al., 2020; Li et al., 2023)

Challenges this NbS addresses

- **Drought** - prevention through improved soil moisture retention.
- **Flooding** – reduction by stabilising soil and enhancing water infiltration.
- **Soil degradation** – recovery by rebuilding organic matter and reducing erosion (Li et al., 2023)
- **Wildfire** – prevention through grazing of animals to manage vegetation and reduce fuel loads

Site suitability, scale and coverage

Controlled grazing is applicable in:

- **Agricultural and pastoral landscapes with grazing livestock** (Chausson et al., 2020; Keesstra et al., 2018; Li et al., 2023)
- **Peri-urban and rural areas with soil degradation concerns** (Li et al., 2023)
- **Regions affected by drought, erosion, and overgrazing**

Ecosystem services

- ▶ **Carbon sequestration:** promotes vegetation recovery, increasing soil organic carbon and maintaining CO₂ capture levels.
- ▶ **Improved habitat for wildlife:** supports biodiversity by maintaining a diverse pasture ecosystem (Chausson et al., 2020).
- ▶ **Water regulation:** improves water infiltration, reducing runoff and supporting aquifer recharge (Li et al., 2023).
- ▶ **Aesthetic and recreational value:** enhances the visual appeal and sustainability of managed landscapes.



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Cost-benefit profile

- Controlled grazing reduces land degradation costs and enhances long-term pasture productivity (Chausson et al., 2020).
- Additional benefits include improved soil fertility, water conservation, and economic sustainability for livestock farmers (Li et al., 2023).

Environmental impacts (EU taxonomy)

- Climate change mitigation
- Climate change adaptation
- Sustainable use and protection of water and marine resources
- Transition to a circular economy
- Pollution prevention and control
- Protection and restoration of biodiversity and ecosystems.

Main components

- **Rotational Grazing:** livestock are moved between designated grazing areas to allow vegetation recovery (Li et al., 2023).
- **Fencing Systems:** temporary or permanent fencing to delineate grazing zones and control livestock movement.

Implementation, operational and maintenance considerations:

- **Stocking Density Management:** adjusting the number of animals per unit area to prevent overgrazing.
- **Pasture Rest Periods:** defined periods where land is left ungrazed to regenerate vegetation and improve soil health (Keesstra et al., 2018).

Example of installation

- ▶ **LIFE LANDSCAPE FIRE**
- ▶ **Location:** Regions in Spain and Portugal
- ▶ **Implemented by:** Collaborative effort involving partners from Spain and Portugal
- ▶ **Description and results:** This project employs innovative strategies to prevent wildfires, such as utilising grazing animals to manage vegetation and reduce fuel loads. By allowing goats to graze on dry grasses and shrubs, which are potential wildfire fuels, the project has effectively decreased the frequency and intensity of fires. Since its implementation in 2018, there has been a notable reduction in wildfire incidents within the targeted areas.

References

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