

PRECISION GRAZING AND VIRTUAL FENCING AS A NATURE-BASED SOLUTION FOR WILDFIRE PREVENTION

Integration of intelligent livestock monitoring, virtual fencing and high-resolution wildfire risk mapping for targeted biomass management in rural landscapes



Pilot site:
Armariz, Galicia, Spain



2 cattle monitored
with intelligent collars



Weekly drone surveys
satellite + weather + soil data



Dynamic wildfire risk maps
integrated into the RUMI platform



1. CHALLENGE/CONTEXT

Wildfires are becoming more frequent and severe across southern Europe due to climate change, land abandonment and fuel accumulation. Mechanical vegetation clearing is costly and must be repeated. Targeted grazing can reduce biomass while supporting biodiversity and rural activity.



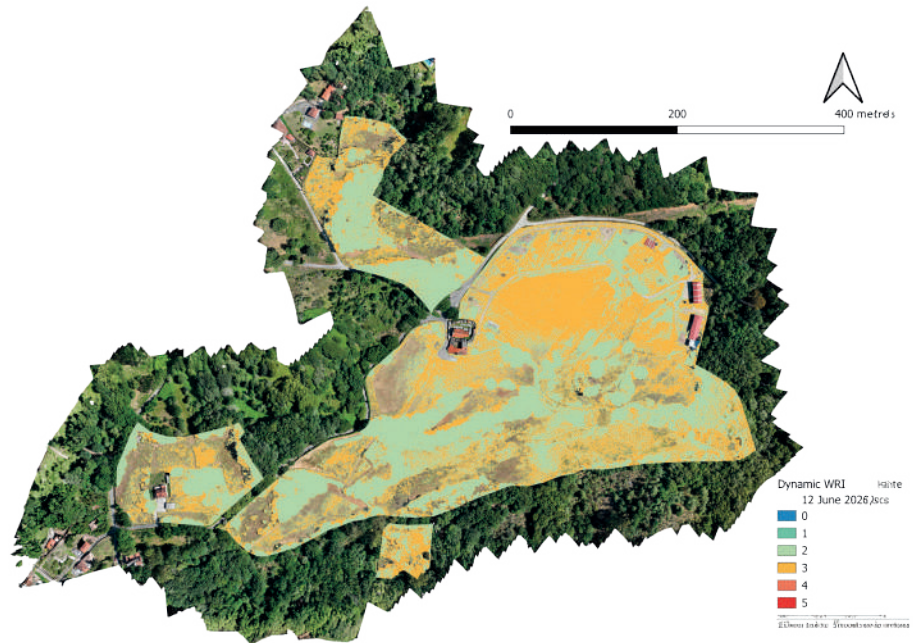
2. MAIN RESULT

STORCITO demonstrated an integrated decision-support solution that combines precision livestock monitoring, virtual fencing and dynamic wildfire risk mapping. The system helps direct grazing towards areas where biomass reduction is most needed.



3. KEY INNOVATIONS

- Armariz experimental farm, Galicia, Spain
- RUMI collars for livestock location and behaviour
- Virtual fencing with acoustic training
- Drone multispectral surveys and satellite observations
- Weather and soil sensors for environmental monitoring
- Wildfire risk maps connected to livestock management



Dynamic WRI overlay at the Armariz pilot site. High-resolution mapping helps identify where grazing can reduce combustible biomass more effectively.



4. FIRST OPERATIONAL RESULTS

- Animals rapidly acclimatised and maintained normal grazing, resting and rumination patterns
- Automated monitoring detected behaviour changes linked to heat stress
- Virtual fencing was validated through gradual training under field conditions
- Wildfire risk maps became accessible directly within the RUMI application
- Recent drone imagery improved the representation of current fuel conditions



5. PRACTICAL RECOMMENDATIONS

- Use targeted grazing as a complementary wildfire prevention measure
- Train animals gradually before fully virtual grazing systems are deployed
- Combine Earth observation with field measurements for updated risk mapping
- Support farmers with easy-to-use digital tools
- Promote coordination between farmers, foresters and public authorities



6. END-USERS / RECIPIENTS

- Foresters and forest workers
- Public authorities
- Farmers and farm workers



7. KEYWORDS

- Wildfire prevention
- Animal husbandry
- Climate resilience
- Landscape / land management
- stakeholder engagement
- Digitalisation
- Rural communities



8. SPECIFIC OBJECTIVES

- Climate change actions
- Environmental care
- Innovation and knowledge exchange