

Landscape legacies and disturbance response in Alpine semi-natural dry grasslands

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Why do we care?

The challenge

Semi-natural dry grasslands are among Europe's most threatened habitats.

Plant diversity built in centuries of **low-intensity disturbances** related to human presence (i.e., mowing, grazing, burning, etc.).

In the Alps, **land abandonment** since the **1950s** has driven massive forest encroachment, **shrinking** and **isolating grassland habitats**.

Our study area: Susa Valley, NW Italian Alps

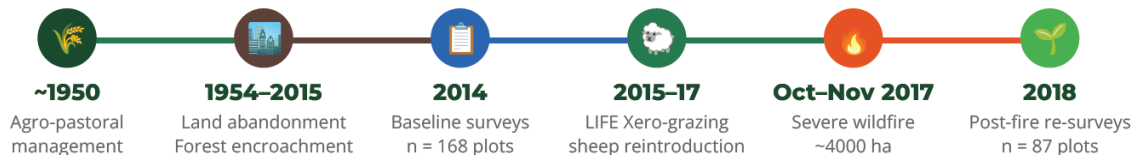
Protected areas hosting RN2000 **xerothermic dry grassland habitats**, threatened by increasing forest pressure.

From **2015** to **2017** “LIFE XeroGrazing” project, **reintroduction of traditional sheep grazing** with a conservation and restoration purpose.

In **autumn 2017** a **severe wildfire** burned ~4000 ha in the study area.

Our approach

How do landscape legacies from decades of abandonment shape the response of dry grasslands to disturbance events?



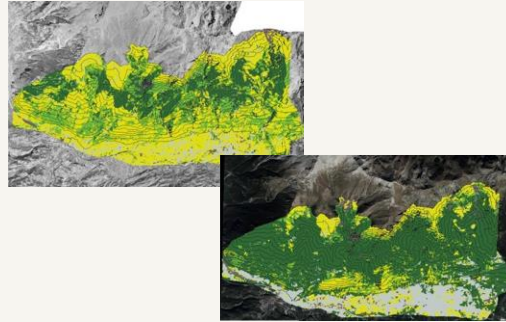
How we did it · Methods



FIELD SURVEYS

2014 pre-disturbances
2018 post-disturbances

Vegetation indices
(diversity + habitat conservation)



LANDSCAPE CLASSIFICATION

1954 & 2015 aerial images

Landscape metrics
(historical + recent)



GPS COLLARS on grazing sheep

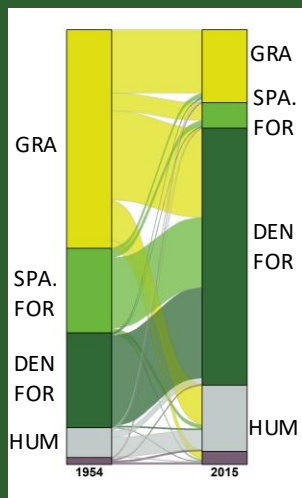
BURN SEVERITY MAP of 2017
wildfire

Disturbance variables
(grazing intensity + fire severity)

Random Forest Regressions

What we found

Landscape changes



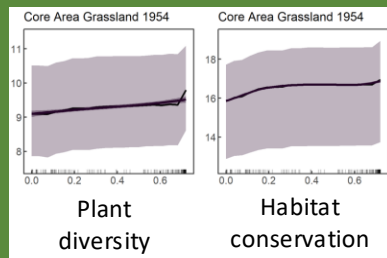
-67%
grassland loss

+170%
forest expansion

- Reduced habitat areas and connectivity
- **Increasing wildfire risk** through continuous woody fuel loads

Landscape legacy effects

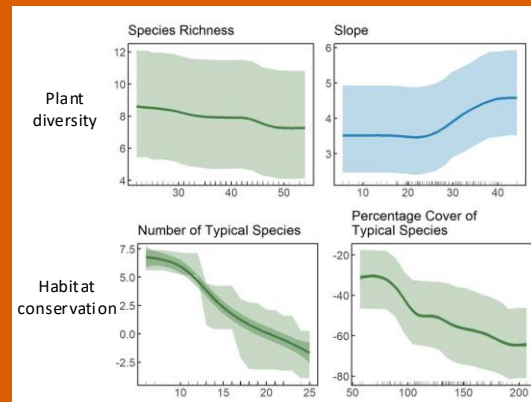
Historical landscape structure shapes present vegetation conditions



Sites embedded in **historically large open grasslands** still have **higher plant diversity today**

Post-disturbance responses

Present vegetation conditions mediate the response to disturbances





Discussion and take-home messages...

Come visit the poster for the full story!
Thanks for your attention