

Land-use legacies drive post-disturbance responses of plant diversity and habitat conservation status in Alpine semi-natural dry grasslands

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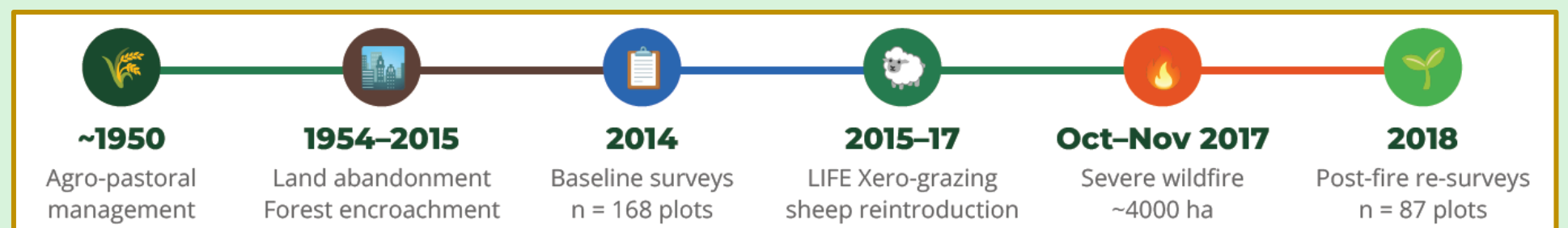
BACKGROUND

Semi-natural dry grasslands are rapidly disappearing due to **land abandonment** and **altered disturbance regimes**. In the Alps, these pressures shape current biodiversity patterns in complex ways.

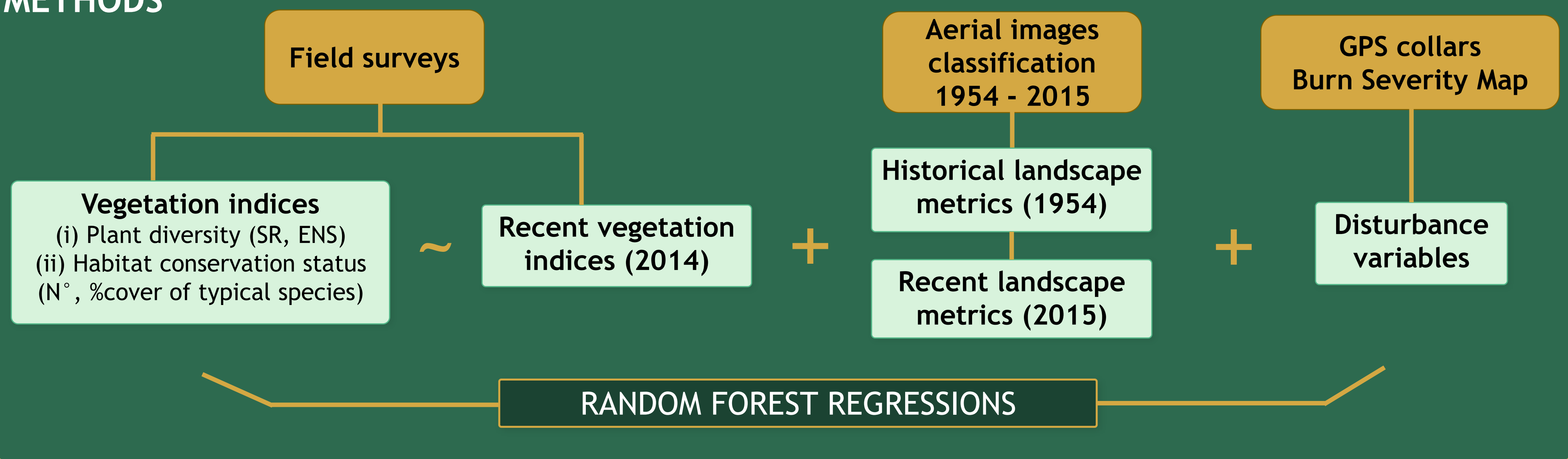
HOW?

STUDY AREA & TIMELINE

LOCATION: Susa Valley, NW Italian Alps · Italy
CLIMATE: Xerothermic sub-Mediterranean
SETTING: South-facing slope · 500-2000 m a.s.l.



METHODS

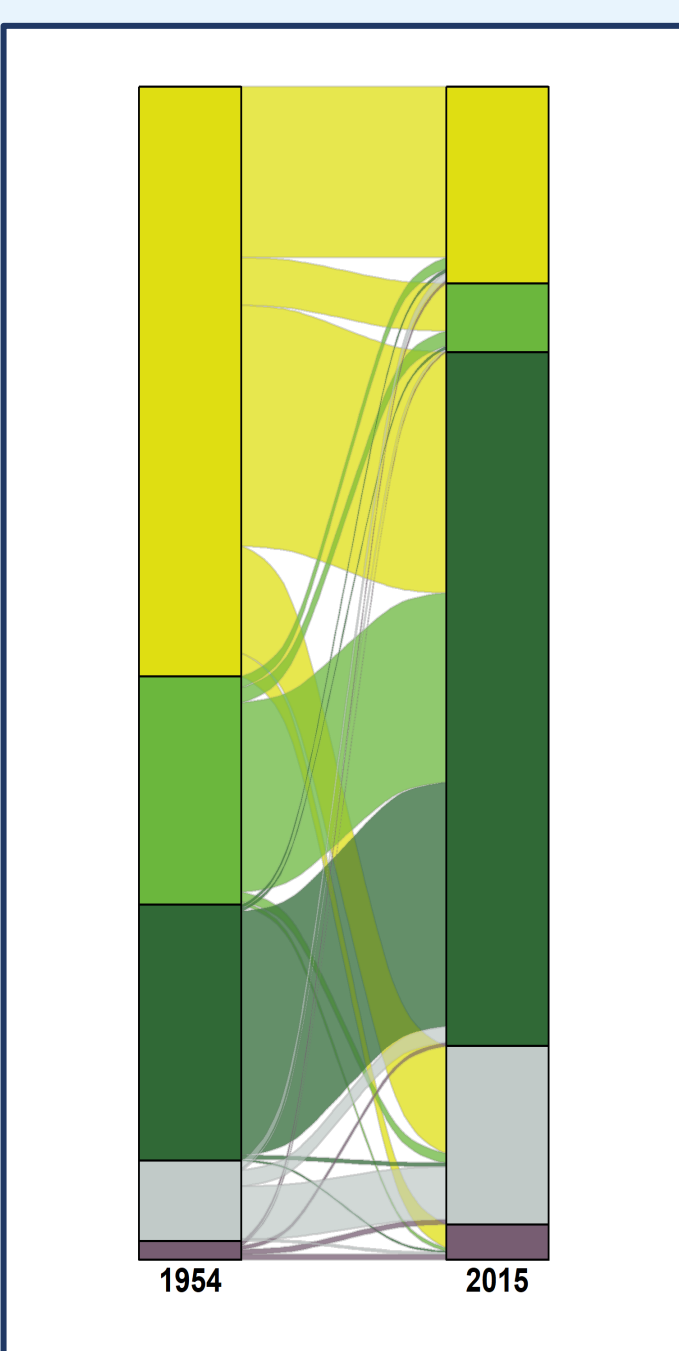


RESULTS

Landscape changes

-67%
Grassland loss

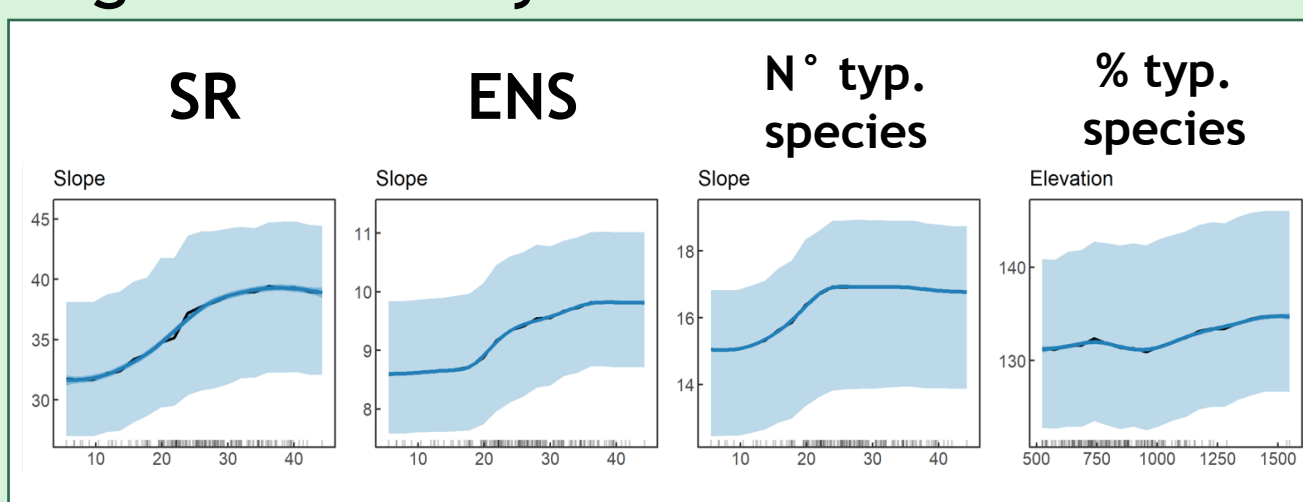
+170%
Forest expansion



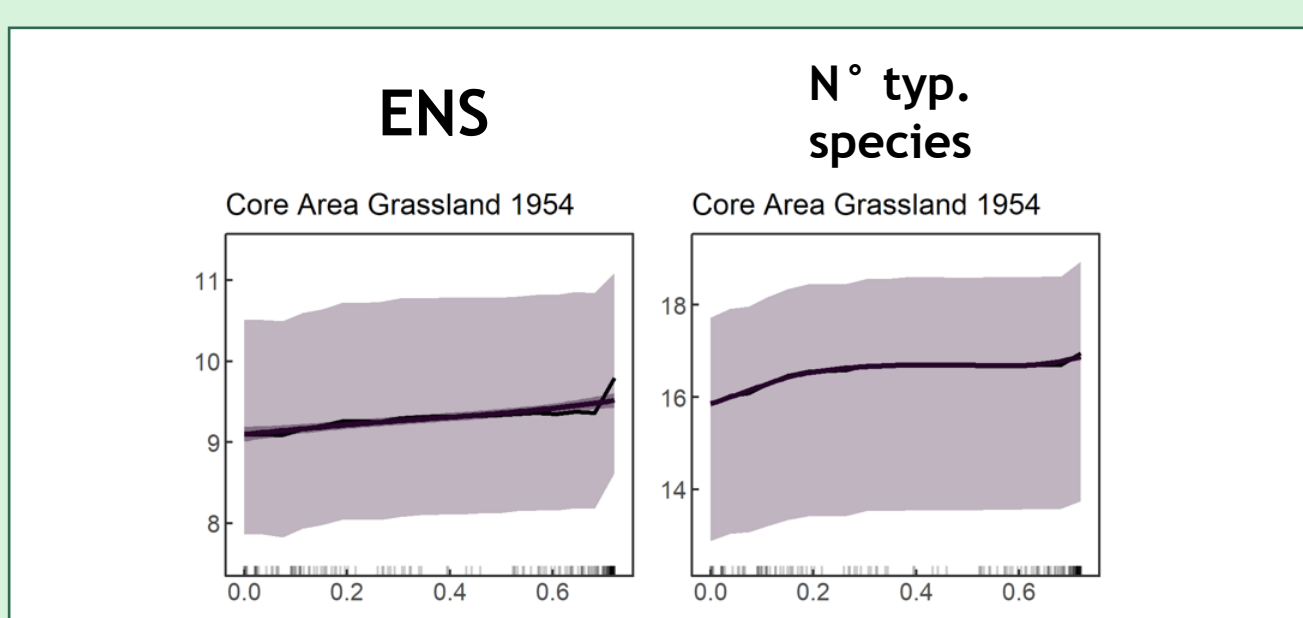
Reduced habitat area and connectivity
Increasing wildfire risk through continuous woody fuel loads

Landscape legacy effects

Topography was the most important predictor – **steeper slopes** support higher diversity and conservation



Sites with historically larger grassland core areas showed **higher ENS** and **more typical species**

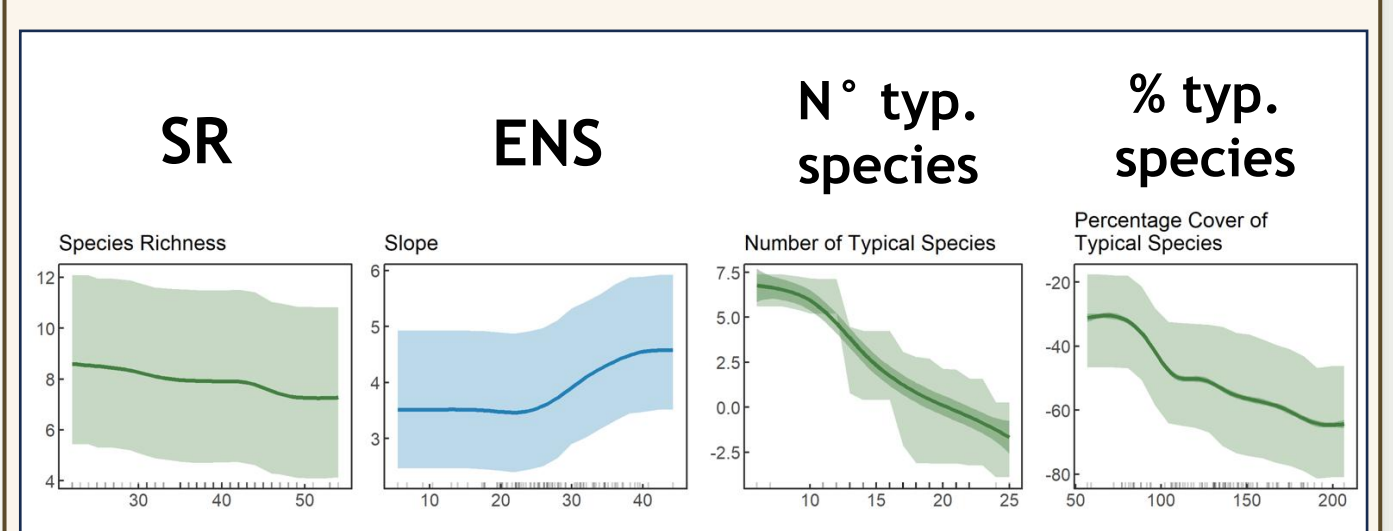


Post-disturbance responses

Pre-disturbance conditions mediate changes in plant diversity and habitat conservation status

Degraded grasslands showed **marked recovery** after disturbances – typical therophytes colonized bare ground soil

Well-preserved grasslands exhibited **resistance**, with limited compositional change



TAKE-HOME MESSAGES

1

Historical landscape structure shapes dry grasslands response to disturbances

2

Management must integrate historical landscape knowledge

3

Prescribed disturbances as context-dependent management tools