The LIFE Drylands project: Restoration of dry-acidic continental grasslands and heathlands in Natura 2000 sites of the western Po Plain

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LIFE18 NAT/IT/000803 – LIFE DRYLANDS

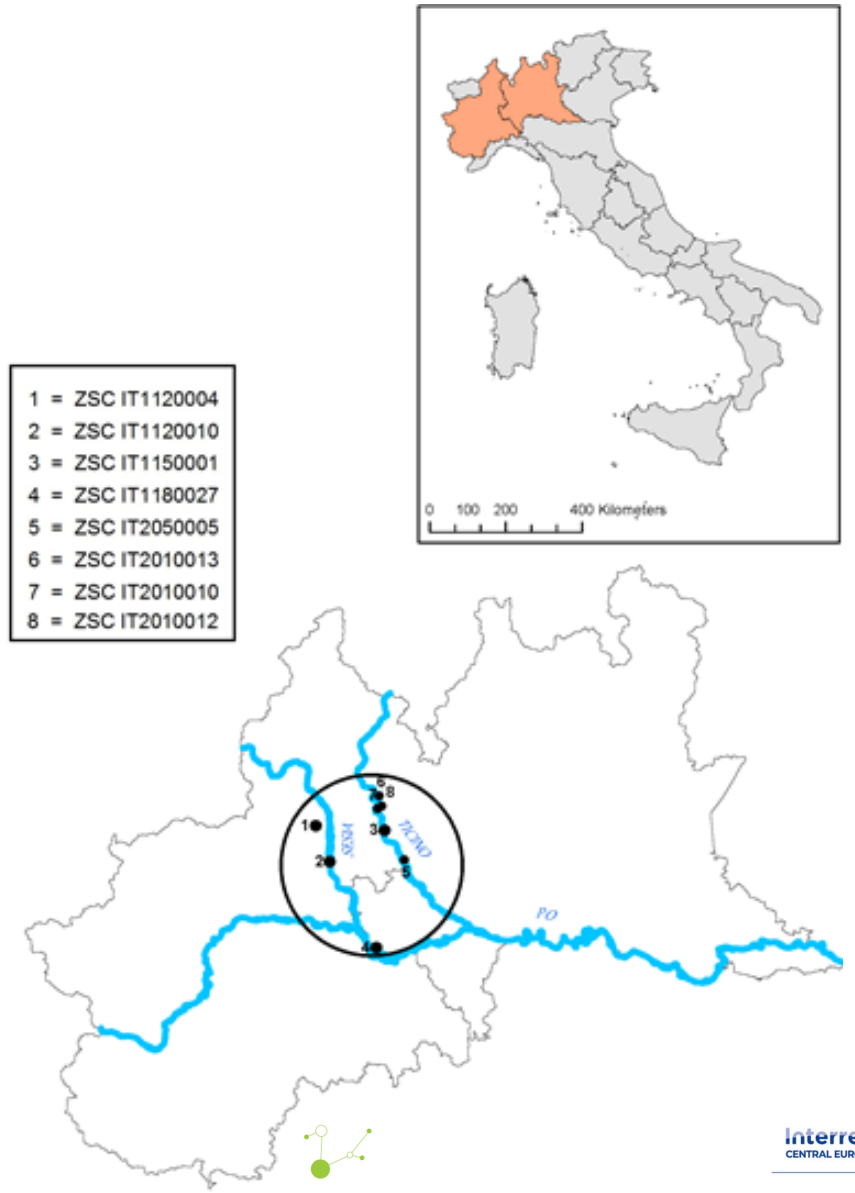
PROJECT LOCATION: Lombardy Region, Piedmont Region (Western Po Plain)

DURATION: Start: 02/09/19 - End: 30/04/25

PROJECT'S IMPLEMENTORS:

Coordinating Beneficiary: University of Pavia

Associated Beneficiaries: University of Bologna; Managing Body of the Protected Areas of the Po piemontese; Association Lombardy Network of Botanic Gardens; Lombardy Park of the Ticino Valley; Managing Body of the Protected Areas of the Ticino and Lake Maggiore.



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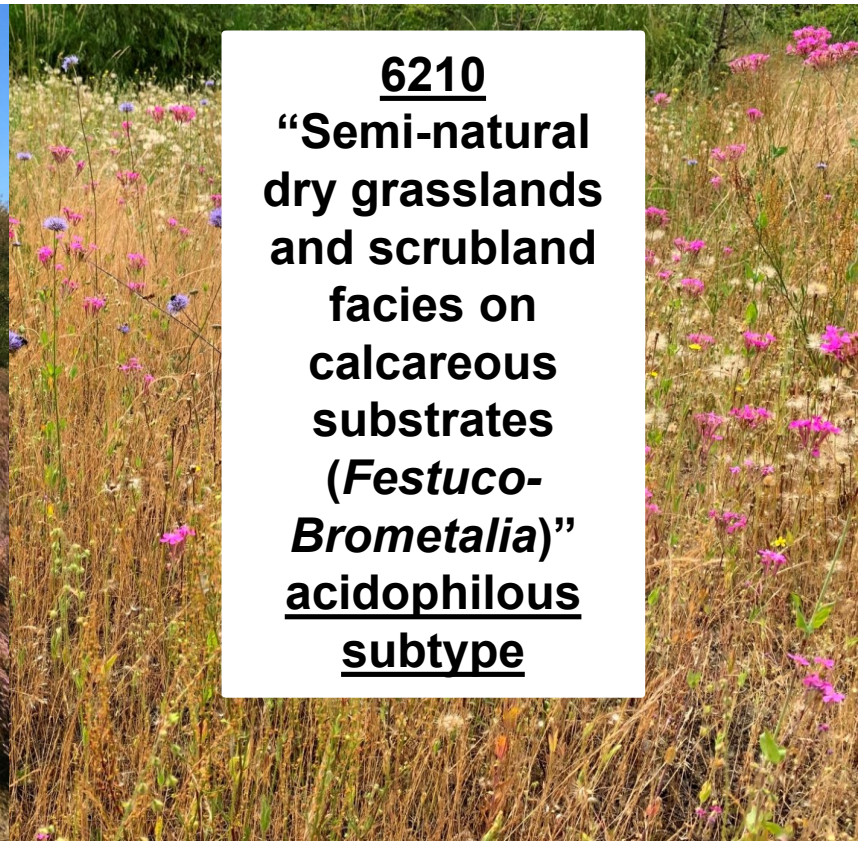
TARGET HABITATS

2330
"Inland dunes with open *Corynephorus* and *Agrostis* grasslands"

4030
"European dry heaths"



6210
"Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*)" acidophilous subtype

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AIMS

Restoration of the target habitats to a **favourable conservation status**

Creation of **core areas** and **ecological corridors** to reduce fragmentation and increase connectivity

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HOW?

We aimed at preserving:

- pioneer aspects (bare soil and soil biological crusts)
- typical aspects (perennial herbs/forbs and/or dwarf shrubs)
- mature aspects (dense shrubby patches at the contacts with the forest communities)

This dynamic approach is consistent with the dynamic nature of natural and semi-natural habitats in the Po Plain, which is the result of different past and present causes, both natural and human.

It thus takes into account the processes driving the formation of the target habitats, and results in a higher biodiversity.

A static approach that preserves only a single aspect of the target habitats would result in a lower biodiversity.

Restoration methods and strategies

C1 Structural restoration of the target habitats

TECHNIQUES

mowing and **removal** of **herbs** (**H6210**)

raking (**H4030**)

cutting back of native woody species (maintaining the larger specimens, under which ecotone species can refuge) (**H2330, H4030, H6210**)

sod-cutting, consisting in scraping of the surface soil in 6x5 m plots scattered in the intervention areas (**H2330 e H6210**)

top soil inversion, consisting in burial of the surface soil (40 cm) under a layer of subsoil (40 cm), using an excavator, in 6x5 m plots scattered in the intervention area (**H4030**)

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Restoration methods and strategies

C2 Removal of invasive woody species

AIM

Reduce the presence and abundance of non-native woody species (such as *Robinia pseudoacacia*, *Prunus serotina*, *Quercus rubra*), responsible for the loss of biodiversity in the target habitats.

TECHNIQUES

cutting down

stem injection with plant protection products

removal of stumps

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Restoration methods and strategies

C3 Improvement of the floristic composition

AIM

Increasing in plant diversity in the target habitats

TECHNIQUE (H2330, H4030, H6210)

Planting of typical habitat herbaceous species (produced in specialized nurseries) in dense groups (35-40 plants/m^2)

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Restoration methods and strategies

C4 Creation of new patches of the target habitat

AIM

To realize core areas and ecological corridors to reduce fragmentation and increase connectivity in crucial areas for the conservation of the target habitats

TECHNIQUES

Preparatory treatments (woody and/or herb cutting, sod cutting and/or top soil inversion) and distribution of **suitable propagation material**, coming from donor sites with ecological characteristics similar to the receptor site.

- surface sands rich in the seeds of typical species for H2330
- harvested seeds (“fiorume”) for H6210
- cuttings of Calluna for H4030

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MONITORING

- **26 patches**
- **Number of plots per patch** proportional to the natural logarithm of the patch area
- **95 circular plots** with 3 m radius
- Vegetation relevé, at plot level, once:
  structure, vascular plants, lichens, bryophytes
- Sight sampling, at patch level, 3 repetitions: **butterflies**
- Pitfall traps, at patch level, 3 repetitions: **carabid beetles**
- **EX-ANTE**: June 2020 and May-June 2021
- **EX-POST**: May-June 2023

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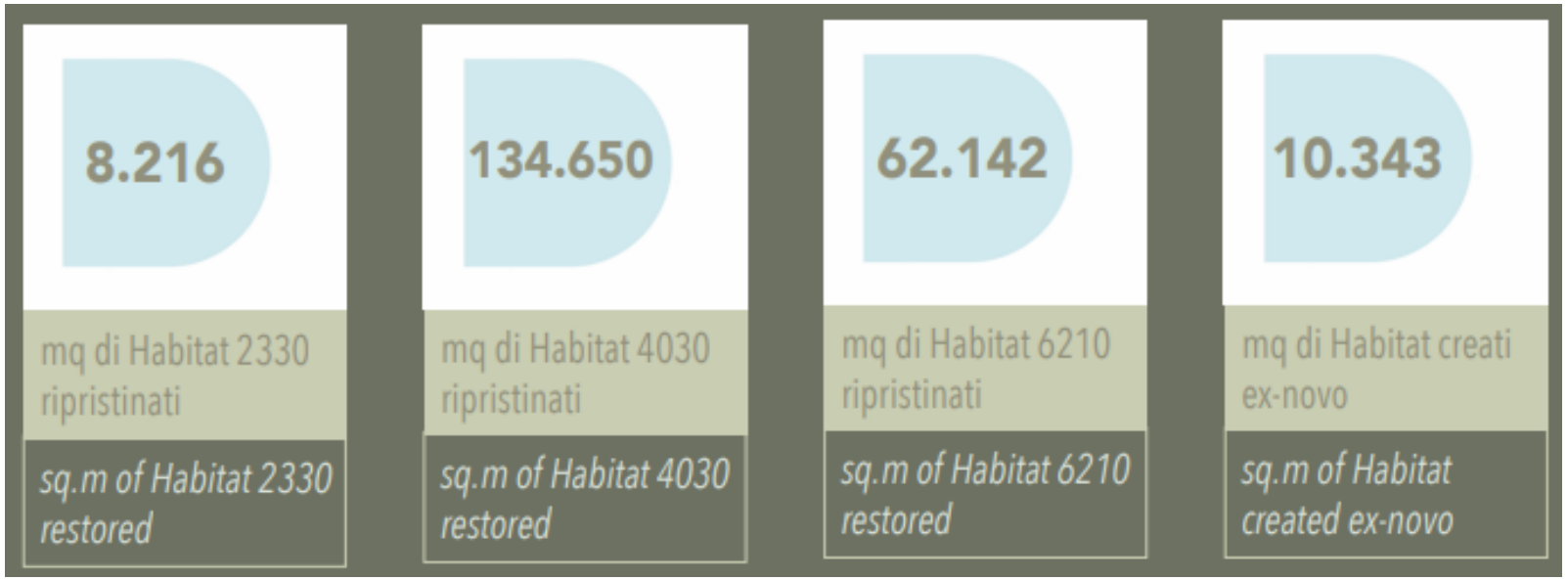
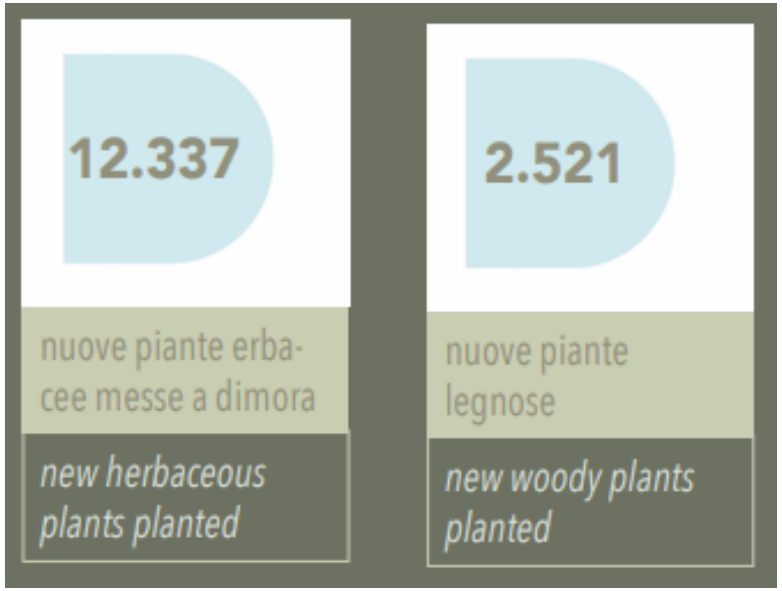
MAIN RESULTS





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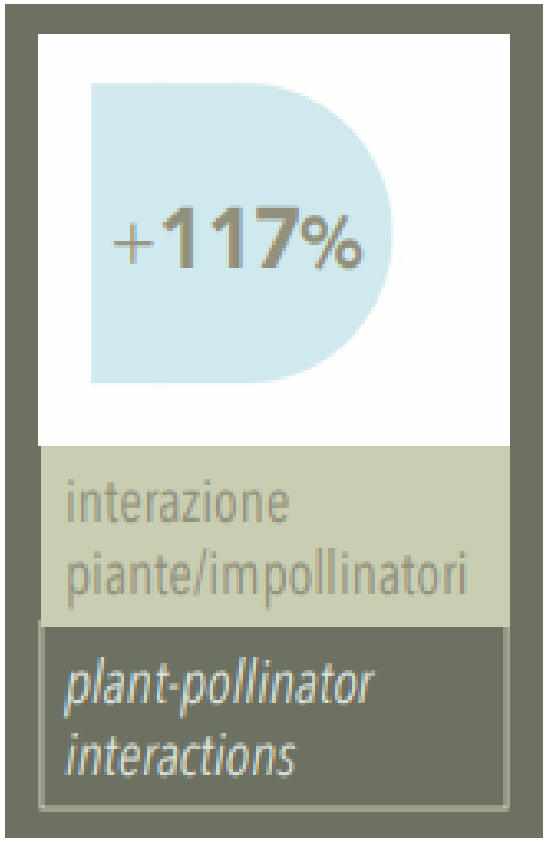
MAIN RESULTS



Robinia pseudoacacia: reduction of about 57% of plants

Prunus serotina: reduction of about 93% of plants

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MAIN RESULTS

Short Contributions

The LIFE Drylands project produced guidelines to support your work!

https://www.lifedrylands.eu/en/download/

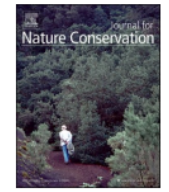
18 degree/bachelor thesis

Journal for Nature Conservation 81 (2024) 126682

Contents lists available at ScienceDirect

Journal for Nature Conservation

journal homepage: www.elsevier.com/locate/jnc



Employing plant translocations to restore open dry acidic habitats in European Continental lowlands: A case study in northern Italy

Silvia Assini [a,b], Alessia Gressani [a,*], Matteo Barcella [a], Alice Bacchetta [a], Ilaria Brugellis [a], Giulia Tarzariol [a], Juri Nascimbene [c], Gabriele Gheza [c]

Fungal Ecology 72 (2024) 101384

Contents lists available at ScienceDirect

Fungal Ecology

journal homepage: www.elsevier.com/locate/funeco

Habitat loss, extinction debt and climate change threaten terricolous lichens in lowland open dry habitats

Gabriele Gheza [a], Zeno Porro [b,c,*], Matteo Barcella [d], Silvia Assini [d], Juri Nascimbene [a]

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IT'S TIME FOR DRY HABITATS!

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