



LIFE Granatha y LIFE Shep4Bio. Prescribe burning and grazing as tools for biodiversity conservation in open habitats: **two case studies from Tuscany (Italy)**

LIFE Connect Ricotí Final Congress

Tommaso Campedelli

D.R.E.AM. Italia





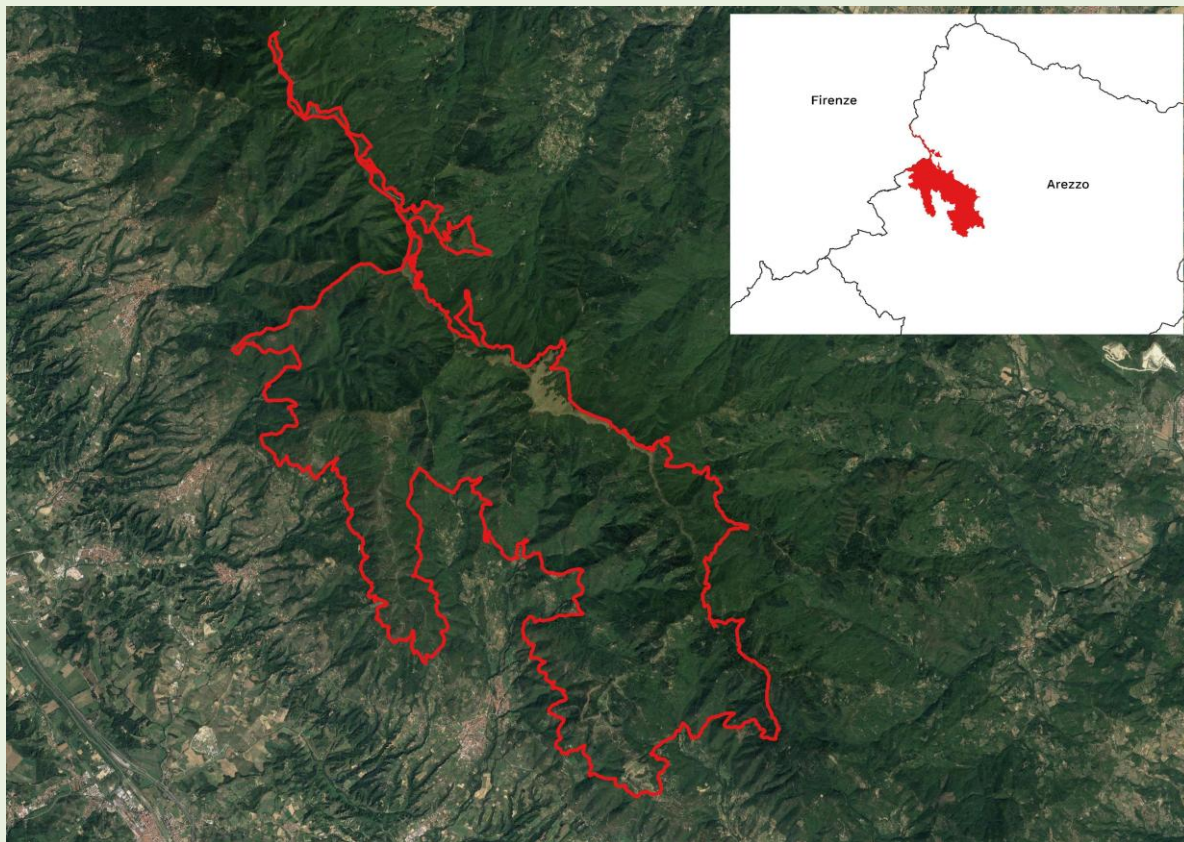
The project in brief

Partnership: Dream Italia (Coordinator),
Municipality Union of Pratomagno,
University of Turin, Beta2 Social cooperative

Duration: 7 years (2017 – 2023)

Budget: 1.330.000 €

Intervention area: SPA-SAC “Pascoli e
cespuglieti montani del Pratomagno”
(Arezzo, Tuscany)





The project in brief



Main objective: improve the conservation status of 8 bird species breeding in the mountain's Tuscany heathlands

Dartford Warbler - *Curruca undata*

Woodlark - *Lullula arborea*

Tawny pipit - *Anthus campestris*

Red-backed shrike - *Lanius collurio*

Nightjar - *Caprimulgus europaeus*

Montag's harrier - *Circus pygargus*

Shot-toed eagle - *Circaetus gallicus*

Honey buzzard - *Pernis apivorus*





The project in brief



Main objective: improve the conservation status of 8 bird species breeding in the mountain's Tuscany heathlands (*Erica scoparia*)

Specific objectives:

- increase breeding population and distribution of the target species;
- restoring 162 ha of Habitat 4030;
- starting up an activity for the production and marketing of heaths brooms from sustainable heathlands management



Background – why a project on mountain heathlands

- Historically, these open landscapes were maintained by traditional anthropogenic disturbances, such as pastoralism, sod-cutting, and periodic burning (Webb 1998; Fagúndez 2013).
- Within the project area, heathlands played a very important socio-economic role. Heaths were used in particular for the production of brooms and provided employment for hundreds of people.
- The economic value of this activity was so high – compared, for example, with the sale of firewood – that, until at least the 1970s, it was common practice to set fire to the woods to encourage the growth of heaths.



Background – why a project on mountain heathlands

- With the abandonment of this traditional activity and, in particular from the 1980s onwards, with the advent of plastic brooms, which have almost completely replaced those made of heaths, active management of this habitat has declined dramatically.
- These changes have had a huge impact on this habitat which has seen widespread woody and shrubs encroachment.
- This has led to a loss of ecological functionality and a reduction in suitability for the rarest and most specialised species, particularly among birds.



Conservation actions for heathlands restoration

- Mechanical and manual shrubs clearing



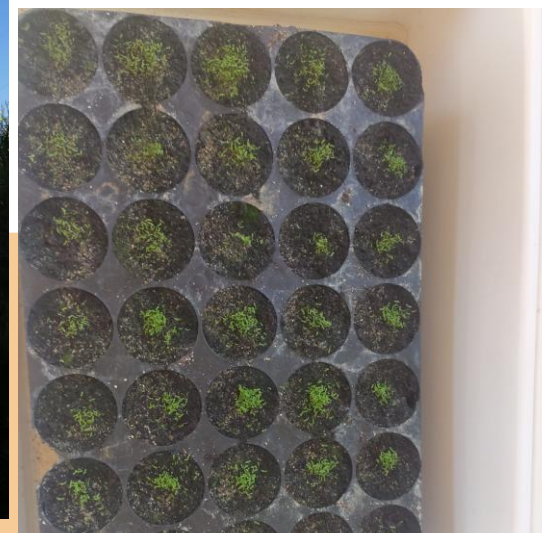
Conservation actions for heathlands restoration

- Mechanical and manual shrubs clearing
- Prescribed fire



Conservation actions for heathlands restoration

- Mechanical and manual shrubs clearing
- Prescribed fire
- Sowing and planting of new heaths
(*not originally planned*)



Conservation actions for heathlands restoration

- Mechanical and manual shrubs clearing
- Prescribed fire
- Sowing and planting of new heaths (*not originally planned*)
- Cows and goats grazing (*not originally planned*)



Conservation actions for heathlands restoration

- Mechanical and manual shrubs clearing
- Prescribed fire
- Sowing and planting of new heaths (*not originally planned*)
- Cows and goats grazing (*not originally planned*)
- The establishment of a cooperative involved in the production of heath items



Results - general

- 172 Ha restored (10 more than planned)
- Positive effects registered for seven of the target species:
 - Short-toed Eagle
 - Montagu's Harrier
 - Eurasian Nightjar
 - Tawny pipit
 - Dartford Warbler
 - Wood Lark
 - Red-backed shrike
- Unfortunately, the cooperative closed after two years of activity



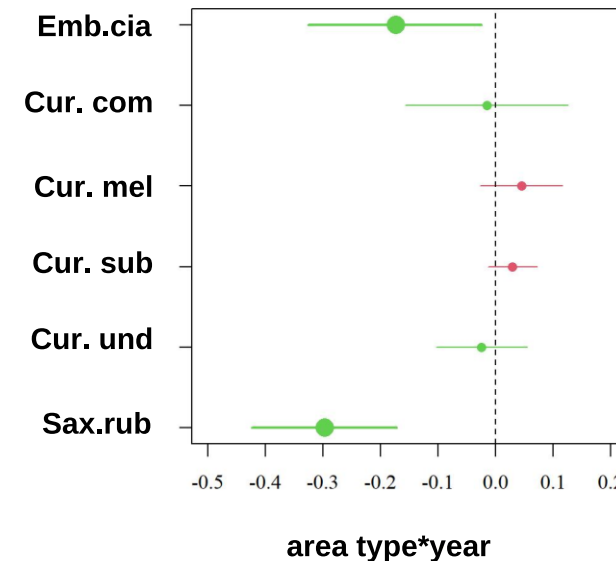
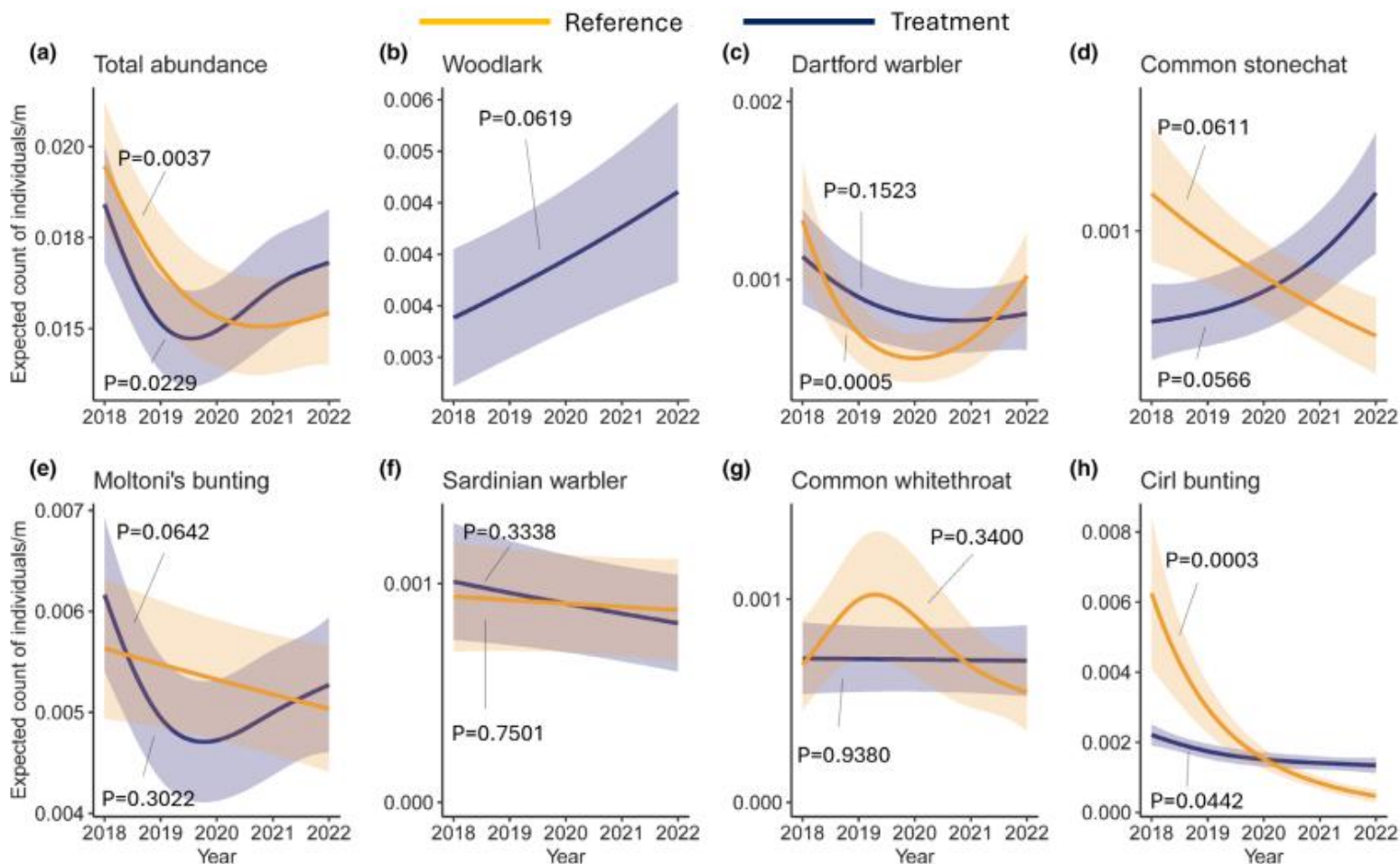
Results – breeding passerines

DOI: 10.1111/1365-2664.70283

RESEARCH ARTICLE

Journal of Applied Ecology

Restoring Mediterranean heathlands for declining birds: Initial responses to mosaic cutting and prescribed burning in the Natura 2000 LIFE program



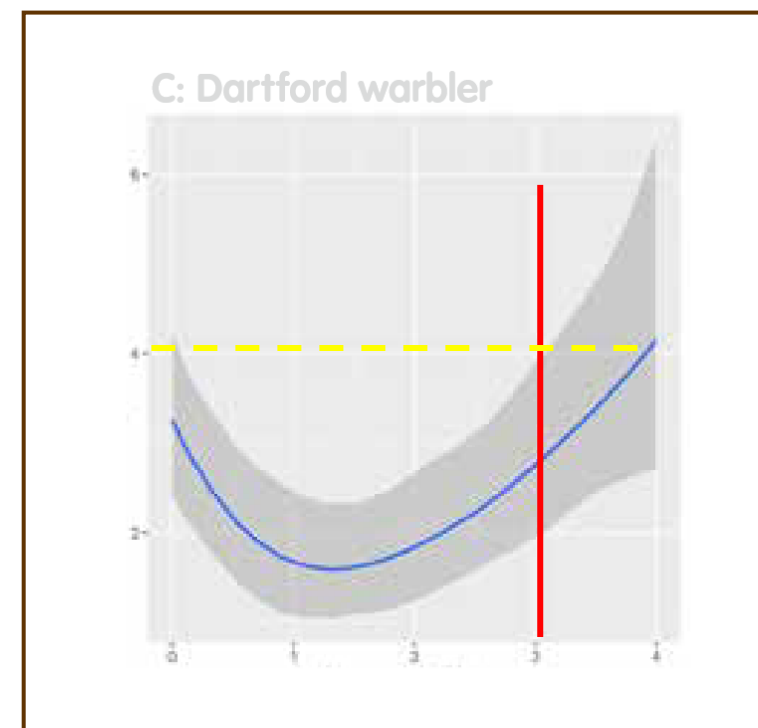
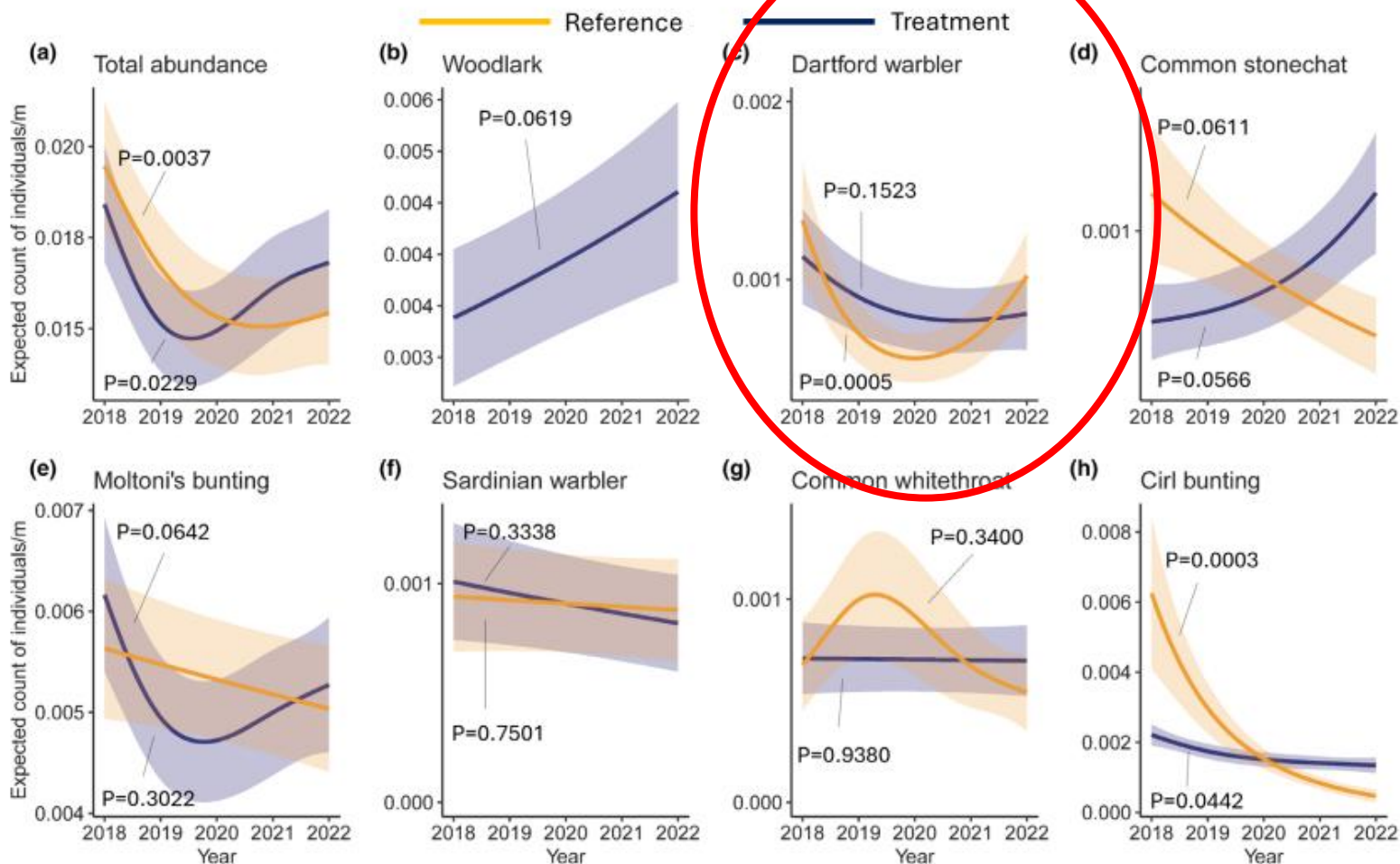
Results – breeding passerines

DOI: 10.1111/1365-2664.70283

RESEARCH ARTICLE

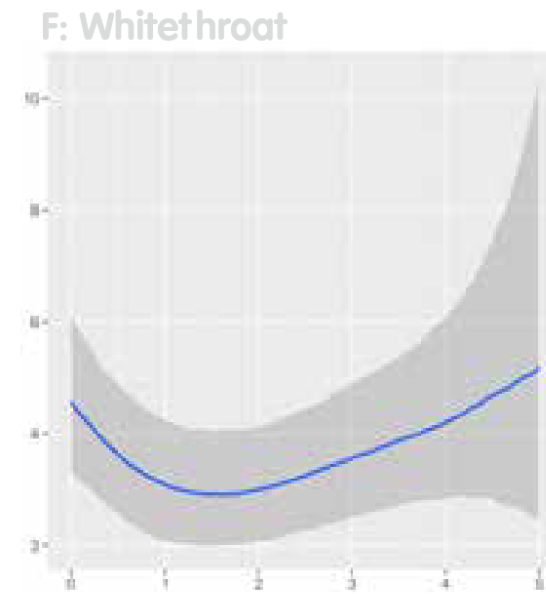
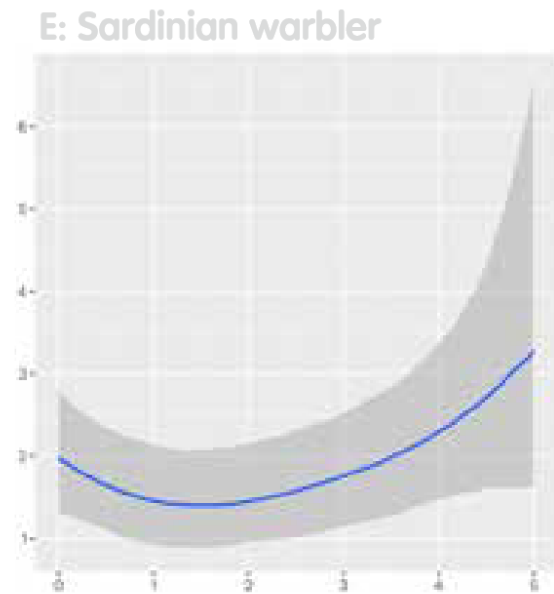
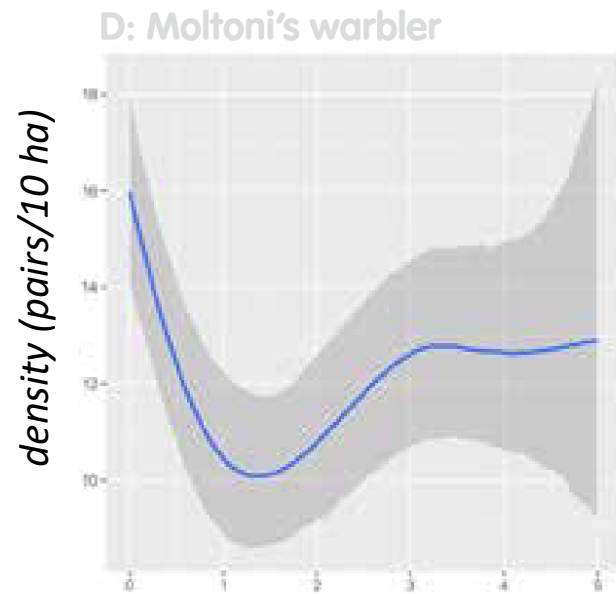
Journal of Applied Ecology

Restoring Mediterranean heathlands for declining birds: Initial responses to mosaic cutting and prescribed burning in the Natura 2000 LIFE program



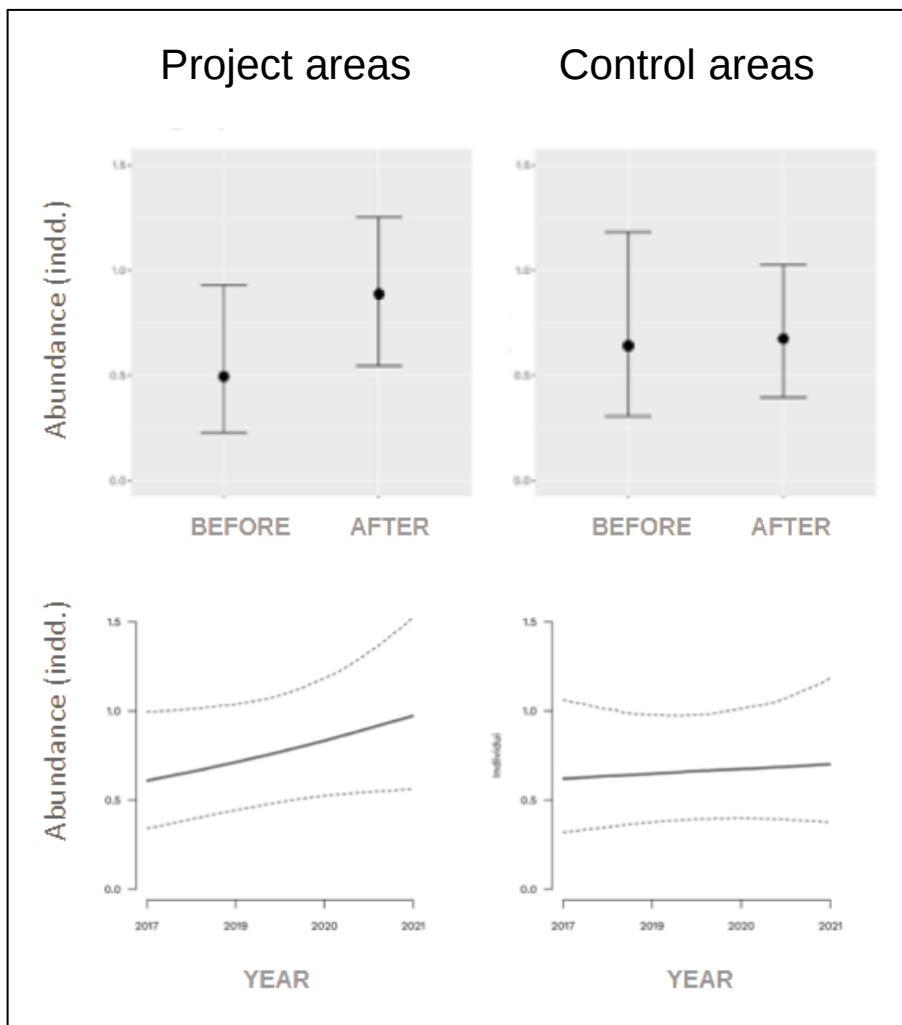
— 3 years from intervention

Results – breeding passerines

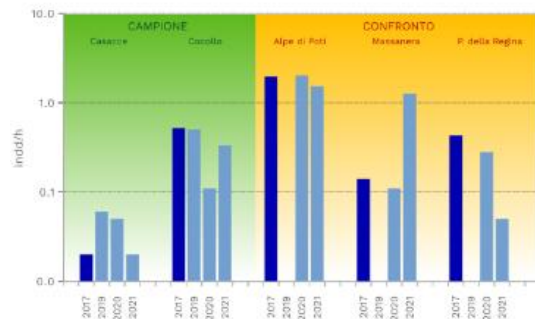
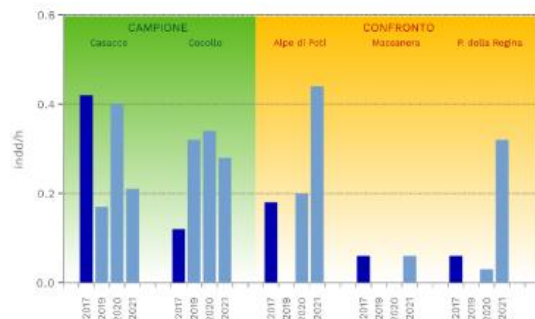
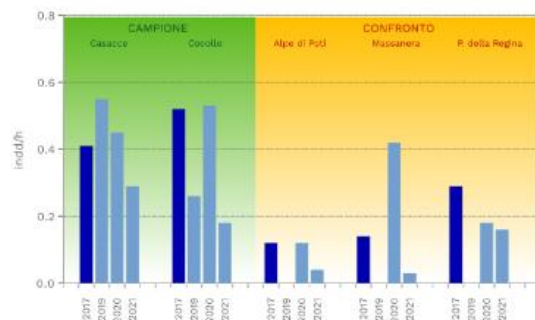


years from intervention

Results – Nightjar



Results – raptors



- A new couple of Short-toed eagle colonized one of the two project macroareas
- the increase in observations of the M. harrier indicates the probably presence of a new couple
- the number of breeding pairs in the SPA increase, respectively, from 1 to 2 and from 2 to 3
- no effect has been recorded on the H. buzzard.

Prescribed fire

- At the start of the project, prescribed fire in Italy was regarded only as a fire-fighting technique
- Experiences of using prescribed fire as a habitat conservation measure were sporadic, mostly with only few cases of experimental value
- Life Granatha was the first project to implement a comprehensive Prescribed Fire Plan aimed at conserving biodiversity





Prescribed fire

Objectives:

- reduce wildfire risk whilst improve conservation status of 4030 Habitat
- affect 70% of the vegetation in the intervention areas

Results:

- 13 ha of intervention
- 173 people engaged (most of them from the wildfire fighting sector of Tuscany Region)

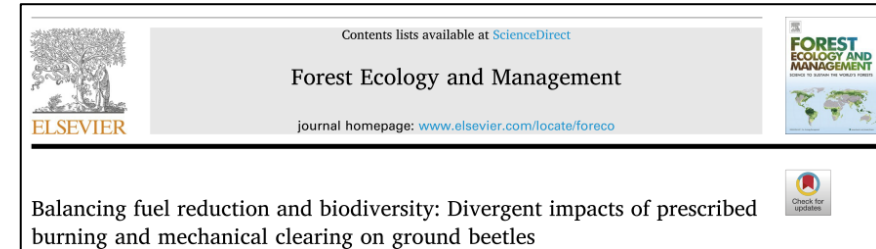


Prescribed fire - new definition in Tuscany Region forestry law

agricultural and silvicultural practices aimed at maintaining agricultural crops, pastures, shrublands, and forests—where deemed appropriate—to reduce and control biomass growth for the purposes of fire prevention and the protection of specific vegetation types in rural areas

Prescribed fire (PF) vs mechanical cutting (MC)

- The effects on ground beetle communities were monitored
- Although the study covers a limited period of time, the preliminary results seem to indicate that PF, unlike MC, helps to maintain a diverse community of ground beetles, with a possible positive trend from the 3rd year since the interventions in terms of evenness
- The key seems to lie in habitat heterogeneity and the presence of bare ground produced by fire



The project in brief

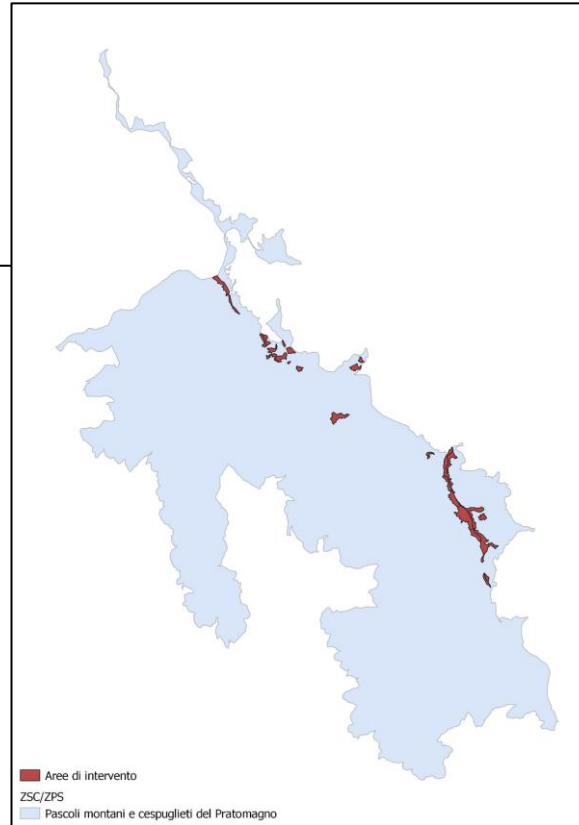
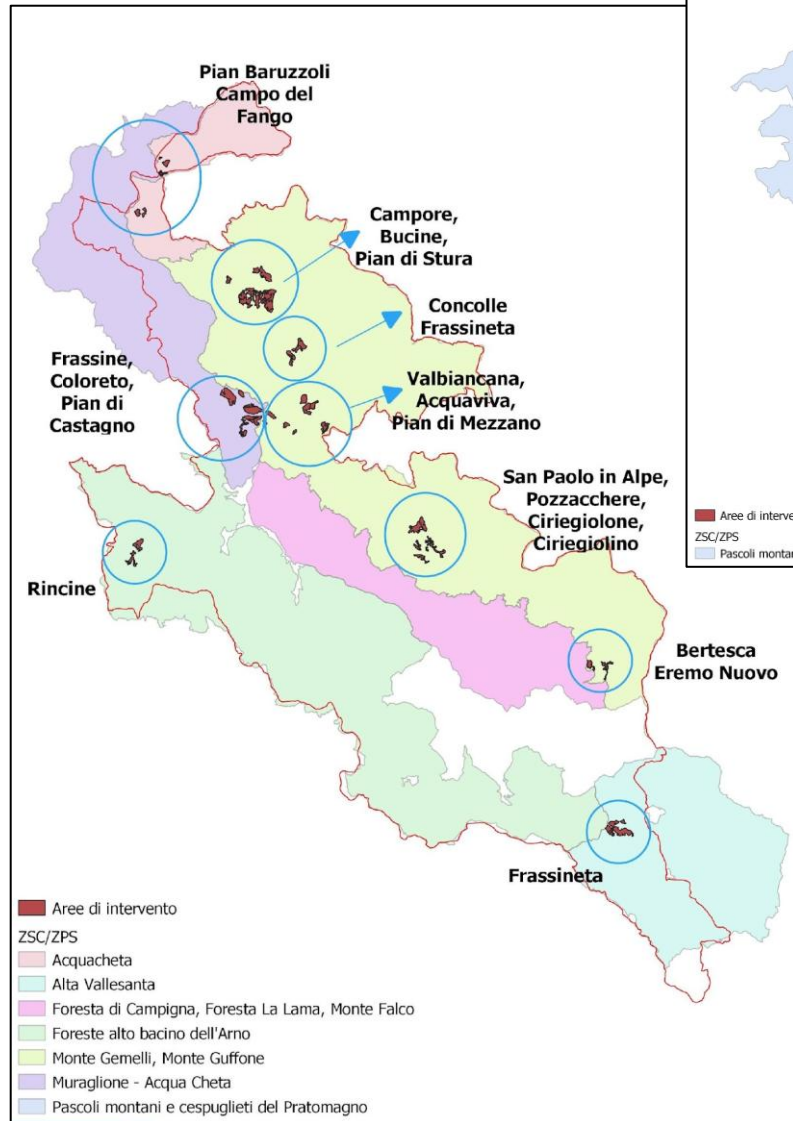


Partnership: Dream Italia (Coordinator), Tuscany Region, Foreste Casentinesi National Park, 4 Municipality Union, University of Roma (La Sapienza) and Florence, Euromontana, Studio Verde.

Duration: 8 years (2021 – 2028)

Budget: 3.228.000 €

Intervention area: 7 Nature 2000 sites, 6 of them inside Foreste Casentinesi National Park, along the border between Tuscany and Emilia-Romagna region, plus the SPA-SAC “Pascoli e cespuglieti montani del Pratomagno”.



The project in brief

Main objective: improve the conservation status of 3 open-Habitats (6210*, 6230* and 5130) through the development (and restoration) of pastoral activities

Specific objectives:

- restoration of 345 ha of grassland habitats.
- improvement, through a better management, of other 147 ha of grassland habitats
- definition of management methods through grazing to improve the habitats conservation status
- support shepherds and breeders through training activities for the grazing management and for the improvement of their economical activities

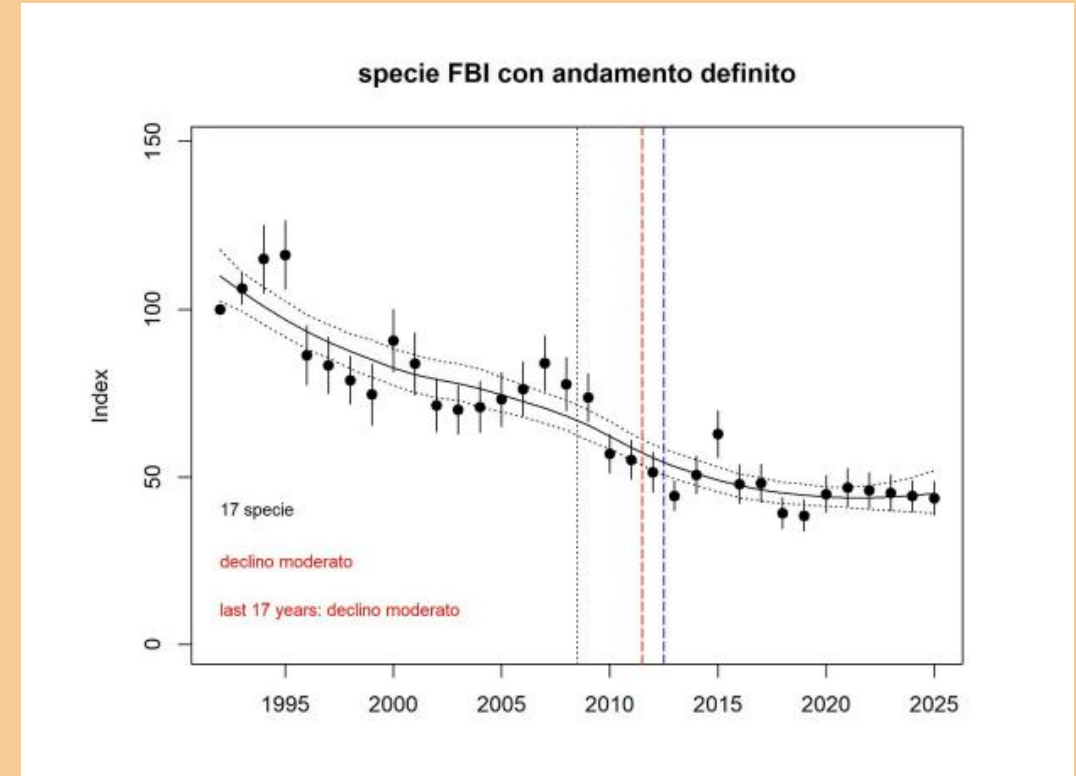
Background – why a project on mountain pastures and grasslands

- The conservation of one third of habitats of European conservation concern depends on traditional farming practices and, in particular, on grazing (Halada et al. 2011)
- The abandonment of these activities, and in particular of pastoralism, has led to a dramatic reduction in the surface and ecological functionality of the open habitats in the Northern Apennines (and beyond)
- In the Foreste Casentinesi National Park alone, between 1990 and 2010, 57% of open habitats were lost (Haller & Bender 2018)



Background – why a project on mountain pastures and grasslands

- The conservation of one third of habitats of European conservation concern depends on traditional farming practices and, in particular, on grazing (Halada et al. 2011)
- The abandonment of traditional farming practices, and in particular of grazing, has led to a dramatic reduction in the area and ecological functionality of the open landscapes of the northern Apennines (and beyond)
- In the Casentinesi Forests National Park alone, between 1990 and 2010, 57% of open habitats were lost (Haller & Bender 2018)





LIFE
SHEP FOR BIO

Conservation actions for pastures and grasslands restoration

- Mechanical and manual shrubs clearing





LIFE
SHEP FOR BIO

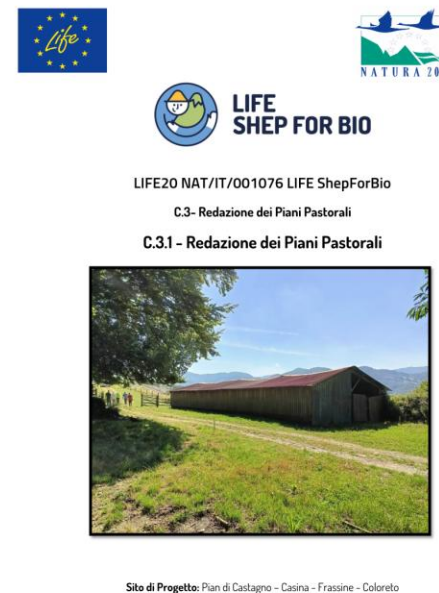
Conservation actions for pastures and grasslands restoration

- Mechanical and manual shrubs clearing
- Restoring Habitat composition through the use of hay-seed



Conservation actions for pastures and grasslands restoration

- Mechanical and manual shrubs clearing
- Restoring Habitat composition through the use of hay-seed
- Grazing management (*each intervention area has its own Grazing Management Plan*)



Results

- 380 ha of restored pastures and grasslands (35 more than planned) with other 359 ha under improved management (212 more than planned)
- The project plans to monitor not only the conservation status of target habitats, but also the pastoral value of the grasslands and impacts on biodiversity (birds, butterflies and orthoptera). The post-intervention surveys will be carried out in 2027 and 2028.

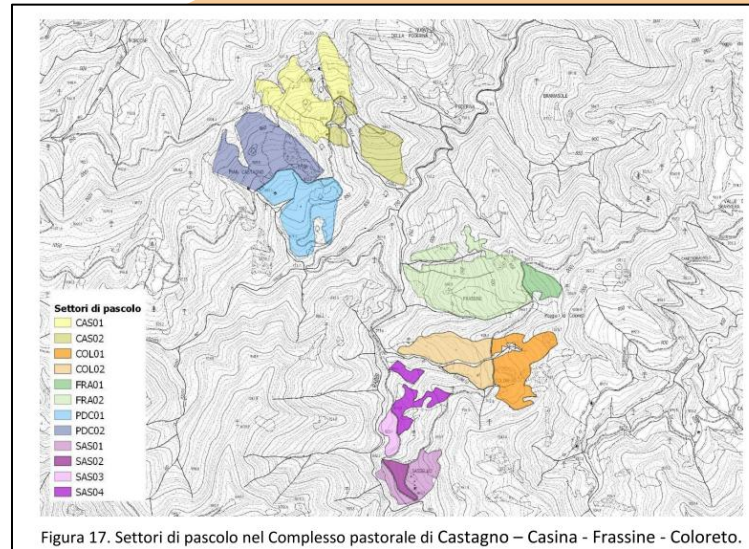
Work in progress



Elaboration and implementation of Grazing Management Plan

The project includes two actions specifically dedicated to the Grazing Management Plans:

- the first one focused on the development of the GMP; the project adopted a bottom-up approach, through ongoing consultations with shepherds and breeders, taking into account 1) the conservation of natural values, 2) economic feasibility and sustainability (for shepherds) and 3) practical applicability
- the second one to support breeders in the GMP implementation



Elaboration and implementation of Grazing Management Plan

- The GMPs will be reviewed at the end of the projects, based on the results of the monitoring activities
- A key aspect has been pastoral infrastructures, which are essential for the proper implementation of pastures management
- In particular, those relating to water supply; in many areas we have had to install reserve tanks and establish specific grazing management measures to ensure the animals' welfare due to the scarcity of water. From this point of view, the GMPs have proved to be very important



Elaboration and implementation of Grazing Management Plan

- As part of the implementation of the GMP, the project is seeking to promote a 'more active management' of livestock, for example through the use of mobile fencing
- No easy task where people are used to letting their animals roam freely. The use of such fencing has proved very useful in restoring pastures overrun by invasive species (such as blackberries)
- To support livestock farmers, the project funds the purchase of mobile fencing and organises specific training courses on how to use it.



Gracias por vuestra atención



LIFE programme must go on!

