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# Pilot action fact sheet

## ReCo Pilot Region 2

## Miramare and Coast of Trieste Biosphere Reserve

Version 1

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# PILOT ACTION – FACT SHEET

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| Pilot action factsheet for ReCo Pilot Region 2<br>Miramare and Coast of Trieste Biosphere Reserve<br><br>**D.2.2.2 Habitats - Lowlands** (partial)<br>**O.2.1 Joint Pilot action 1 "Habitats" implemented in 4 ReCo pilot regions** (partial) | |
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| **Location, country** | Pian del Grisa, Italy (45°41'48.3"N 13°45'29.0"E) |
| **Pilot action (PA) title (as indicated in AF + related deliverable number (no.))** | Implementation Joint Pilot Action 1.1 "Habitats – Lowlands" in 2 pilot regions (IT, SI).<br><br>Enhancing biodiversity by e.g. restoration of $CO_2$-binding and species-rich wetlands and an ecologically valuable Karst habitat (incl. NATURA2000 habitats) in 2 pilot regions in IT & SI (Koper) by PP13 & PP3 with focus on community-based approaches & climate change adaptation (D.2.2.2). |
| **Project Partner (name, no.)** | WWF Italy Foundation, PP13 (later in text: WWF Italy) |
| **PA aim** | The main objective is to expand the moorland by preventing further encroachment of woodland and restoring areas of dry grassland, particularly the characteristic *landa* plant community, in a suitable location. The initiative is designed to maximize biodiversity and strengthen ecological connectivity among the remaining dry grassland habitats. Populations of plant and animal species, most notably butterflies and birds, that depend on dry grassland ecosystems are expected to grow due to the PA. |
| **PA concept/summary including technical description** | For the implementation of the PA, an initial phase of field surveying was planned, including: high-precision GPS measurements and data processing to define the exact extent of the intervention area, photographic surveys using drones, and GIS-based processing of the collected material.<br><br>Then, a vegetation-clearing operation was carried out across two hectares of overgrown dry grassland, removing invasive woody species — particularly the highly flammable black pine (*Pinus nigra*) and the shrub *Cotinus coggygria* — to restore the openness of the landscape. Cutting operations were carried out at the end of the "silvicultural silence" period, so as not to interfere in any way with the reproductive cycles of the main plant and animal species characteristic of the karst grassland habitat. The intervention area was accessed using light mechanical equipment equipped with tools for shredding and/or grinding small woody vegetation and tall trees, particularly black pine. Coarse material and larger branches were deposited and stacked outside the intervention zone. |

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| | To prevent bare soil from being exposed after shrub removal, and thereby limit the spread of invasive alien species such as *Ailanthus altissima* and *Senecio inaequidens*, a coordinated program was developed with a forest nursery of the Friuli Venezia Giulia Region. This included seasonal collection of native seeds, their propagation in the nursery, and their subsequent reintroduction through seedling transplantation combined with direct sowing in the grassland. Seed collection took place in late autumn and late spring, at regular intervals, and was carried out manually by trained operators. Part of the collected seeds were sent to the FVG regional nursery to grow new seedlings under controlled conditions for later transplantation, while another portion was used for direct sowing in the field.<br><br>To maximise the effectiveness of these operations, it was crucial to schedule them at the beginning of the autumn season. In the following months, periodic and careful monitoring of the transplant sites are being carried out, including the removal of alien species or newly germinated smoke bush shrubs within the intervention areas.<br><br>In fact, following the transplanting and sowing operations, a further reduction of the shrub cover (mainly smoke tree bush) is being carried manually for young developing plants, with the involvement of the public through citizen science events.<br><br>A comprehensive botanical and faunal monitoring scheme, covering birds, carabid beetles, and butterflies, was conducted continuously before, during, and after the intervention. This allowed comparisons between open heath and shrub-dominated areas, supported the assessment of site evolution, and documented habitat recovery and the return of characteristic species. |
| **PA timing (start and end date)** | November 2024 – February 2026 |
| **Expected solution derived from PA** | The PA aims to significantly enhance the protection of natural heritage and strengthen ecosystem resilience through an integrated and sustainable approach, by safeguarding and restoring biodiversity, ensuring long-term biodiversity conservation and ecosystem resilience, and restoring natural processes and ecological functions.<br><br>The following expected results stem from an integrated approach combining field actions, stakeholder engagement, and regulatory simplification:<br><br>• **Expanding existing dry grassland patches** through direct restoration measures. Increasing the extent of grassland is essential to support biodiversity (particularly for certain bird species) and to ensure the economic viability of extensive grazing for a long-term maintenance. Large grazing areas are necessary to sustain sizeable flocks, which in turn make economic returns possible and support active landscape management (e.g., fencing, shelters, watering points). |

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| | • Increasing of the populations of already recorded botanical and faunal species (i.e. birds, carabids and butterflies), included protected and endemic species, and of the overall number of species recorded.<br>• **Promoting the involvement of local stakeholders**, such as landowners, *comunelle*, livestock farmers, associations, and local authorities. The aim is to encourage both the long-term maintenance of the open grassland and shared responsibility in the collective management of the territory.<br>• **Providing technical and methodological tools** to facilitate the adoption and implementation of interventions, including guidelines for the restoration and management of grassland patches, as well as progress-monitoring procedures.<br>• **Encouraging the alignment and simplification of existing regulations**, which are currently fragmented across different regional administrative sectors. This involves identifying key critical issues and regulatory conflicts, and proposing a pathway to harmonize the various rules and facilitate the implementation of the plan.<br>• Integration of the implementation and results of the PA into the WWF Italy – AMP Miramare educational program at different scales and for different targets, to rise awareness and provide correct information. |
| **Preparatory work done so far** | Initially, GIS data and aerophotos were collected in order to create digital representations of the Pilot Area and allow precise technical operations. Then, approximately two hectares of dry grassland underwent active restoration. The restoration process began with selective vegetation clearing. Targeted tree cutting and the removal of invasive shrubs were carried out, and the soil was prepared to support subsequent planting and seeding activities. Native vegetation was restored through the collection of seeds from local species, which were stored and grown in a nursery before being transplanted into the field. Direct seeding complemented this work, promoting broader and more diverse regeneration and helping to re-establish the original floristic mosaic.<br><br>Throughout the project, invasive species were continuously controlled through repeated cutting and eradication to prevent competition with native plants and to preserve the ecological integrity of the dry grassland. Once restoration was underway, the area was maintained through periodic manual removal of small tree bushes, supported by participatory management involving local schools and volunteers. This phase is essential to prevent new shrub encroachment and to consolidate the return of characteristic habitat species.<br><br>To assess the success of the PA implementation botanical and faunal monitoring is crucial to make assessments possible about the biodiversity condition before, during and after the work. Thus, |

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| | monitoring accompanied the entire process, with the aim of effectively measuring the ecological changes taking place. It included vegetation surveys combined with the detection of indicator faunal groups such as birds, butterflies, carabid beetles, and others. Standardized botanical and zoological methods were used to document the ecosystem's response in a comparable and transparent way, complemented by data collected through photo/video traps and Audiomoth devices.<br><br>The results in terms of community involvement and outreach were also noteworthy, given that the public events organized and the information panels on biodiversity set on the site helped increase collective awareness about the need of an active management of the dry grassland to safeguard biodiversity and helped reduce the social conflict usually raised by tree felling operations, even if the topic remains still often misunderstood by a minority of the people. |
| **Permits required for the investment (contract, availability etc.)** | The PA area is owned by the Comunella di Contovello – Jus Kontovel, and all authorizations needed for its implementation were coordinated with its representative throughout the entire process. The involvement of the FVG Autonomous Region was then crucial to ensure the compliance to regional restoration plans and to enable smooth cooperation for all operations carried out both in the nursery and in the field.<br><br>Every intervention was subject to a mandatory environmental assessment (VINCA) to determine whether it would have a "significant" or "non-significant" impact on the Natura 2000 site ZPS IT3341002 "Aree Carsiche della Venezia Giulia," and whether a full appropriate assessment (VIA) was required. Since the evaluation concluded with a non-significant impact, the PA was carried out without particular restrictions beyond those already established by existing legislation.<br><br><u>Legal basis for implementing the PA:</u><br><br>The PA is primarily governed by key EU and international legislation, including the **Birds and Habitats Directives** (2009/147/EC and 92/43/EEC), which set conservation obligations for protected species and habitats and form the basis of the Natura 2000 network, and the **EU Nature Restoration Law** (2023), requiring Member States to restore at least 20% of degraded terrestrial and marine ecosystems by 2030. It is also aligned with the **EU Biodiversity Strategy for 2030**.<br><br>Additional binding regulations include **EU Regulation 1143/2014** and **Italian Legislative Decree 230/2017** on invasive alien species, such as *Ailanthus altissima*, as well as the **Regional Strategy on Invasive Alien Species (2021-2026)**.<br><br>At the regional level, the PA complied with the **management rules for the Natura 2000 site "Carso Triestino e Goriziano" (D.G.R. 228/2006)** and **"Aree Carsiche della Venezia Giulia" (D.G.R. 217/2007)**, the **Regional Forestry Law (L.R. 9/2007)** defining forest areas and management criteria, and the **Regional Forestry Regulation** |

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| | (D.P.Reg. 274/2012), which allows restoration interventions on pastureland through the removal of spontaneous vegetation.<br><br>The PA also took into account the **Natura 2000 Management Plan for the Karst area of FVG** and the **Forest Management Plan of the Comunella of Contovello** (2008).<br><br><u>Timeline for the implementation of the PA:</u><br><br>• from November 2024 to February 2025 WWF Italy, in cooperation with the FVG Autonomous Region and the Comunella di Contovello evaluated the most suitable site for the PA intervention inside the area of Pian del Grisa and a forestry technician (Dott. For. Marco Vlaich) was encharged of estimating and documenting the future technical interventions<br>• in February 2025, the screening VINCA procedure was submitted by the forestry technician encharged on behalf of WWF Italy<br>• on April 30th a contract was signed with the forestry technician including all works, services, labor, supplies, services, freight, and supplies to complete the operational part of the project<br>• on May 21st a selection procedure was issued by WWF Italy to select a company for the cutting works and on June 17th the company Aluffi s.r.l. was selected<br>• at the end of July the restoration works begun and lasted for a few weeks.<br>• in mid-October, experimental cultivation slots were set up where seedlings grown in the nursery were transplanted and seeds collected in the summer were sown. |
| **PA/Investment progress update (what has been achieved so far/every 6 months, status of implementation and progress)** | • Every month (yearly) or two weeks (in spring and summer): periodic botanical and faunal monitoring activities<br>• Autumn - winter 2024: first collection of native species' seeds<br>• February 2025: Obtaining of permissions to implement tree-cutting and bushes removal operations<br>• March 2025: sowing of part of the native species' seeds in the regional nursery<br>• End spring 2025: second collection of native species' seeds<br>• July - August 2025: tree-cutting operations, followed by shrubs mechanical removal and cleaning of the Pilot Area<br>• September 2025: set-up of seven experimental plots inside the Pilot Area with further eradication of smoke tree bushes and soil preparation<br>• October 2025: transplanting of the seedlings of eight native species grown in the nursery into the experimental plots, combined with sowing of native species |

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| | • October 2025 - February 2026: citizen science initiatives to manually remove small smoke tree bushes around the plots to avoid rapid encroachment during spring; assessment of the growth and health status of the transplanted seedlings<br>• Spring 2026 (pending): assessment of transplanted seedlings' vitality |
| **Stakeholders involved** | Under the leadership of WWF Italy, acting as the managing authority of the Miramare and Trieste Coast Biosphere Reserve, the project was implemented in close collaboration with the Friuli Venezia Giulia regional departments responsible for biodiversity, forest management, and protected areas. These services provided both technical-scientific guidance and practical support, including access to the regional nursery and training for the company tasked with tree-cutting operations.<br>The University of Trieste also contributed by offering scientific expertise for the development of monitoring methodologies.<br>Key stakeholders included representatives of the *comunelle* — the local collective landowners who manage much of the karst dry grassland — as well as small-scale producers such as shepherds and farmers engaged in the active conservation of this habitat. Schools and the wider public were involved through outreach activities, citizen science events, and the distribution of informational materials.<br>List of involved stakeholders:<br>• FVG Autonomous Region<br>• Comunella di Contovello - Jus Kontovel<br>• University of Trieste – UNITS<br>• GAL Carso – Las Kras (local action group)<br>• Azienda Agricola Antonič (local farmer)<br>• General public |
| **Citizen science approach (if applicable)** | During and after the technical on-field operations, we dedicated part of the activities to raising awareness and engaging in the citizen science approach. Some monitoring activities were carried-out involving local scientific and agro-forestry technical schools. The general public was involved in an event called "Bioblitz", in which the monitoring experts taught them to recognize some of the easiest-to-identify species. Citizen science campaigns targeting schools and groups of volunteers were organised also to manually eradicate small smoke tree bushes. |
| **Joint cooperation dimension (in partnership)** | WWF Italy has been an active member of the "Habitat" Pilot Team and has conducted the restoration investments promoting biodiversity and climate change resilience through interconnectivity of valuable habitats, in close cooperation with the other partners and learning lessons from others' experiences. All aspects of the PA's implementation were discussed collaboratively among the partners, |

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| | ensuring a higher-quality outcome by bringing together diverse expertise and perspectives.<br><br>On 11–12 September 2025, a peer review took place at the Pian del Grisa site, including visits to the regional nursery, a local farm, and the WWF offices. The purpose was to assess the implementation of the PA and to facilitate an exchange of experiences, feedback, and suggestions for improvement among project partners, and later with stakeholders. The meeting highlighted that the success of the PA stems from meticulous preparation and strong collaboration with stakeholders and the landowner, which has greatly contributed to the high level of acceptance of the activities carried out.<br><br>Despite the solid partnerships that ensured the effective development of all restoration measures, the PA remains somewhat difficult for the general public to fully grasp. To address this, public meetings, communication initiatives, and citizen science events were organized regularly to maintain community engagement, prevent misunderstandings, and raise awareness. |
| **Personnel involved** | • Maurizio Spoto (project manager, scientific supervisor/WWF Italy)<br>• Lisa Peratoner (communication, education and operative coordinator/WWF Italy)<br>• Elena Talarico (scientific, educational and technical collaborator/collaborator for WWF Italy)<br>• Alessio Flego (financial and reporting expert/collaborator for WWF Italy)<br>• Davide Pasut (expert in pastoral systems/collaborator for WWF Italy)<br>• Davide Scridel (ornithologist, coordinator of the monitoring group/collaborator for WWF Italy)<br>• Paolo Utmar (ornithologist/collaborator for WWF Italy)<br>• Eugenio Melotti (entomologist/collaborator for WWF Italy)<br>• Annamaria Petrarca (entomologist/collaborator for WWF Italy)<br>• Marco Paparot (botanist/collaborator for WWF Italy) |
| **Related investment description (incl. no, name)** | PA “Tree-cutting operations and small bushes removal” band "Experimental plots preparation for native species’ seedlings translplanting and sowing" – finished, costs 13.420 €- to be claimed in project reporting 6 (PR6) and still to be certified.<br><br>The clearing of the overgrown land has created a suitable habitat for the growth next spring of the transplanted seedlings and seeds scattered in the soil, which will compete with the young bushes. |
| **Investment budget spent per item (only CC5 equipment)** | Two panels about the PA and the dry grassland biodiversity were produced and installed nearby the Pilot Area – cost 4.989,80 €- to be claimed in project report 6 (PR6) and still to be certified. |

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| | The panels will help rise awareness in the general public and to promote the values of biodiversity and habitat preservation. |