

## PASTURES VULNERABILITY AND ADAPTATION TO CLIMATE CHANGE IMPACTS IN THE ALPS



After-LIFE PLAN  
DELIVERABLE F.2  
March 2023



LIFE PASTORALP LIFE16CCA/IT/000060

After-LIFE Plan

**Project Information**

**Title:** Pastures vulnerability and adaptation strategies to climate change impacts in the Alps

**Duration:** 60 months (01/10/2017- 31/03/2023)

**Project budget:** 2,314,400 € (60% EC funding)

**Coordinating beneficiary:** Università degli Studi di Firenze - Dipartimento di Scienze e Tecnologie Agrarie, Alimentari, Ambientali e Forestali (DAGRI)

**Associated beneficiaries:** Agenzia Regionale Protezione Ambiente - Valle d'Aosta; Centre National de la Recherche Scientifique; Institut Agricole Régional; Institut National de Recherche pour l'Agriculture l'Alimentation et l'Environnement; Parc National des Écrins; Ente Parco Nazionale Gran Paradiso.

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## **List of abbreviations**

UNIFI: Università degli Studi di Firenze

ARPA: Agenzia Regionale Protezione Ambiente - Valle d'Aosta

CNRS: Centre National de la Recherche Scientifique

IAR: Institut Agricole Régional – Valle d'Aosta

INRAE: Institut National de Recherche pour l'Agriculture l'Alimentation et l'Environnement

PNE: Parc National des Ecrins

PNGP: Parco Nazionale Gran Paradiso



## 1.Introduction

The After-LIFE Plan of the PASTORALP project sets out the way the project team intends to continue disseminating and communicating the project results after its completion as well as to encourage and ensure their wider application and official adoption. The Plan presents project's objectives and scope and provides an assessment of the situation at the end of the project. Moreover, it provides a comprehensive description of the after-LIFE objectives and methodological approach and relevant target groups. Lastly, it presents in a tabular manner the resources dedicated to each action per beneficiary responsible and the timetable according to which the after-LIFE activities will be executed for an indicative period of up to five years beyond project completion.

## 2.PASTORALP scope and objectives

The overall objective of LIFE PASTORALP (2017-2023) is to reduce the vulnerability of alpine pastoral systems by increasing their resilience and adaptation to climate change. The demonstration areas of the project are two national parks located in the Western Alps: Gran Paradiso National Park and Écrins National Park. To reach this goal, a participatory and multidisciplinary science-based approach was adopted along with the project duration.

### Main objectives of the project:

During the project, a multidisciplinary approach has been designed and tested to analyse the main impacts (both biophysical and socio-economic) of climate change on pastoral resources and communities, in order to identify and sustain proper management and policies ensuring environmental, social and economic sustainability of mountain Alpine pastures in the medium and long-term.

This approach implied: **1)** the development of an innovative approach to **map pastoral resources**, consistent between the two case study areas; **2)** testing and monitoring **adaptation technical measures** to manage livestock on mountain pastures affected by climate change in pilot sites; **3)** monitoring biodiversity (fauna and flora) changes under the application of a set of adaptation measures in pilot sites; **4)** identifying (under a participatory approach) a list of effective **adaptation measures and policy strategies** tackling current and future climate scenarios; **5)** quantifying **biophysical impacts** of a set of adaptation strategies by a modelling approach; **6)** analysing **socio-economic climate change perceptions** and impacts on rural communities of the western Alps; **7)** developing a **web-based platform** entailing the main outcomes of the project under a user-friendly and dynamic interface to ensure public awareness and capacity building on climate change related issues and replicability; **8)** providing **policy recommendations** to implement the adaptation measures; **9)** settling of **two permanent demonstration areas** in the two Parks to be open-air laboratories promoting the adaptation measures for high altitude pasture resilience.

The overall approach of PASTORALP was to involve a wide group of stakeholders along the entire process, so as to fine-tuning the ongoing outcomes and, at the same time, ensuring wide acceptance of the proposed measures and policies and increase capacity building.

### **3. Assessment of the situation at the end of the project**

The most relevant outcomes of the project that deserve to be highlighted are hereby summarized.

**1. Innovative mapping method:** The project developed an innovative and cost-effective method (using a combination of remote sensing, expedited field surveys and modelling approaches) to map pastoral resources and their utilization. This methodology has proven to be effective and can be easily adopted and replicated in other Alpine contexts. The generated maps and the methodology used to produce and update them in the future can be used as a preliminary tool for defining pastoral plans in the new CAP programming and supporting the monitoring of CAP payments by AGEA (Agenzia per le Erogazioni in Agricoltura). The PASTORALP mapping approach has already been adopted by the Valle d'Aosta Regional Administration and underwent validation and comparison against the Sen4Cap tool for mapping high mountain pastures, and monitoring grazing and mowing activities. The comparison showed that the PASTORALP mapping approach is likely more accurate than the Sen4Cap tool for mountain environments.

**2. Feasible adaptation measures:** Through extensive research and stakeholder engagement, the project identified and described **59 feasible adaptation actions**.

These consist of **40 technical measures** (<https://www.pastoralp.eu/?p=5389>) and **19 policy recommendations** (<https://www.pastoralp.eu/?p=5392>) aimed at overcoming climate and socio-economic challenges, safeguarding biodiversity, ensuring sustainable production and enhancing the capacity building of pastoral communities under climate change. **The adaptation measures and recommendations** were defined, considering different climate hazards and their potential impacts on both the natural environment and the pastoral system. The focus of these actions was primarily on forage and water resources, pastoral management practices and structural adjustments. The policy recommendations serve as guidelines to support decision-making at regional, national and international levels in pasture management. The adaptation measures and policy recommendations were derived from an initial literature review (Action A.2), and then refined through collaborative discussion with relevant stakeholders during several participatory events (launch events, workshops, interviews, round tables and seminars). Some of these measures were also tested in pilot areas to quantify their impacts on biodiversity. About one hundred breeders and shepherds from the Gran Paradiso and Écrins areas were interviewed to share insights into the management and critical aspects of mountain livestock farming. The interviews also aimed to understand their perception of climate change and its effects on pasture production and animal performance. In parallel, consultation workshops were held in the two parks to: **i)** discuss current pastoral practices, related barriers and incentives, and key drivers of socio-economic change; **ii)** record adaptation measures already implemented in the project areas; and **iii)** collect suggestions from stakeholders. Once the list of strategies was defined, validation workshops were organized in both areas to refine the strategies developed. These strategies and the approach used in PASTORALP can be easily replicated and promoted in other Alpine contexts and are available (together with the results of vulnerability indicators and in Italian, French and English) on the PASTORALP Platform (<https://www.pastoralp.eu/tools>).

**3. Quantitative analysis of pasture growth and GHG emissions:** The project conducted a quantitative analysis of the main changes in pasture growth and productivity, along with GHG emissions, under different projected climate scenarios and a specific set of adaptation measures (changes in stocking rate, start and end of grazing season, forage biomass production), using modelling approaches.

**4. Enhanced collaboration and informed decision-making:** The project fostered strengthened relationships and cooperation among project partners (mainly IAR and ARPA VDA) and various public

institutions (Regione Valle d'Aosta, Regione Piemonte, Parco Nazionale Gran Paradiso, Managing Authority of the Rural Development Program for the Valle d'Aosta Region, Valle d'Aosta municipalities). These collaborative efforts established sound scientific foundations for formulating rules and measures to protect and safeguard rural communities in the near future, avoiding over/under exploitation of **pastoral resources, land abandonment, loss of biodiversity, water exploitation and ventures on public mountain pastures** (alpages) that are tendered for rent. PASTORALP stakeholder workshops and demonstration events have garnered significant participation from a diverse array of key stakeholders, including policy makers, technicians, shepherds and environmental associations. Moreover, PASTORALP partners (namely IAR, ARPA VDA and Parco Nazionale Gran Paradiso) have been actively engaged in round table discussions and were asked to collaborate closely with regional authorities (Regione Valle d'Aosta and Regione Piemonte, as well as the Managing Authority of the Rural Development Program for the Valle d'Aosta Region) to the development of adaptation plans that are tailored to the specific needs and challenges of the regions. Moreover, ARPA VDA and IAR have been constantly involved in the preparatory meetings of the **new RDP programming 2021-2027**, making valuable contributions to the possibility to include PASTORALP results on **new CAP measures**. As a result of their collaborative efforts, these entities have signed two agreements and gained approval for a regional plan. In particular, two municipalities in the Valle d'Aosta region have requested support from ARPA VDA to develop calls for renting alpages, based on the results of PASTORALP, with the aim of protecting and safeguarding rural communities from over/under exploitation, land abandonment and potential venture by large companies seeking CAP payments.

**5.Enhanced pasture management:** The project supported the pasture management guidelines developed by Parco Gran Paradiso in the area purchased during the project. These guidelines will be progressively included into the management agreements for other areas owned by the park authority, as part of an After Life activity. The areas owned by consortia will be the next target for **the application of management measures**, in parallel with the identification of appropriate **normative instruments**. The diagnostic plans elaborated by Parc des Écrins, featuring an entire section to climate change adaptation for the first time, will be seamlessly integrated into the grazing management plans of the park.

**6.Joint Position Paper:** During the third day of the PASTORALP final scientific conference (<https://pastoralp.eu/final-conference>), a Joint Position Paper (entitled "A step forward common policies for southern European Mountains' pastoral systems") was produced. Specifically, the paper was the result of a half-day hands-on workshop in which representatives of 9 LIFE projects (LIFE PASTORALP, LIFE AGRICOLTURE, LIFE GRACE, LIFE IMAGINE, LIFE MIDMACC, LIFE REGENERATE, LIFE SHEPFORBIO, LIFE XEROGRAZING, LIFE CLIMAMED) and 1 "NOT-LIFE" project (SUSALPS), participated by invitation. The workshop aimed to release common positions on the protection of EU mountain grasslands. These participants had been working on projects related to pastoral systems and global challenges, representing different environments ranging from the Alps to the Mediterranean mountains. This Joint Position Paper provides concrete examples and ideas that were jointly discussed and agreed upon during the workshop and beyond, addressing the issues identified within the projects' activities and leveraging existing opportunities. Unlike a mere list of issues, the paper illustrates and reports experiences, knowledge and results from the projects involved, offering suggestions to address the challenges. However, it acknowledges that only a few of the examples may represent viable solutions for policy makers and scientists.



#### **4. After-LIFE plan objectives, methodology and target groups**

The After-LIFE plan of the PASTORALP project sets the following objectives:

##### **Dissemination and communication of project results**

The overall dissemination and communication activities will continue uninterrupted over the next three to five years. Regular updates will be provided on the project's website and social media channels to inform about events, news and relevant information related to PASTORALP. Notice boards at the partners' premises and demonstration areas will remain in place. Networking activities, particularly with National Parks, will be supported to foster new collaborations and boost the reuse of PASTORALP outcomes, including approaches and adaptation measures, in other alpine contexts. To this end, the PASTORALP platform, managed by the coordinating beneficiary (UNIFI) will be continuously maintained and disseminated to students and local administrations (i.e. ARPA VDA, IAR, PNE, PNGP). Scientific dissemination will also continue, (with 10 scientific papers already published in at high-impact international journals, and an eleventh currently in progress).

**Target groups:** *policy makers, shepherds, farmers and their associations, agronomists, technicians and professionals offering advice and technical assistance to farmers, academic community, scientists, research centres, environmental protection agencies, nature parks, managers of protected areas and their networks, local and regional administrations, environmental protection associations, local communities and civil society*

##### **Replication and uptake of the project methodology, results and PASTORALP tool**

In Action E4, at project's conclusion (i.e. based on the experience yielded along 5.5 years of project duration), a Replication and Transfer Plan (Deliverable E.4) was developed. The plan entails information on how to facilitate the replication and/or transfer of the project's methods and results to mountainous areas in other regions and countries, including the Alps, Pyrenees and Apennines.

The integrated adaptation strategy plan (the main outcome of Action C.8) is the main tool developed by the project to support pastoral communities' adaptation to climate change. It provides a set of suitable adaptation measures and policy recommendations to address climate hazards specific to mountainous areas. With this plan, technical difficulties, factors influencing failure or success, and management aspects concerning farmers and shepherds are carefully described. Moreover, the plan also highlights the impacts on floristic and faunal biodiversity, considering the integral connection between environmental and ecological well-being. The identified adaptation measures act as a starting point to formulate adaptation strategies and measures in other mountain grassland contexts. By verifying the starting conditions of the examined territorial contexts, the recommendations can be tailored to define strategies and implement policy instruments in other mountainous territories. The applicability of PASTORALP's policy recommendations is versatile, spanning from local to regional, national and transnational levels, thereby facilitating cross-border collaborations and exchanges.

The PASTORALP approach and methods, including monitoring pasture extent and composition through remote sensing and modelling, as well as assessing pasture vulnerabilities under future climate scenarios through modelling and stakeholder engagement under a multi-actor approach, can be easily replicated in other territories. The successful transferability of these approaches relies on conducting detailed context-specific studies, ensuring seamless integration with local conditions and requirements. As an illustrative example of this transferability, the PASTORALP methodology to map pasture vegetation was adopted by the Autonomous Region of Valle d'Aosta. This approach was extended

to encompass the entire regional territory, even beyond the boundaries of Parco Nazionale Gran Paradiso, showcasing the adaptability and potential scalability of the PASTORALP methods.

**Target groups:** *policy makers, shepherds, farmers and their associations, agronomists, technicians and professionals offering advice and technical assistance to farmers, academic community, scientists, research centres, environmental protection agencies, nature parks, managers of protected areas and their networks, local and regional administrations, environmental protection associations, local communities and civil society*

### **Incorporation of the project results into regional and national policies**

Measures and policy recommendations on the adaptation of pastoral system to face climate change in the two parks are the cornerstone upon which future incorporation of the project results into national policies will be pursued. These measures and recommendations aim at supporting evidence-based decision-making at various levels – local, regional, national and transnational. They cover different areas of intervention, such as *alpage* management, water management, biodiversity preservation, multifunctionality and pastoralism/tourism coexistence, fostering cooperation and training. These adaptation measures can be easily extended to several mountain systems, while recommendations, easily fine-tuned to local contexts, can likely contribute to defining strategies and implement policy instruments in other mountain territories.

As mentioned in section 1, the collaborative efforts with IAR, ARPA VDA and Parco Nazionale Gran Paradiso during the preparatory meetings to the new RDP programming 2021-2027, have already contributed to the reflections and development of adaptation plans by the regions and public institutions (Regione Valle d'Aosta, Regione Piemonte, Parco Nazionale Gran Paradiso, Managing Authority of the Rural Development Program for the Valle d'Aosta Region, Valle d'Aosta municipalities). This collaboration is expected to continue in the coming years, as other regions and entities have also expressed interest in engaging with the project's results.

During the project development, the PASTORALP methodology to map pasture vegetation was adopted by the Autonomous Region of Valle d'Aosta, extending its application to the entire regional territory. Further municipalities of Valle d'Aosta Region are anticipated to seek support from ARPA VDA and IAR to develop calls for renting alpages based on PASTORALP results, ensuring the protection and safeguarding of rural communities and avoiding over/under exploitation, land abandonment and improper rental of alpages by large companies for CAP payments.

Under sub-action C.6.2, 16 diagnostic plans were produced for Parc des Écrins, integrating pastoral, environmental and climate components into its pastoral management plans (effective from 2023 onward). These are divided into two parts: 1) a diagnosis of biodiversity (animals, flora and habitats), pastoralism and climate, and 2) a table of recommendations for protection and adaptation to climate risks.

PNGP has produced three documents for the project test sites (Noaschetta, Ciamoseretto and Dres) encompassing guidelines for the realisation of pastoral plans. These guidelines include analyses of pastoral vegetation, maintainable stocking rates, the site's vulnerability to climate change and possible technical strategies for adaptation. Starting with the project test sites and extending to other pastures owned or managed by the Park, explicit reference will be made to the guidelines created within

PASTORALP for future agreements with farmers, guiding the use of the lands for grazing activities. Additionally, the focus will be directed towards further districts owned by consortia located within the administrative boundaries of the Gran Paradiso National Park. Here, management measures will be applied in tandem with the identification of adequate regulatory instruments.

As part of the LIFE SHEPFORBIO project, in which UNIFI is a partner, some of the adaptation measures of PASTORALP will be integrated into practices for the preservation and recovery of pastures in the Apennines, specifically within the National Park of Foreste Casentinesi (Tuscany and Emilia Romagna Regions). These best practices will pave the way to define regional strategies to maintain and restore target habitats for extensive grazing.

The Joint Position Paper produced in collaboration with other LIFE and NO-LIFE projects (see section 1) will be shared with DG AGRI, ENV and CLIMA of the European Commission, as well as all relevant national and regional authorities. This paper addresses the main issues and challenges affecting mountain pastoral systems and the related ecosystem services, providing suggestions to foster the benefits provided by mountain pastoral systems and harness the outcomes of the involved LIFE projects.

**Target groups:** *local, national and European policy makers*

## **Technical assistance and training to potential users of the LIFE PASTORALP platform**

UNIFI is committed to ensuring technical assistance and support for the future maintenance of the platform, along with offering support to potential users. We have developed trainings programmes tailored to two specific groups: technicians (e.g. those from National Parks) and higher education and university students (e.g. those associated with IAR and UNIFI). Additionally, we are prepared to conduct ad hoc trainings as needed.

**Target:** *groups: policy makers, farmers, agricultural cooperatives, academic community, agronomists, agribusiness industry, NGOs, students*

## 5. Actions, timetable and budget of after-LIFE activities, by each project partner



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

**DAGRI**  
DIPARTIMENTO DI SCIENZE  
E TECNOLOGIE AGRARIE,  
ALIMENTARI, AMBIENTALI E FORESTALI

Università di Firenze (UNIFI)				
Actions	Responsible beneficiary	Timetable	Budget (€)	Source of finance
<b>Dissemination and communication of project results</b>				
Maintenance of project website	UNIFI	2023-2028	No funding sources are required	Own budget
Notice boards and PASTORALP platform will remain at their places	UNIFI	2023-2028	-	-
Continuation of networking and exchange of experiences with other LIFE/ non-LIFE projects	UNIFI	2023-2028	2,500	Own budget/EU project financing
Participation and promotion of the project and its results in various Workshops, Conferences, Seminars in regional, national and international level	UNIFI	2023-2028	4,000	Own budget
Dissemination of project information material during events	UNIFI	2023-2028	700	Own budget
Seminars on PASTORALP project to higher education students	UNIFI	2023-2028	No funding sources are required	Third mission
<b>Replication and uptake of the project methodology and results</b>				
Uptake of the methodology and structure of the PASTORALP approaches to new life projects located in Alpine and Apennine mountain areas.	UNIFI	2023-2028	4000	EU LIFE funding
Uptake of the outcomes of PASTORALP to RESTORATION PROJECT 2022-2025 (InsuRancEs SoluTiOns to enhance crop production Resilience to extreme climATIC events by means of bLOckchaiN and IoT technologies)	UNIFI	2023-2025	No funding sources are required	PNR, next generation Europe
Uptake of the methodology, design and structure of PASTORALP to AGRITECH SPOKE7 (2022-2025) on marginal areas	UNIFI	2023-2025	No funding sources are required	PNRR
Uptake of the adaptation strategies of PASTORALP to LIFE SHEPFORBIO project	UNIFI	2023-2027	No funding sources are required	EC
<b>Incorporation of the project results into local/regional/national policies</b>				

Meetings with Tuscany Regional Administration (Agriculture Office) to export PASTORALP approach and adaptation strategies for monitoring extensive grazing systems in the Apennines	UNIFI	2023-2027	No funding sources are required	Own budget
Incorporate a subset of the adaptation measures into the best practices of LIFE SHEPFORBIO for the development of the regional strategy for pastureland maintenance, and recovery	UNIFI	2023-2027	No funding sources are required	Own budget
<b>Technical assistant and training to potential users of the mapping and monitoring of pastures</b>				
Demonstration and usage training to higher education students	UNIFI	2023-2027	No funding sources are required	Own budget (third mission)



<b>Agencia Regionale Protezione Ambiente Valle d'Aosta (ARPA VDA)</b>				
<b>Actions</b>	<b>Responsible beneficiary</b>	<b>Timetable</b>	<b>Budget (€)</b>	<b>Source of finance</b>
<b>Dissemination and communication of project results</b>				
Continuation of networking and exchange of experiences with other LIFE/ non LIFE projects	ARPA VdA	2023-2028		Own budget
Dissemination of project information material during events	ARPA VdA	2023-2028		Own budget
Participation and promotion of the project and its objectives in various Workshops, Conferences, Seminars in regional, national and international level	ARPA VdA	2023-2028		Own budget
Maintenance of project website	ARPA VDA	2023-2028	-	-
<b>Replication and uptake of the project methodology and results</b>				
Replication of PASTORALP mapping methods and results at regional scale for PAC policies and measures in Aosta Valley	ARPA VdA	2022-2023	40000	Regional Administration
<b>Incorporation of the project results into local/regional/national policies</b>				
Implementation of PASTORALP adaptation measures in the regional adaptation plan of Aosta Valley	ARPA VdA	2023-2024	15000	Own budget
<b>Technical assistance and training to potential users of the mapping and monitoring of pastures</b>				
<i>Ad hoc</i> trainings will be examined as need arises.	ARPA VdA	2023-2027	No funding sources are required	Own budget



<b>Centre National de la Recherche Scientifique (CNRS)</b>				
<b>Actions</b>	<b>Responsible beneficiary</b>	<b>Timetable</b>	<b>Budget (€)</b>	<b>Source of finance</b>
<b>Dissemination and communication of project results</b>				
Participation to scientific workshops and conferences	CNRS	2023-2028	3000	Budget proprio
Continuation of the dissemination to local stakeholders in collaboration with PNE and under the umbrella of the "Alpages Sentinelles" a long-term monitoring initiative on mountain pastoralism in the French Alps	CNRS	2023-2028	1,000	Budget proprio
Maintenance of project website	CNRS	2023-2028	-	-
<b>Replication and uptake of the project methodology and results</b>				
Building on methods and results of action C2(mapping) to pursue the use of Earth Observation data for the mapping of mountain grasslands.	CNRS	2023-2025	6000	ANR project TOP <a href="https://anr.fr/Projet-ANR-20-CE32-0002">https://anr.fr/Projet-ANR-20-CE32-0002</a>
Capitalizing on PASTORALP to develop new research actions on pilot areas in the PNE (e.g. GPS tracking, microclimate monitoring)	CNRS	2023-2028	5000	- ANR project TOP <a href="https://anr.fr/Projet-ANR-20-CE32-0002">https://anr.fr/Projet-ANR-20-CE32-0002</a> supporto dal Réseau des Zones Ateliers e di eLTER France ( <a href="https://www.za-inee.org/">https://www.za-inee.org/</a> ).
<b>Incorporation of the project results into local/regional/national policies</b>				
Participation to regional policies as experts on biodiversity monitoring and management in mountains. This is done in collaboration with the Zone Atelier Alpes	CNRS	2023-2027	5000	Commissariat du massif des Alpes  <a href="https://www.prefectur.esregions.gouv.fr/provence-alpes-cote-dazur/Region-et-institutions/L-action-de-l-Etat/Massif-des-Alpes/Le-commissariat-de-massif-des-Alpes">https://www.prefectur.esregions.gouv.fr/provence-alpes-cote-dazur/Region-et-institutions/L-action-de-l-Etat/Massif-des-Alpes/Le-commissariat-de-massif-des-Alpes</a>
<b>Technical assistance and training to potential users of the mapping and monitoring of pastures</b>				
Demonstration and usage training for higher education students and experts in pastoralism	CNRS	2023-2028	2000	ANR project TOP Univ. Grenoble Alpes for training of master students Own budget



<b>Institut Agricole Régional (IAR)</b>				
<b>Actions</b>	<b>Responsible beneficiary</b>	<b>Timetable</b>	<b>Budget (€)</b>	<b>Source of finance</b>
<b>Dissemination and communication of project results</b>				
Notice boards will remain at their places	IAR	2023-2028	-	-
Continuation of networking and exchange of experiences with other LIFE/non LIFE projects	IAR	2023-2028	No funding sources are required	Own budget
Dissemination of project information material during events	IAR	2023-2028	No funding sources are required	Own budget
Participation and promotion of the project and its objectives in Workshops, Conferences, Seminars at regional, national and international level	IAR	2023-2028	No funding sources are required	Own budget
<b>Replication and uptake of the project methodology and results</b>				
Replication of PASTORALP mapping methods and results for future research and development projects	IAR	2023-2027	No funding sources are required	Own budget
<b>Incorporation of the project results into local/regional/national policies</b>				
Replication of PASTORALP methods and results at regional scale for PAC policies and measures in Aosta Valley	IAR	2023-2027	No funding sources are required	Own budget
<b>Technical assistance and training to potential users of the mapping and monitoring of pastures</b>				
Demonstration and usage training for professionals	IAR	2023-2027	No funding sources are required	Own budget



<b>Institut National de Recherche pour l'Agriculture l'Alimentation et l'Environnement (INRAE)</b>				
<b>Actions</b>	<b>Responsible beneficiary</b>	<b>Timetable</b>	<b>Budget (€)</b>	<b>Source of finance</b>
<b>Dissemination and communication of project results</b>				
Communication through institutional website and events (e.g. "Réseau d'échange sur l'Evaluation Multi Critères pour les socio-écosystèmes prairiaux, aquatiques, et forestiers", 18-19 octobre 2023)	INRAE	2023	No funding sources are required	
Notice boards will remain at their places	INRAE	2023-2028	-	-
Scientific paper on the "Drivers and mechanisms of pastoral system adaptation to climate changes" (submitted to Ecology and Society)	INRAE	2023	No funding sources are required	
Scientific paper on the "Adaptive capacity of alpine pastures to global changes" (tentative title, in preparation)	INRAE	2023	No funding sources are required	
<b>Incorporation of the project results into local/regional/national policies</b>				
Uptake of the methodology, design and structure of PASTORALP to TETRAE AgriAura2050, started on February 2023	INRAE	2023-2028	No funding sources are required	INRAE/Auvergne-Rhône-Alpes Region of France



<b>Parc National des Ecrins (PNE)</b>				
<b>Actions</b>	<b>Responsible beneficiary</b>	<b>Timetable</b>	<b>Budget (€)</b>	<b>Source of finance</b>
<b>Dissemination and communication of project results</b>				
Notice boards will remain at their places	PNE	2023-2028	-	-
Dissemination of project information material during events	PNE	2023-2028	No funding sources are required	Own budget
Continuation of networking "Alpages sentinelles" with the stakeholders (farmers, herders, shepherds)	PNE	2023-2028		Own budget
continuation of annual presentations of results to farmers	PNE	2023-2028	1500€/an	Own budget
<b>Replication and uptake of the project methodology and results</b>				
Continuation of <i>Nardus stricta</i> monitoring	PNE	2023-2027	No funding sources are required	Own budget
Continuation of the vegetation monitoring lines	PNE	2023-2027	30 000€	FEDER – ALCOTRA ACLIMO
Maintenance of measurement equipment and continuation of measurements (photo tracking and NDVI sensors)	PNE	2023-2027	2 000€	Own budget
<b>Incorporation of the project results into local/regional/national policies</b>				
Implementation of management plans in the framework of agri-environmental measures	PNE	2023-2027		FEADER MAEC



<b>Parco Nazionale del Gran Paradiso (PNGP)</b>				
<b>Actions</b>	<b>Responsible beneficiary</b>	<b>Timetable</b>	<b>Budget (€)</b>	<b>Source of finance</b>
<b>Dissemination and communication of project results</b>				
Participation and promotion of the project and its objectives in various Workshops, Conferences, Seminars in regional, national and international level	PNGP	2023-2028		Own budget
Dissemination of project information material during events	PNGP	2023-2028	700	Own budget
Seminars on PASTORALP project to higher education students	PNGP	2023-2028	No funding sources are required	
Notice boards will remain at their places	PNGP	2023-2028	-	-
<b>Replication and uptake of the project methodology and results</b>				
Continuation of the adaptation strategies in the test sites	PNGP	2023-2028	40000	Ministry of environment
Continuation of the biodiversity monitoring in the test sites with the protocols adopted during the project	PNGP	2023-2028	60000	Ministry of environment
<b>Incorporation of the project results into local/regional/national policies</b>				
Implementation of guidelines and management measures from test sites to other areas in the park	PNGP	2023-2028	30000	Own budget, EU projects

