



**A STEP FORWARD COMMON POLICIES
FOR SOUTHERN EUROPEAN
MOUNTAINS' PASTORAL SYSTEMS**

a joint position paper promoted by LIFE PASTORALP project



this joint position paper was produced by the following LIFE projects



and the project



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INTRODUCTION


Covering 26% of the global land area, and 70% of the agricultural surfaces worldwide, permanent grasslands cover up to 34% of the EU's agricultural area (15.9% of the total surface). Among them, extensively managed mountain pastures are socio-ecological systems playing a pivotal role in preserving biodiversity and mountain ecosystem services (providing food for livestock, regulating carbon and water cycles, preventing soil erosion and wildfires, supporting pollination, recreational tourism, local economy, maintenance of cultural identities of regions, etc.). Moreover, some of them can be considered as emblematic examples of "old-growth grasslands" where soils are considered as rich natural heritage, supporting many ecosystem services (regulation, provisioning, etc.).

In this position paper, we refer to **mountain pastoral systems (MPS)**, in particular areas located in Southern-European mountains, mainly based on natural or semi-natural herbaceous resources (sometimes patched by woody species), which are traditionally grazed by livestock under extensive management.

This document was produced by the **representatives of 9 LIFE projects** (LIFE PASTORALP, LIFE AGRICULTURE, LIFE GRACE, LIFE IMAGINE, LIFE MIDMACC, LIFE REGENERATE, LIFE SHEPFORBIO, LIFE XEROGRAZING, LIFE CLIMAMED) and **1 "NOT-LIFE" project** (SUSALPS) who were invited to join a hands-on workshop held during the final conference of LIFE PASTORALP project (<https://pastoralp.eu/final-conference/>). All these projects deal with pastoral systems and global challenges representing different environments ranging from the Alps to the Mediterranean mountains.

This joint position paper is primarily aimed at providing concrete examples and ideas to address the issues found within the projects' activities, using the opportunities "already on the table". The authors did not want to just make a list of issues: instead, strong efforts were made to merge experiences, knowledge and results from these projects, trying to suggest ways of addressing the challenges, knowing that likely only a few of the examples could represent viable solutions.

The authors therefore are happy to share with the DG AGRI, ENV and CLIMA, as well as with all national and regional authorities interested on the topic 1) their findings about the main issues and challenges affecting MPS and the related ecosystems services; 2) suggestions to foster the benefits provided by MPS, exploiting the outcomes of the LIFE projects involved.



FACTS ABOUT MOUNTAIN PASTORAL SYSTEMS

MPS can be generally **remote, poor, underdeveloped, vulnerable, abandoned, sparsely populated**, or more likely a combination of these. Furthermore – and subsequently, they are rooted in unique, intertwined socio-economic and ecological systems often shielding specific traditions, cultures, landscapes and needs.

They account for more than half of Europe's **High Nature Value farmland** and are associated with a **high diversity of plant species and related animal biodiversity** (i.e. pollinators and birds and other biotic components such as the fungal and bacterial ones).

They are **threatened** by several factors, above all overgrazing/undergrazing, intensification of land management (e.g. water resources), abandonment, and climate change, which have reduced in surface and qualitatively degraded these areas globally; for this reason they are identified as **hotspots of climate and land-use changes**.

MPS need to comply with the general EU regulation framework (in particular CAP and RDPs) which is not always able to take fully into account the **high MPS specificity**.

A large rate of the MPS are acknowledged as relevant habitats by **Birds and Habitats Directives** and are an integral part of the **conditionality** of all **CAP 23/27 strategic plans** and dedicated **eco-schemes** targeting grassland conservation as well as to implement more conditionality to environmental and climate standards for basic payments.

There is a risk of losing high value grasslands either outside of Natura2000 or not protected neither by CAP GAEC 1 (mainly to preserve the carbon stock) nor by GAEC 9 (safeguard species and habitats of Natura 2000); in some cases even inside Natura 2000, tackling the degradation of semi-natural grasslands is likely to be a tough challenge .

Both at European and country level, some **policy frameworks** and **measures** have been defined to promote the management of mountain grasslands. At European level, the legal framework addressing mountain areas **is mainly related to agriculture, forest and biodiversity conservation**, whereas it often falls short to **adopt a more integrated approach** with other relevant domains (e.g. labour, wellbeing, education, tourism).

ISSUES

The main issues affecting MPS are hereby briefly described. Please check Table 1 for a synoptic reference which summarises them together with related opportunities, recommendations and concrete examples from the LIFE projects authoring this paper.

Infrastructures and services: MPS often lack of adequate services, manpower, infrastructures, technical supports and knowledge transfer both horizontal (among technicians of different sectors) and vertical (from science to stakeholders and vice versa);

Socio-economic: land abandonment is one of the main threats affecting MPS. The specificities of these areas are often not taken into account by EU, national and regional policies, as it is difficult to consider all the interactions between agricultural activities, biodiversity protection, food safety, land property, profitability, social instances etc.

Dependency and flexibility of CAP:

CAP is the main resource (sometimes essential) ensuring pastoral activities in these areas. Measures that specifically address mountain areas are often exceptions to the main legislation and despite the efforts they may not always adequately consider their unique features (e.g. in Mediterranean ecosystems, MPS under the forest, that is silvo-pastoral systems, are important for the farming activity to protect the cattle from the sun during the warmest period of the year). Bureaucracy and low flexibility of CAP measures are the utmost constraints suffered by farmers, which in turn lead to slowing down a wide access to financial resources, especially when needed to counteract uneven changes of external conditions (e.g. extreme climatic events). This might be due to the fact that strategic plans are national instead of regional, therefore may fail to reflect the regional characteristics.

The negotiation between regional and national level adds another decision-making level, which can become an obstacle to the implementation of appropriate adaptation actions in MPS.

Speculation by external farms/companies mainly aiming at accessing CAP payments with no real interest neither in promoting and developing the local economy, nor in taking care of landscapes and territories, has been becoming an emerging risk in the last years

Decoupling: EU invests significantly in general policies design, but their actual implementation is often perceived as limited by local communities. In some cases (e.g. when governance entities are not directly involved), outcomes of EU-funded projects seem not being properly exploited, especially those which are related to policies and governance. The implementation and/or replication of relevant outcomes from LIFE projects (e.g. recommendations, guidelines, tools, best practices) is often not smooth.

RECOMMENDATIONS

Possible solutions and recommendations, based on concrete examples where possible, are hereby briefly grouped and described. Please check Table 1 for a synoptic reference.

Concepts that should be more leveraged

Foster the concept of pastoral, sustainable to biodiversity rich systems as common goods similar to other resources like water.

MPS' communities could be more motivated and supportive if they perceived their specific issues (cultural diversity, ecosystems services, landscape preservation, etc.) to be more addressed and included in European policies.

Make more evident, at different levels of governance, the quantification of the added value of MPS ecosystem services and set up the related payment system.

Disentangling the impacts of climate change and extreme events on the different components of MPS is impelling.

Governance

More efforts should be made to better bind EU values, directives and policies to the needs and specificities of local communities. This could be reached by engaging local stakeholders and promoting their participation at all levels of governance, and from the beginning of any transition process. Participatory approaches should involve local populations, nurturing EU policies with local debates. More room should be given to local agents who know the territory and its problems and expectations, in a balance between local and EU-wide authorities. It is pivotal to distinguish between short-term urgencies and long-term programming.

Protected areas and Natura 2000 Sites could be considered as incubators, or early adopters of the results (tools, best practices, etc.), of projects related to mountains, environmental protection, climate change resilience; these areas can become the playground where policy and technical innovations are first implemented;

Since CAP 23/27 is results oriented, MPS could strongly benefit if specific indicators and monitoring systems were implemented, such as those related to processes and related results, such as increase/conservation of biodiversity, pastoral plans, agroecology, etc. In this perspective, CAP measures performances should be evaluated from an ecosystemic point of view (e.g. increase/conservation of biodiversity, pastoral plans, agroecology) and also it should envisage the appropriate payment system specifically for the collective benefits provided. The strengthening of provisions for pasture and extensive breeding in the periodic revisions of the Plans as well as a greater attention to pastoral and extensive breeding systems in the upcoming preparation of the next CAP planning period could be promoted and incentivised.

Recognizing the role of grazing pastures under forests (silvo-pastoral systems) during warm months in Mediterranean areas, which could reduce mountain vulnerabilities in preventing fire, encroachment and loss of open areas. Clearly, any grazing in forest should be contained so as to avoid irreversible damage to the forest ecosystem, and should be compatible with the dynamics of forest renewal.

Labelling should be favoured and encouraged as regards MPS typical products/goods. Flexibility should be promoted to improve the competitiveness and viability of farming activities, by favouring, among others, short marketing channels, the direct sale of farming products, mobile and small close-to-farming slaughterhouses, small size flocks (goats and sheep for the valuable contribution to landscape maintenance and fire risk reduction), heterogeneous extensive livestock (different types of livestock in the same exploitation, for product diversification and better pasture restoration) or more flexible health controls (compared to industrial livestock production).



Country-specific legislation often offers interesting models that could serve to improve the policy framework at European level and serve as good practices for other European countries. For instance, in the Italian MPS context, permanent meadows/grasslands are also protected outside Natura 2000. This could be a good practice to replicate in other member states.

Capitalization of LIFE project outcomes

Innovation and knowledge transfer could be ensured by a compulsory involvement of local authorities, either as partners or as final users of LIFE projects. It would therefore be easier and more consistent for projects to jointly develop and provide local authorities with effective and adequate tools for management, planning and monitoring. This will ensure (i) scientifically validated methodologies and tools, tailored for each specific area and problem, that can be used in addition to other, existing tools, (ii) environmental protection, production and livelihood, climate adaptation and/or mitigation at local level, (iii) compliance with European values framework, following and implementing EU directives locally, (iv) valorize the specificity of the territory.

CAP could benefit from LIFE projects as regards tools to estimate GHG emissions, CC adaptation and best practices that ensure conditionality and eco-schemes and innovation transfer for CAP measures monitoring, and effective up- and out-scaling.

National Rural Network (as the example of Italy), with its cluster activity of LIFE projects, is a good practice ensuring synergies between CAP and LIFE programme. This initiative could be promoted and sustained by EC also in other member states.

Policy requests/needs under specific policies frameworks should be clearly defined and agreed at early stages of LIFE projects together with relevant stakeholders. This will ensure that the project outcomes will fit and respond to local communities' needs.

Climate change and best practices

South-North cooperation could be promoted as many climate change related issues affecting northern countries nowadays have been already addressed (and often solved) by southern ones;

Financial efforts should be addressed to incentivize carbon credits and sustainable management (e.g. water resource harvesting for irrigation, better use of manure for fertilisation, etc.) for pastoral systems maintenance and restoration.

Long-term monitoring and scientific data could be promoted to assess and quantify the benefits of pasture recovering in a changing climate context.

The contribution of the shepherds training and schools to the promotion and transference on best practices should be favoured.

Disentangling the impacts of climate change and extreme events from management should be promoted.

the representatives of the projects

LIFE PASTORALP, LIFE AGRICOLTURE, LIFE GRACE, LIFE IMAGINE, LIFE MIDMACC, LIFE REGENERATE, LIFE SHEPFORBIO, LIFE XEROGRAZING, LIFE CLIMAMED and SUSALPS

Forte di Bard, Valle D'Aosta, Italy, 17th of March 2023



ISSUES	OPPORTUNITIES	SOLUTIONS/IDEAS/RECOMMENDATIONS	EXAMPLES FROM OUR PROJECTS
Land abandonment	<p>MPS sustain local territory while providing several important services to others</p> <p>In CAP 23/27 Member States will be able to offer dedicated eco-schemes targeting grassland conservation as well as to implement more conditionality to environmental and climate standards to receive basic payments</p>	<p>Quantify and set up payments specific for ecosystems services</p> <p>Carbon credits for MPS maintenance and restoration</p> <p>Pastoral schools, workshops and training</p> <p>Foster the concept of pastoral, sustainable to biodiversity rich systems as common good</p> <p>Promote land consolidation association to overcome land fragmentation issues</p> <p>Promote land associations as conducive platforms for the development of territorial plans</p> <p>Promote labelling for typical products, short marketing channels, direct sale of farming products, mobile and small close-to-farming slaughterhouses, small size flocks, heterogeneous extensive livestock</p>	<p><u>LIFE CLIMAMED</u>: farmers will receive financial support from the Ministry of Agriculture to install the GHG monitoring devices developed during the project, and also when they successfully reduced their emissions.</p> <p><u>LIFE Xero-grazing</u>: during the project private land owners were encouraged to offer their land parcels to be grazed by the flock purchased for habitats' conservation. After the project, private land owners joined the public ones in a land consolidation association now managing more than 100 ha of grasslands.</p> <p><u>LIFE ShepForBio</u>: the project promotes the creation of a land association between private owners as a practical example of a response to the fragmentation of mountain properties which represents one of the problems associated with the abandonment of pastures, especially in mountain areas. Furthermore, LIFE ShepForBio has created a Pastoral School to deal with the problem of generational turnover, which profoundly affects pastoral activities. The training curriculum of the school includes a specific module on "importance of pastoral activities for biodiversity conservation", with the main aim of making the new shepherds aware of their irreplaceable role for biodiversity conservation.</p> <p><u>LIFE MIDMACC</u>: the project generates recommendations towards farmers and shepherds about different livestock management practices that maximise the environmental benefits of the farming activity. The project has generated a sort of ecological criteria for the sustainable recovery of MPS that are already being applied in the regional pasture recovery plan of La Rioja (Spain). The project has established a set of experimental plots in three Spanish regions where a permanent monitoring network is evaluating the effects of pasture recovery and livestock management on several environmental variables.</p> <p><u>LIFE agriCOlture</u>: the project leveraged on the capital investment, fully financed, necessary for carrying out amelioration works on the demonstration fields to foster processes of land consolidation around them.</p>



9 ISSUES	OPPORTUNITIES	SOLUTIONS/IDEAS/RECOMMENDATIONS	EXAMPLES FROM OUR PROJECTS
<p>(follows)</p> <p>Land abandonment</p>		<p>Long-term monitoring and scientific data should be promoted to assess and quantify the benefits of pasture recovering in a changing climate context</p>	<p><u>LIFE GRACE</u>: Co-marketing strategies and biodistricts development triggered economic opportunities countering land abandonment. Similarly, amendments to the Lazio Region-granted Natura in Campo label to embrace grass-fed products have been deployed.</p> <p><u>LIFE IMAGINE</u>: it is important to acknowledge the role of farmers and breeders as grassland biodiversity custodians, when they are active in the conservation of Annex I target habitats and the biologic habitats of Annex II-IV target plant species; there are crucial ecosystem services provided by grasslands and supported by the farmers/breeders activities.</p> <p><u>SUSALPS</u> has initiated the revitalization of an abandoned mountain pasture by extensive grazing with rustic cattle breeds in close cooperation with authorities and farmers. The project assesses both ecological and socioeconomic impacts of the re-grazing over a >10 years time span and serves as a communication and multiplication platform.</p> <p><u>LIFE Regenerate</u>: the project promoted the application of sustainable grazing systems (adaptive multi-paddock grazing) to improve grassland productivity and the herbage utilisation rate while conserving biodiversity and ensuring high levels of animal health.</p>
<p>Risk of losing high value grasslands outside of Natura 2000</p> <p>↓</p>	<p>MPS sustain local territory while providing several important services to others</p> <p>Birds and Habitats Directives, CAP conditionality and eco-schemes</p> <p>LIFE replicability plan</p> <p>LIFE projects results already provided (and could provide) lots of tools related to biodiversity and climate change</p>	<p>Support extensive grazing in MPS</p> <p>Quantify and set up payments specific for ecosystems services</p> <p>Foster the concept of pastoral, sustainable to biodiversity rich systems as common good</p>	<p>In Italy, land use changes on permanent meadows/grasslands are not allowed also outside Natura 2000 (even though it should be noted that if ordinary management practices are abandoned, pastoral areas may experience natural vegetation regressions, such as the spread of undesirable species, shrub encroachment, woodland restoration, etc.).</p> <p><u>LIFE PASTORALP</u>: the methodology developed for MPS monitoring and mapping has proven to be effective also outside the protected area as preliminary tool for the definition of pastoral plans to be proposed in the upcoming CAP programming; it can also support the monitoring of CAP payments for AGEA (two conventions have been signed with the regional authority).</p> <p><u>LIFE PASTORALP</u>: the local authorities have been promoting and incentivizing the adaptation measures and policies developed within the project.</p>

ISSUES	OPPORTUNITIES	SOLUTIONS/IDEAS/RECOMMENDATIONS	EXAMPLES FROM OUR PROJECTS	10
<p>(follows)</p> <p>Risk of losing high value grasslands outside of Natura 2000</p>	<p>(adaptation and mitigation best practices, monitoring and assessments methodologies)</p> <p>In CAP 23/27 Member States will be able to offer dedicated eco-schemes targeting grassland conservation as well as to implement more conditionality to environmental and climate standards to receive basic payments</p> <p>CAP 23/27 is results oriented</p> <p>Country-specific legislation and practices may serve as model to improve the policy framework at European level and serve as good practices for other European countries</p>	<p>Protected areas should be considered as incubators/early adopters of the results of projects related to mountains, environmental protection, climate change resilience</p> <p>Permanent grasslands outside Natura 2000 Sites should be valued in the same way as those inside the network, because they often host grasslands of the same value in terms of biodiversity; grazing plans that combine conservation and sustainable use should be strongly promoted by current legislation</p>	<p><u>LIFE Xero-grazing</u>: the grazing management plan drafted during the project became part of Special Area of Conservation (SAC) management plan.</p> <p><u>LIFE Xero-grazing</u>: a permanent monitoring network was established to monitor the condition of habitats and rare plant species.</p> <p><u>LIFE ShepForBio</u>: The project will develop a Regional Strategy for Tuscany region, a partner of the project, to identify the Best Practices for improving the conservation status of prairie habitats through pastoralism and grazing in general. This strategy will help the regional administration to use the regional and European funds more effectively, supporting mountain pastoralism as a strategic activity for biodiversity conservation.</p> <p><u>LIFE MIDMACC</u>: Although the project experimental experiences are included in Natura 2000 network, the project outcomes are designed to be replicable in other MPS, combining the conservation objectives with the viability of the mountain activities.</p> <p><u>LIFE agriCOLture</u>: the project has been fostering conservation agriculture practices, such as overseeding, to increase forage productivity of MPS without altering their ecological qualities. The project has also been fostering the re-introduction of traditional agricultural practices that are suitable, even in the current context of climate change, for increasing forage productivity and conserving floristic composition of MPS.</p> <p><u>LIFE IMAGINE</u>: Biodiversity-focused grazing plans, addressing a sustainable use of secondary grasslands, have been developed also for areas outside Natura 2000, where the target grassland habitats are present.</p>	
<p>Policies addressing agro-forestry production, biodiversity and climate often are not very well integrated</p> <p style="text-align: right;">↓</p>	<p>MPS sustain local territory while providing several important services to others</p> <p>Birds and Habitats Directives, CAP conditionality and eco-schemes</p>	<p>(compulsory?) involvement of local, policy-making, authorities in LIFE projects, stakeholder engagement</p> <p>Protected areas should be considered as incuba-</p>	<p>National Rural Network (Italy), with its cluster activity of LIFE projects, is a good practice ensuring synergies between CAP and LIFE programme.</p> <p><u>LIFE PASTORALP</u>: for each adaptation measures, the expected positive effects on biodiversity are mentioned.</p> <p><u>LIFE ShepForBio</u>: promotes the role of pastoralism in conserving biodiversity at local and european level, particularly through the organisation of three international</p>	

11 ISSUES	OPPORTUNITIES	SOLUTIONS/IDEAS/RECOMMENDATIONS	EXAMPLES FROM OUR PROJECTS
<p>(follows)</p> <p>Policies addressing agro-forestry production, biodiversity and climate often are not very well integrated</p>	<p>LIFE projects results already provided (and could provide) lots of tools related to biodiversity and climate change (adaptation and mitigation best practices, monitoring and assessments methodologies)</p> <p>In CAP 23/27 Member States will be able to offer dedicated eco-schemes targeting grassland conservation as well as to implement more conditionality to environmental and climate standards to receive basic payments</p> <p>Knowledge and innovation transfer: CAP measures, LIFE projects, Operational Groups, European Consultations</p> <p>Huge amount of scientific outcomes from European projects</p> <p>CAP 23/27 is results oriented</p> <p>Country-specific legislation and practices may serve as model to improve the policy framework at European level</p>	<p>tors/early adopters of the results of projects related to mountains, environmental protection, climate change resilience</p> <p>Sustain a more in depth analysis of policy cycle (process and scale), and at which stages science support can make effective changes to livelihood</p> <p>Performances should be evaluated from an ecosystemic point of view (e.g. increase/-conservation of biodiversity, pastoral plans, agroecology) and also it should envisage the appropriate payment system specifically for these collective benefits</p> <p>Local rules (e.g. forest regulations) should be adapted to include the exploitation of the grazable understorey</p> <p>Proper and sustainable planning and management of semi-natural areas require timely, accurate, and updated information about land cover dynamics, especially</p>	<p>conferences on topics related to "Biodiversity and Pastoralism" and the creation of an open-database that collects Best Practices tested and validated in other LIFE projects and beyond.</p> <p><u>LIFE MIDMACC</u>: The project has contributed to the deployment of the regional climate change adaptation strategy of Catalonia (Spain), the rural development agenda of Catalonia and the Pyrenean Climate Change Strategy. The project has also contributed to the definition of the Rural Development Programmes (RDPs) of Catalonia, providing new evaluation and scoring criteria to the RDPs grants.</p> <p><u>LIFE IMAGINE</u>: the developed Biodiversity-focused grazing plans, addressing a sustainable use of secondary grasslands, will become part of the SAC's management plans; the project developed specific Action Plans for the target Annex I habitats and the biologic habitats of Annex II-IV target plant species in grazed systems.</p> <p><u>LIFE IMAGINE</u>: a key approach developed in the project is the integration of remote sensing analyses and monitoring with biodiversity monitoring in the field.</p> <p><u>LIFE IMAGINE</u>: the project is implementing several measures of the regional PAF; the PAF underlines the need of promoting public/private agreements for the management of territory, both in rural and natural contexts (e.g. to decrease the phenomena of abandonment of the agricultural areas and ensuring maintenance and restructuring of portions of rural territory with high quality crops; to increase the endowments of natural and semi-natural elements within the agrarian landscape to favor presence and movements of the fauna). With particular focus on the grazed systems (hosting Annex I habitats and Annex II-IV species among the most threatened at EU, national and regional level - above all H6210), IMAGINE is working in order to contrast the ongoing threats related to abandonment/bad management currently deriving from the total absence of dedicated action plans. The guideline for these actions is the recently published "EU HABITAT ACTION PLAN to maintain and restore to favourable conservation status the habitat type 6210".</p> <p><u>Life agriCOLture</u>: The project produced a monitoring of MPS soils both in terms of carbon stock and soil fauna population (using the soil biological quality index</p>

ISSUES	OPPORTUNITIES	SOLUTIONS/IDEAS/RECOMMENDATIONS	EXAMPLES FROM OUR PROJECTS	12
<p><i>(follows)</i></p> <p>Policies addressing agro-forestry production, biodiversity and climate often are not very well integrated</p>	<p>and serve as good practices for other European countries</p>	<p>grassland phenology and productivity; although tools such as the remote sensing-derived Copernicus grasslands and forests layers, the ESA world Cover Maps, and the MODIS productivity information provide some useful data, in some cases, they do not fully meet these requirements.</p>	<p>QBS-ar) at the beginning and at the end of the project showing the opportunity of a good agricultural management of agro-silvo-pastoral systems for climatic and ecological services.</p>	
<p>MPS' specificities are often not sufficiently taken into account by European policies</p> <p style="text-align: right;">↓</p>	<p>Birds and Habitats Directives, CAP conditionality and eco-schemes</p> <p>Knowledge and innovation transfer: CAP measures, LIFE projects, Operational Groups, European Consultations</p> <p>Huge amount of scientific outcomes from European projects</p> <p>CAP 23/27 is results oriented</p> <p>Country-specific legislation and practices may serve as model to improve the policy framework at European level and serve as good practices for other European countries</p>	<p>Support extensive grazing in MPS</p> <p>Quantify and set up payments specific for ecosystems services</p> <p>Foster the concept of pastoral, sustainable to biodiversity rich systems as common good</p> <p>Sustain a more in depth analysis of policy cycle (process and scale), and at which stages science support can make effective changes to livelihood</p> <p>Evaluate the role of grazing under forests (silvo-pastoral systems) so as to be eligible for the CAP</p>	<p><u>LIFE PASTORALP</u>: methodologies based on remote sensing and machine learning approach could be used instead of SEN4CAP as more precise for MPS.</p> <p><u>LIFE ShepForBio</u>: for each intervention area the project will develop a Pastoral Management Plan based on the specific habitat and related biodiversity features (data gathered by monitoring activities) but also on the critical issues related to pasture management (infrastructures, water supply, predations mitigation ecc..), thanks to the direct involvement of shepherds and breeders and taking into account the past management.</p> <p><u>LIFE agriCOLture</u>: the project has been dealing with livestock farms of very different sizes, family compositions and pasture management styles. Furthermore, they operate in territorial contexts that can be very different also in terms of socio-economic marginality. This showed us the necessity of co-designing with farmers amelioration works and practices of pasture improvements taking into account their needs, means of production, technical and managerial skills.</p> <p><u>LIFE GRACE</u>: involvement of local breeders in developing and implementing a cooperation model for the conservation of semi-natural grasslands through extensive grazing, as a governance tool which can be adapted and replicated in other regions and countries.</p> <p><u>LIFE Regenerate</u>: the project focused on the relationships between management</p>	

13 ISSUES	OPPORTUNITIES	SOLUTIONS/IDEAS/RECOMMENDATIONS	EXAMPLES FROM OUR PROJECTS
<p>(follows)</p> <p>MPS' specificities are often not sufficiently taken into account by European policies</p>			<p>practices (e.g. grazing, tree pruning, water retention practices such as keylines) and the provision of ecosystem services, such as which biodiversity conservation (plant, ants, dung beetles), in Mediterranean silvopastoral systems. This knowledge is relevant for informing policy making processes dedicated to MPS.</p>
<p>MPS often lack of technical supports and knowledge transfer both horizontal (among technicians of different sectors) and vertical (from science to stakeholders and vice versa)</p>	<p>LIFE replicability plan</p> <p>Knowledge and innovation transfer: CAP measures, LIFE projects, Operational Groups, European Consultations</p> <p>Huge amount of scientific outcomes from European projects</p>	<p>Pastoral schools, workshops and training</p> <p>(compulsory?) involvement of local, policy-making, authorities in LIFE projects, stakeholder engagement</p> <p>Sustain a more in depth analysis of policy cycle (process and scale), and at which stages science support can make effective changes to livelihood</p>	<p><u>LIFE ShepForBio</u>: promotes the knowledge transfer both through the Shepherd School and the technical assistance for shepherds and breeders for the implementation of Pastoral Management Plans that the project will realise with the aim to promote sustainable pastoral activities both from a economical and environmental point of view.</p> <p><u>LIFE MIDMACC</u>: The project develops technical guided visits to the experimental experiences oriented to provide professionals (farmers, shepherds, forest owners, land manager) with management criteria, which allow the project's results transferability in the nearby regions.</p> <p><u>LIFE GRACE</u>: development of an App for grasslands monitoring participated by breeders and training of breeders on monitoring. Monitoring data will converge in the databases of the National Network on Biodiversity.</p> <p><u>LIFE IMAGINE</u>: the project developed innovative Web-GIS tools for grazing systems, based on vegetation analysis and satellite indices, to support the implementation of the "biodiversity-focused" grazing plans, based on spatial-temporal estimation of productivity through the integrated use of multi-temporal data from Sentinel 2, satellite indices and statistical models integrated with the floristic-vegetational biodiversity and Annex I habitat data. The aim is to provide farms and companies, through Web-GIS systems (ad-hoc apps for smartphone/tablet), with a real-time cartographic scenario of phytomass production in order to guide starting time, duration, modality and location of the optimal load of grazing animals.</p> <p><u>SUSALPS</u> has been developing an app-based assessment tool illustrating both ecological and economic impacts of grassland farmers' management decisions. The tool has been developed jointly with farmers and farm advisors to maximise acceptance and is currently in the test phase.</p>



ISSUES	OPPORTUNITIES	SOLUTIONS/IDEAS/RECOMMENDATIONS	EXAMPLES FROM OUR PROJECTS	14
<p><i>(follows)</i></p> <p>MPS often lack of technical supports and knowledge transfer both horizontal (among technicians of different sectors) and vertical (from science to stakeholders and vice versa)</p>			<p><u>LIFE Regenerate</u>: an App was developed for silvopastoral farmers who want to get started in regenerative agriculture strategies which include the Adaptive multi-paddock grazing and the inoculation of adult trees with different types of fungi.</p> <p><u>LIFE Regenerate</u>: The Italian members of the project were involved in the development of the shepherd school that is currently ongoing in Sardinia. The grazing management in MPS is one of the modules of the course.</p>	
<p>Mountain agriculture often survives only because of CAP</p> <p style="text-align: right;">↓</p>	<p>MPS sustain local territory while providing several important services to others</p>	<p>Quantify and set up payments specific for ecosystems services</p> <p>Carbon credits for MPS maintenance and restoration</p> <p>Pastoral schools, workshops and training</p> <p>Foster the concept of pastoral, sustainable to biodiversity rich systems as common good</p> <p>Performances should be evaluated from an ecosystemic point of view (e.g. increase/-conservation of biodiversity, pastoral plans, agroecology) and also it should envisage the appropriate payment system specifically for these collective benefits</p> <p>Promote labelling for typical products, short marketing</p>	<p><u>LIFE MIDMACC</u>: The project has developed an analysis of the economic costs and incomes of the four extensive livestock farms participating in the project. The results of the analysis clearly reflect this issue. The farms are not viable without the CAP aids, but the farmers considered the CAP as poorly managed and with too much bureaucracy, which makes it difficult to apply.</p> <p><u>LIFE agriCOLture</u>: The project followed a methodology of research-action to involve technicians, researchers and farmers into an horizontal way of knowledge production.</p> <p><u>LIFE GRACE</u>: business networks on specific territorial value chains, agreements on box schemes with solidarity purchasing groups as well as Local Authorities' inclusion of extensive livestock products in Green Public Procurement schemes to support the local economy.</p> <p><u>LIFE IMAGINE</u>: the project is developing a "Product specification" for local products (dairy products, meat) with a biodiversity-focused supply chain active in the conservation of Annex I target habitats and the biologic habitats of Annex II-IV target plant species; the project is promoting the development of farmers/breeders networks for a coordinated promotion and sale of their products, also making use of additional funds.</p> <p><u>LIFE Regenerate</u>: The project developed a cost-benefit analysis at farm scale comparing the "regenerative agriculture" practices proposed by the project and the business as usual management systems. Overall, the proposed practices aimed at increasing farm profitability by enhancing the multifunctional nature of the pastoral farms. Very promising are the mushroom productions on tree</p>	

15 ISSUES	OPPORTUNITIES	SOLUTIONS/IDEAS/RECOMMENDATIONS	EXAMPLES FROM OUR PROJECTS
<p><i>(follows)</i></p> <p>Mountain agriculture often survives only because of CAP</p>		<p>channels, direct sale of farming products, mobile and small close-to-farming slaughterhouses, small size flocks, heterogeneous extensive livestock</p>	<p>pruning residues, the biochar and compost productions, the grazing management systems. These strategies can significantly reduce the dependence of pastoral farms on CAP subsidies.</p>
<p>Risk of speculation by non-local companies mainly aiming at accessing CAP payments</p>	<p>LIFE projects results already provided (and could provide) lots of tools related to biodiversity and climate change (adaptation and mitigation best practices, monitoring and assessments methodologies)</p> <p>CAP 23/27 is results oriented</p>	<p>(compulsory?) involvement of local, policy-making, authorities in LIFE projects, stakeholder engagement</p> <p>Foster the concept of pastoral, sustainable to biodiversity rich systems as common good</p> <p>Performances should be evaluated from an ecosystemic point of view (e.g. increase/-conservation of biodiversity, pastoral plans, agroecology) and also it should envisage the appropriate payment system specifically for these collective benefits</p>	<p><u>LIFE PASTORALP</u>: adaptation measures have been integrated into calls for renting public pastoral areas.</p>
<p>CAP programming (strategic plans are now at national level) sometimes does not reflect regional specificities ↓</p>	<p>LIFE projects results already provided (and could provide) lots of tools related to biodiversity and climate change (adaptation and mitigation best practices, monitoring and assessments methodo-</p>	<p>(compulsory?) involvement of local, policy-making, authorities in LIFE projects, stakeholder engagement</p> <p>Sustain a more in depth analysis of policy cycle (process and scale), and at which</p>	<p><u>LIFE PASTORALP</u>: the methodologies and approaches developed by the project have been adopted by the regional administration.</p> <p><u>LIFE GRACE</u> is engaging regional authorities responsible for both N2000 and agriculture in developing the cooperation model for semi-natural grasslands conservation. The best practices provided in the cooperation model, the tools provided in the co-marketing model, and the participatory monitoring by breeders, are expected to be integrated into and supported by the regional programming for the</p>

ISSUES	OPPORTUNITIES	SOLUTIONS/IDEAS/RECOMMENDATIONS	EXAMPLES FROM OUR PROJECTS	16
<p><i>(follows)</i></p> <p>CAP programming (strategic plans are now at national level) sometimes does not reflect regional specificities</p>	<p>logies)</p> <p>CAP 23/27 is results oriented</p>	<p>stages science support can make effective changes to livelihood</p> <p>Promote labelling for typical products, short marketing channels, direct sale of farming products, mobile and small close-to-farming slaughterhouses, small size flocks, heterogeneous extensive livestock</p>	<p>CAP.</p> <p><u>LIFE MIDMACC</u>: The project has a strong collaboration with local stakeholders, in order to raise their needs and proposals to the policy level. In this sense, there is a strong agreement among them that lack of consideration of pastures under forest as eligible for the CAP is adversely affecting their activities during the warmest period. In this sense, the project has included this request in all attended policy events, including the Position Paper “A step forward in EU forest policy: the Mediterranean perspective”, developed by 8 LIFE projects and presented to the EC on 31st May 2022 in Brussels.</p>	
<p>Gap between science and rural world needs</p> <p style="text-align: right;">↓</p>	<p>LIFE replicability plan</p> <p>Knowledge and innovation transfer: CAP measures, LIFE projects, Operational Groups, European Consultations</p> <p>Huge amount of scientific outcomes from European projects</p>	<p>(compulsory?) involvement of local, policy-making, authorities in LIFE projects, stakeholder engagement</p> <p>Protected areas should be considered as incubators/early adopters of the results of projects related to mountains, environmental protection, climate change resilience</p> <p>Sustain a more in depth analysis of policy cycle (process and scale), and at which stages science support can make effective changes to livelihood</p> <p>South-North cooperation should be strengthened as</p>	<p><u>LIFE PASTORALP</u>: the regional administration of Valle d’Aosta was officially involved since the beginning with a letter of interest. This ensured the close collaboration between the project consortium and the Region; the latter adopted PASTORALP approaches and methodologies in its regulations and actions: 1) two conventions were signed to extend the PASTORALP mapping to the entire region; 2) Development of pasture plans based on PASTORALP project results; 3) support in designing the clauses for the rental of municipal pastures (preserving biodiversity and pastures, promoting the breeding of native breeds, etc.); 4) export PASTORALP results for the development of common alpine-wide activities.</p> <p><u>LIFE MIDMACC</u>: The project has created three regional committees of stakeholders (more than 150 people involved) that are a space where stakeholders can discuss, in an organised and participative way, the main findings, obstacles and future challenges to be tackled. Stakeholders include different profiles: public authorities, economic sectors and research entities.</p> <p><u>LIFE IMAGINE</u>: the project shows that new figures are emerging, and should be supported, of young well-educated farmers/breeders who decide to embrace mountain farming (e.g. revitalising a family activity); technology can profitably assist these actors in MPS.</p> <p><u>LIFE Regenerate</u>: The project started at a demonstration scale on 100 ha of</p>	

17 ISSUES	OPPORTUNITIES	SOLUTIONS/IDEAS/RECOMMENDATIONS	EXAMPLES FROM OUR PROJECTS
<p>(follows)</p> <p>Gap between science and rural world needs</p>		<p>many climate change related issues affecting northern countries nowadays have been already addressed (and often solved) by southern ones</p>	<p>silvopastoral systems. During the replication phase, the area size was scaled up to 7,200 ha distributed across Spain, Portugal and Italy, demonstrating how the management model can be widely tailored to areas of different scopes, landscape-scale and commercial-scale. Several trainings involving farmers were organised during the project, technical guidelines were developed along with an App for facilitating the adoptions of the proposed practices.</p>
<p>LIFE projects are sometimes very specific and too bound to the case study areas</p>	<p>MPS sustain local territory while providing several important services to others</p> <p>LIFE replicability plan</p> <p>Country-specific legislation and practices may serve as model to improve the policy framework at European level and serve as good practices for other European countries</p>	<p>(compulsory?) involvement of local, policy-making, authorities in LIFE projects, stakeholder engagement</p> <p>Protected areas should be considered as incubators/early adopters of the results of projects related to mountains, environmental protection, climate change resilience</p> <p>South-North cooperation should be strengthened as many climate change related issues affecting northern countries nowadays have been already addressed (and often solved) by southern ones</p>	<p><u>LIFE PASTORALP</u>: the pastoral platform is conceived to facilitate replication of project outcomes and approaches.</p> <p><u>LIFE MIDMACC</u>: The project has a trans-regional character since the experimental experiences are carried out in three regions of Spain, whose climatic and environmental characteristics are very diverse. In addition, the project includes an upscaling process to assess the effect of implementing the experimental experiences at a watershed scale.</p> <p><u>LIFE GRACE</u>: a code of conduct has been designed to be adopted by all breeders and pasture managers willing to contribute to the conservation of semi-natural grasslands in rural areas.</p> <p><u>LIFE IMAGINE</u>: as an Integrated Project, LIFE IMAGINE focuses on the management of the whole regional N2K Network and, as a consequence, aims to ensure the proper implementation of the conservation actions and, above all, the implementation of long-lasting good practices among stakeholders, all over the regional territory.</p> <p><u>LIFE Regenerate</u>: The project involved three countries, Spain, Portugal and Italy, covering a wide range of environmental and socio-economic conditions. So it is trans-regional in its nature although the different proposed practices were tailored around each specific situation.</p>