



the PASTORALP consortium



# LIFE PASTORALP

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



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The **PASTORALP** project (2017-2023) aims to reduce the impacts of current and future climate on alpine pastoral systems in two case-studies: Gran Paradiso National Park and National Parc des Ecrins. The project seeks to increase the resilience of these systems and reduce their vulnerability by adopting a multidisciplinary and participatory science-based approach.



## MAIN RESULTS ACHIEVED



### MAPPING PASTORAL RESOURCES

Development and validation of an **innovative method** (based on remote sensing, expeditive field surveys, and modeling) for mapping mountain pastoral resources. This methodology will allow for rapid updates, **replication** in other alpine contexts as a basis for the drafting of **pastoral plans**, and **monitoring of payments** from the Agriculture Payments Agency.



### VULNERABILITY ANALYSIS

The **vulnerability analysis** considered bio-geophysical, socio-economic, and naturalistic aspects using modeling, participatory approaches, and test areas. The **bio-geophysical analysis** focused on low-, medium-, and high-altitude pastoral systems, seeking to quantify future variations in terms of biomass peak, productivity, phenology, and carbon storage, taking into account some adaptation measures. The **socio-economic analysis** involved interviews, questionnaires, targeted workshops, and modeling; the **naturalistic analysis** involved setting up monitoring sites in the two study areas, where the impacts of adaptive management on local fauna and flora were analyzed.



### CLIMATE CHANGE ADAPTATION STRATEGIES

The **technical measures**, defined according to specific climate risks, aim to maintain **forage production**, improve **water resource** use, optimize the management of **animals** in mountain pastures, and protect alpine **biodiversity**, assessing the need to adopt medium- and long-term interventions. **Policy recommendations** propose actions at different governance levels in relation to various areas (pasture management, silvo-pastoral system, water, multifunctionality, cooperation and training, biodiversity).



### THE PASTORALP PLATFORM

The platform serves as a **decision-making support tool**. It has a **web interface** for wider dissemination of the achieved results. There is a **webgis** section with climate, pastoral and vegetation maps. Finally, it contains the **pastoral** and **diagnostic plans** specifically produced for the permanent demonstration areas created in the two national parks.



### REPLICABILITY AND AFTER-LIFE

Some of the **adaptation strategies** have been included in **regional** and **national policies**. PASTORALP has collaborated in the programming of the CAP 2021-2027; two agreements have been signed with regional authorities, and some strategies have been included in regional adaptation plans. PASTORALP has been included in the **national platform** on climate change adaptation created by ISPRA (Italian Institute for Environmental Protection and Research) and the Ministry of Ecological Transition.

