MOVING
MOuntain Valorisation through INterconnectedness and Green growth

Central Apennines

Vulnerability matrixes and vulnerability map

2024

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What will you find?

The MOVING (MOuntain Valorisation through INterconnectedness and Green growth) project stands at the forefront of climate resilience, aiming to fortify the sustainability of mountain areas against climate change. A key outcome of the project is the creation of tools that show susceptibility and vulnerability, ready to be used by both experts and the general audience[1].

This document synthesises cucial information for the **Central Apennines Region**, particularly focusing on the Participatory Vulnerability Matrix and the Spatial Vulnerability Map.

Using a participatory approach, the Vulnerability Matrix allows to downscale relevant information to the local level, offering a detailed view of how drivers of change impact this territory. Understanding that areas within the Central Apennines Region are not equally vulnerable to identical threats, the Spatial Vulnerability Map emerges as a critical tool. It showcases the varied susceptibility across the region, paving the way for more effective, targeted adaptation strategies.

Mountain Reference Region: Central Apennines

Mountain Reference Landscape: Central Apennines MRL

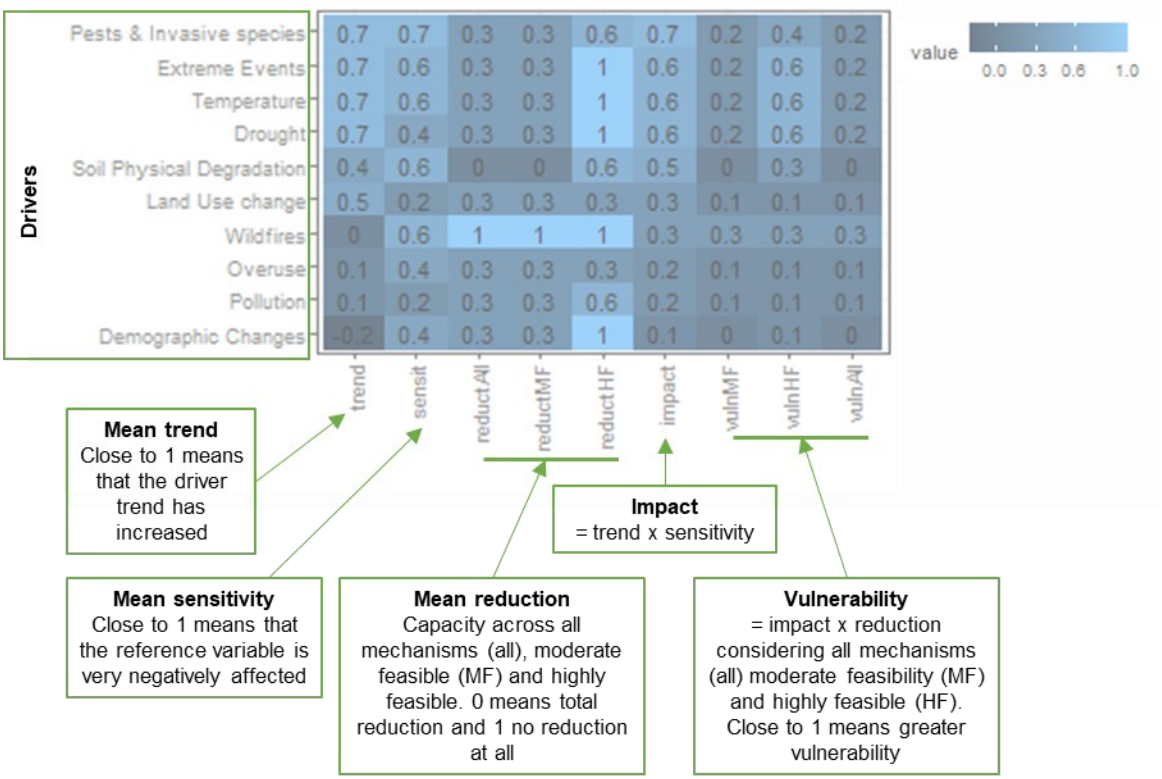
Value Chain: Alto Molise dairy production - Caciocavallo cheese.

Land-use system: Agro-silvo-pastoral

Reference variable: Permanent grasslands and meadows

[1] Extended outputs are accessible through the following documents: 'Land Use Systems and Land Cover Map in 23 Reference Regions' and 'Land use system vulnerability matrixes and vulnerability maps for the 23 reference regions'

1. Participatory Vulnerability Matrix



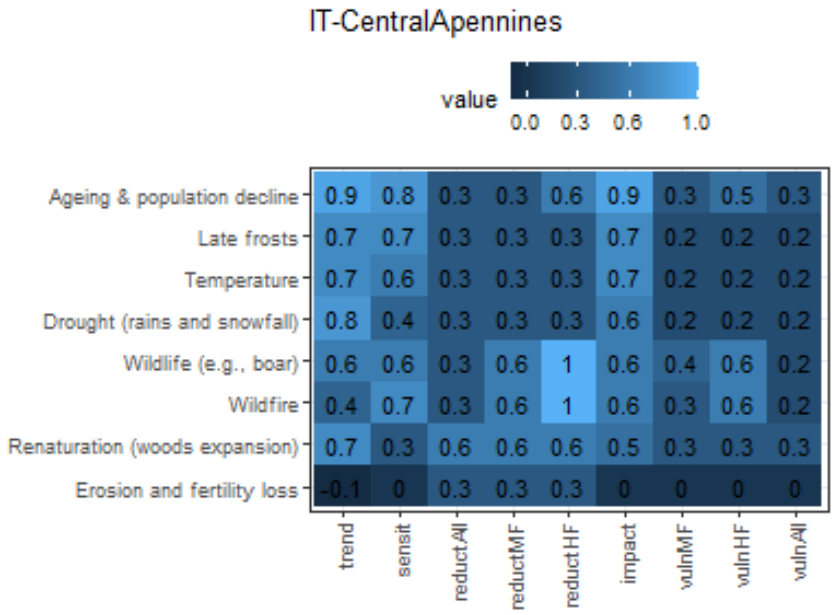


Figure 1. Vulnerability Matrix for Central Apennines MRL (below) and how to read it (above).
Source: MOVING H2020

As in many rural areas ageing and population decline is one of the major challenges, which require adaptation mechanisms. In this case the perception of the participants is that they are not very optimistic about the feasibility and full effectiveness of the mechanisms. Climate drivers (drought, temperature and late frost), wild animals such as boar, and fires are other threats. Interestingly, and contrary to other cases, a greater feasibility is seen in the application of measures against climate drivers than in drivers of change with a social component.

1.1 List of adaptative mechanisms suggested by consulted stakeholders

- Technological innovation
- Adopt market valued farm practices
- Introduction of arid resistant varieties
- Introduction of new or rustic cow breeds
- Business diversification
- Socio-territorial services
- Increase water availability in mountain grazing areas – water reservoirs
- Clear delimitation of commons
- New standards for milk quality

2. Vulnerability Map

Vulnerability drivers:

- Demographic changes
- Temperature
- Precipitation

Spatial explicit factors:

- Elevation

Table 1. Spatial Vulnerability Index for the agro-silvo-pastoral system in the Central Apennines MRL

Spatial Vulnerability Index			
Spatial Explicit Factor	*Elevation*	*[0-600]*	**2**
		]600-1000]	**3**
		]1000-max]	**4**

Vulnerability levels: 1 – very low, 2 – low, 3 – medium, 4- high, 5 – very high
Source: MOVING H2020

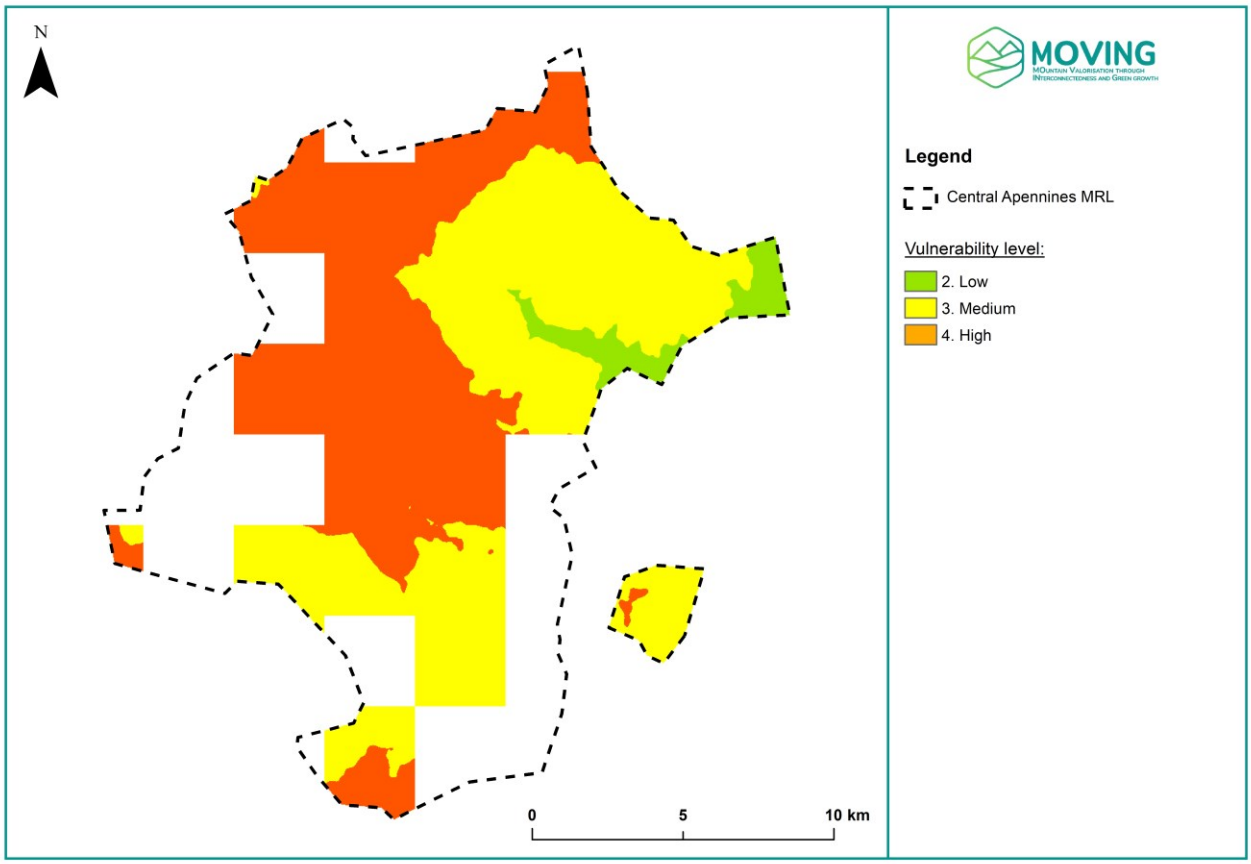


Figure 2. Vulnerability Map of the Agro-silvo pastoral system in the Central Apennines MRL.
Source: MOVING H2020