MOVING
MOuntain Valorisation through INterconnectedness and Green growth

# Sierra Morena

## 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 crucial information for the **Sierra Morena Region**, particularly focusing on theParticipatory 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 Sierra Morena 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: Sierra Morena**

**Mountain Reference Landscape:** Sierra Morena MRL (Pozoblanco, Villanueva de Cordoba, and Cardeña)

**Value Chain name:** Los Pedroches PDO Iberian Ham

**Land-use system name:** Agro-silvo-pastoral system - Dehesa

**Name of the reference variable:** Production of grass and acorns

[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

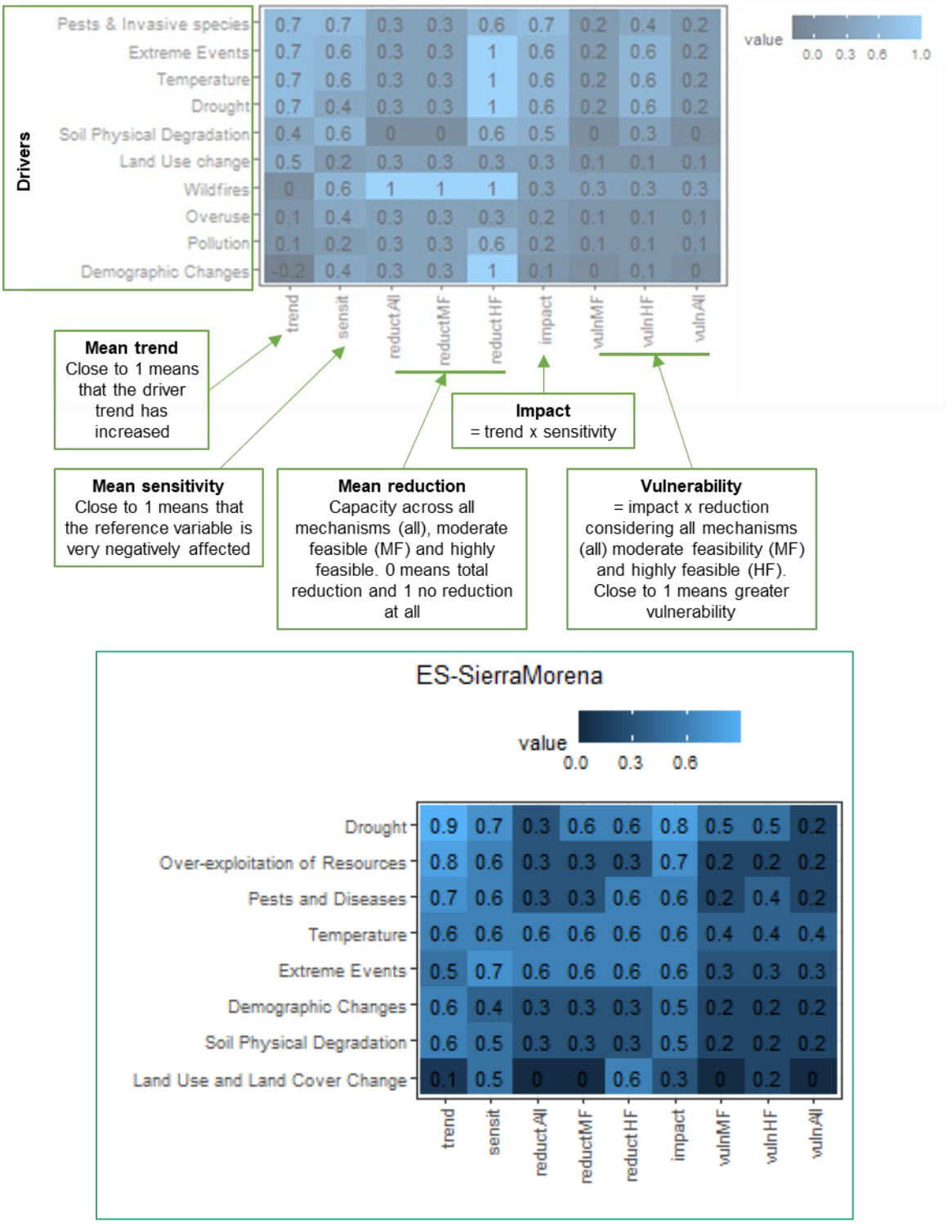


Figure 1. Vulnerability Matrix for Sierra Morena MRL (below) and how to read it (above). Source: MOVING H2020

Impact values for most drivers are high, ranging from 0.5 to 0.8 on our scale, where 1 represents the highest possible impact. Drought and overexploitation, particularly concerning livestock load, emerge as the most critical threats, closely followed by pests ("*Phytophthora cinnamomi*"), temperature and extreme events. The region's capacity to adapt to these climate-related challenges is low. This low adaptive capacity is particularly evident in response to climate drivers, whereas it remains medium-low for the rest, depending on the feasibility of the measures. Given this scenario, it becomes evident that strong support is needed to ensure that most adaptive mechanisms can be implemented.

## 1.1. List of adaptative mechanisms suggested by consulted stakeholders

- Recommendations for a rational and efficient use of water
- Support for the complete implementation of an integral management system
- Support for the densification and rejuvenation of the woodland.
- Spanish Ministry's proposal (July 2021) on eco-schemes.
- Encourage and generate spaces for the participation of landowners in decision-making bodies and the development of regulations
- Raising awareness of the environmental, social and economic benefits of the Dehesa

# 2. Vulnerability Index and Map

**Vulnerability drivers:**

- Precipitation
- Extreme weather events
- Pest and diseases

**Spatial explicit factors:**

- Precipitation
- Tree cover density

Table 1. Spatial Vulnerability Index for Dehesa at Sierra Morena MRL

| **Spatial Vulnerability Index** | | | Spatial Explicit Factor 1 | | |
|---|---|---|---|---|---|
| | | | *Mean annual precipitation (mm)* | | |
| | | | *]0-600]* | *]600-700]* | *]700-max]* |
| Spatial Explicit Factor 2 | *Tree cover density (%)* | *[0-20]* | **5** | **4** | **3** |
| | | *]20-40]* | **3** | **2** | **1** |
| | | *]40-100]* | **3** | **2** | **2** |

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

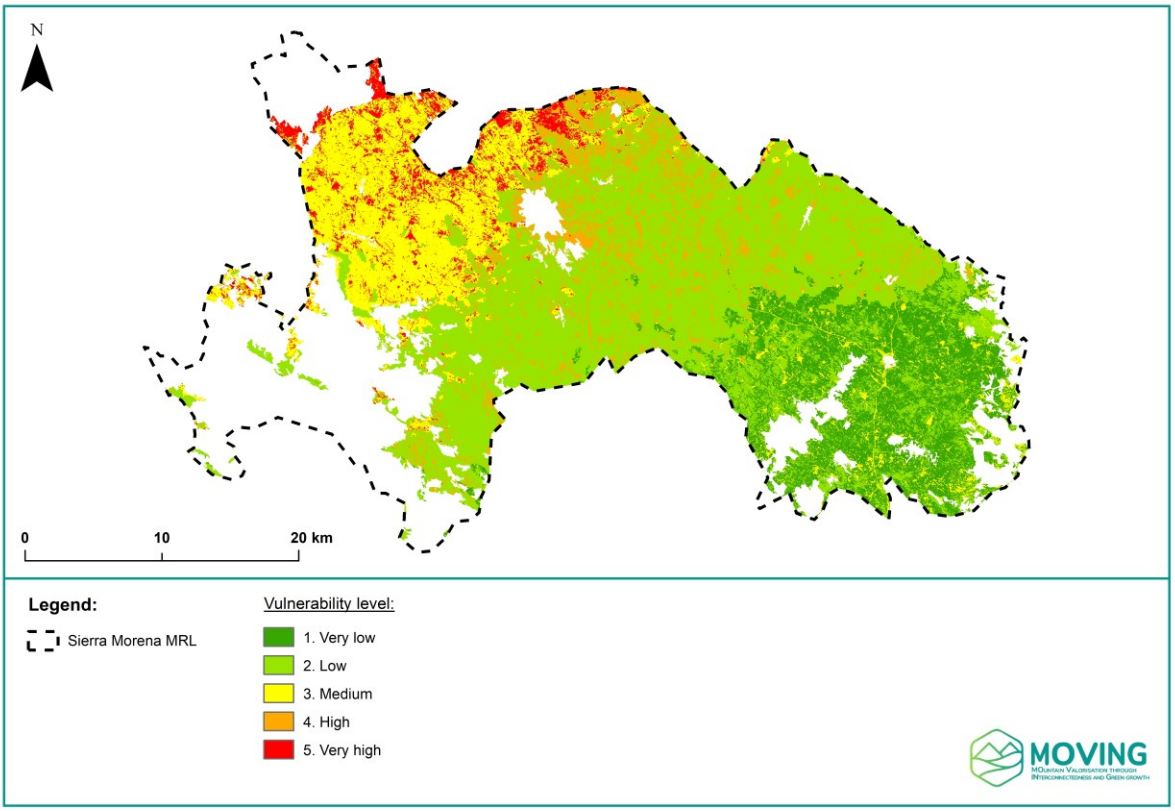


Figure 2. Vulnerability Map for the Dehesas of Sierra Morena MRL. Source: MOVING H2020