MOVING
MOuntain Valorisation through INterconnectedness and Green growth

Southern Romanian Carpathian

Vulnerability Matrix & Index

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 **Southern Romanian Carpathian Region**, particularly focusing on the Participatory Vulnerability Matrix and the Spatial Vulnerability Matrix.

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 Southern Romanian Carpathian Region are not equally vulnerable to identical threats, the Spatial Vulnerability Index 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: Southern Romanian Carpathian

Mountain Reference Landscape: Piatra Craiului National Park (and surrounding area) - Southern Romanian Carpathian MRL

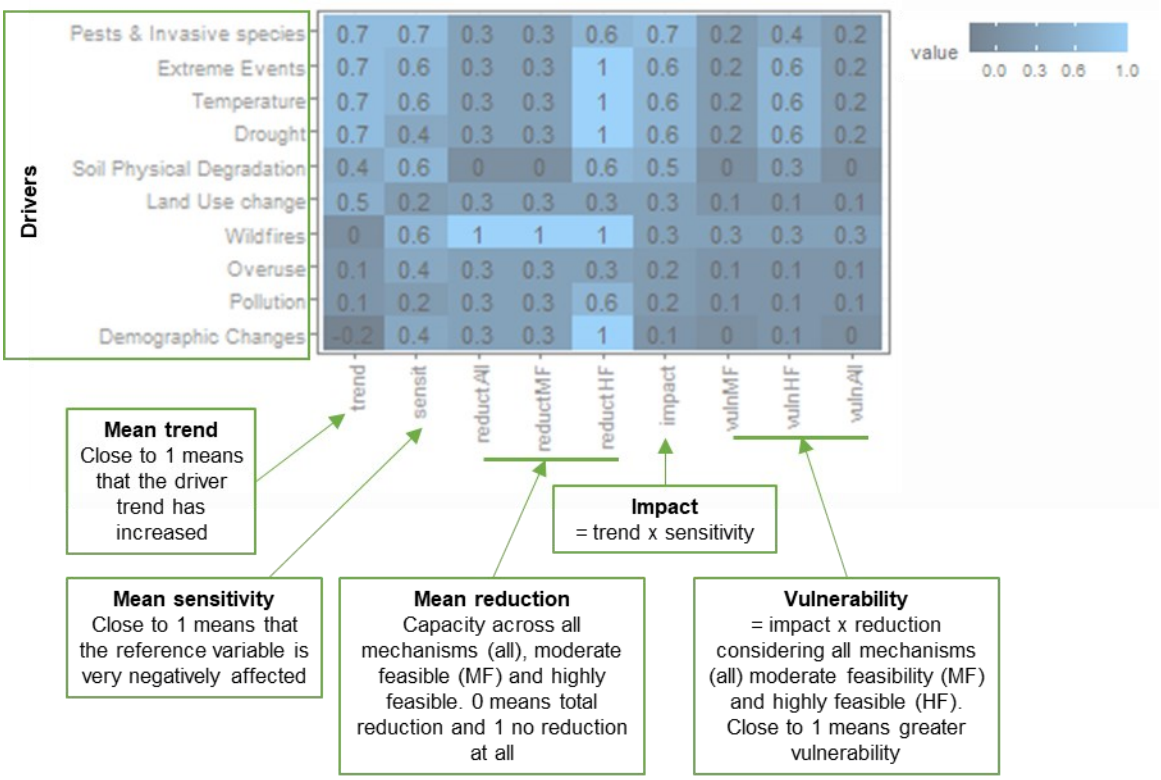
Value Chain: Certified Ecotourism

Land-use system: Mosaic landscape with forest and extensive semi-natural grassland

Reference variable: Landscape composition

[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



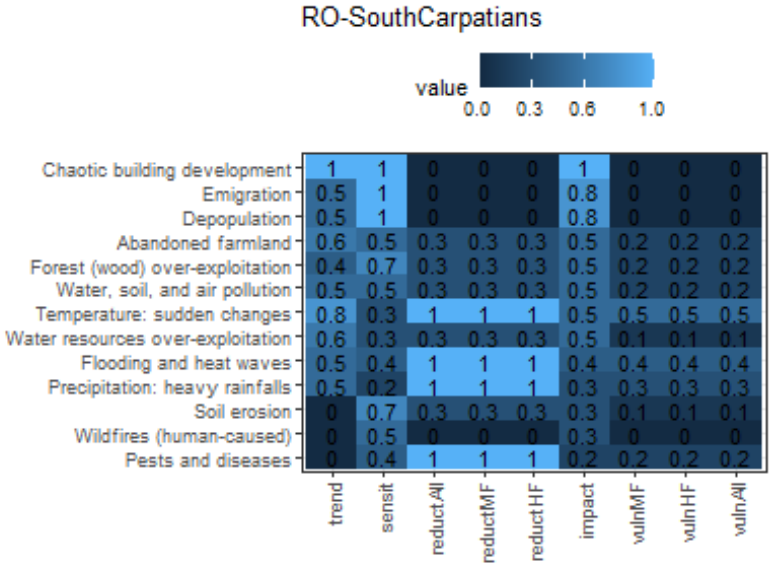


Figure 1. Vulnerability Matrix for the Southern Romanian Carpathian MRL (below) and how to read it (above). Source: MOVING H2020

Chaotic building development, emigration and depopulation are drivers of change that are shown to have a very large potential impact on the system, although in turn, there seems to be a full capacity to reduce this impact with mechanisms with high feasibility. The rest of the drivers, both climate and social components, show a medium impact, which can be reduced in a medium way in the social components. On the other hand, the selected mechanisms do not have the capacity to reduce the climate drivers. In general, there is a high capacity to reduce the impact on the system, from an impact of 0.6 to 0.1 vulnerability when applying the high feasibility mechanisms.

1.1. List of adaptative mechanisms suggested by consulted stakeholders

- Strict (and simplified) regulations enforcement with penalties in domains related with touristic activities (i.e. building development, waste management, ATVs usage)
- Adopting public policies on sustainable development, including low impact accommodation
- Developing a destination management unit, to efficiently manage the eco-destination - Zărnești
- Developing and supporting short food supply chains and local markets
- Investing in the quality of education in the region, to contribute to enhancing the attractiveness of the region for future generations
- Developing centres for indoor and outdoor sportive and recreative activities
- Re-designing the landscape (forest design)

2. Spatial Vulnerability Index

Vulnerability drivers:

- Changes in land use and land cover
- Demographic changes
- Over exploitation of resources (forest)

Spatial explicit factors:

- Size of nearby urban centres
- Traveling time from nearby urban centres

Table 1. Spatial Vulnerability Index for Mosaic landscape in the Southern Romanian Carpathian MRL.

Spatial Vulnerability Index			Spatial Explicit Factor 1		
			Size of nearby urban centres (population)		
			]0-250,000]	*]250,000-750,000]*	*]750,000-max]*
Spatial Explicit Factor 2	*Traveling time from nearby urban centres (h)*	*[0-1]*	**2**	**4**	**5**
		]1-3]	**1**	**3**	**5**
		]3-max]	**1**	**4**	**4**

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