MOVING
MOuntain Valorisation through INterconnectedness and Green growth

Highlands & Islands

Vulnerability matrix 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 **Highlands and Islands 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 Highlands and Islands 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: Highlands and Islands

Mountain Reference Landscape: Speyside

Value Chain: Speyside Malt Whisky

Land-use system: Extensive Rangeland

Reference variable: Water Quality

[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

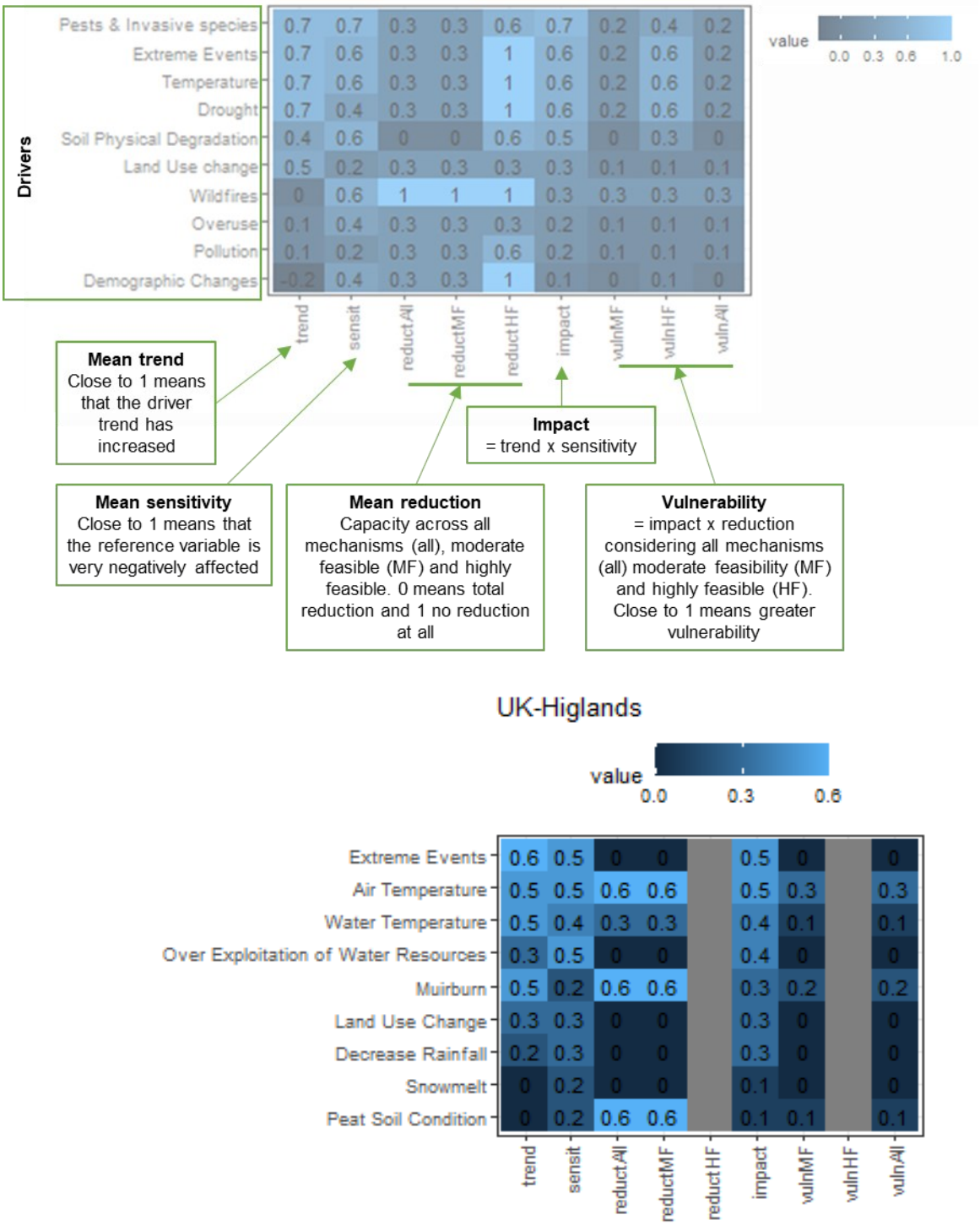

Figure 1. Vulnerability Matrix for the Highlands and Islands MRL (below) and how to read it (above). Source: MOVING H2020

Although the vulnerability of the drivers is not very high, this is because there are some drivers that have a low vulnerability and compensate for other drivers with relatively high impact values such as extreme events, air and water temperature and over exploitation of water resources. When calculating vulnerability, we observe that for some drivers a complete reduction of impact is possible. Likewise, there are no mechanisms with high feasibility (due to lack of economic viability), which will require a strong involvement of the administration in order to address these challenges.

1.1. List of adaptative mechanisms suggested by consulted stakeholders

- Collaborative Water Management
- Distillery water management
- Sustainable Land Management / Land Use Change
- Rewetting Peatlands
- Peatland Habitat Restoration
- Instream Restoration
- Riparian Management
- Managing Infrastructure

2. Spatial Vulnerability Index and Map

Vulnerability drivers:

- Rainfall per sub-catchment
- Water demand per sub-catchment

Spatial explicit factors:

- Water supply per sub-catchment
- Water demand per sub-catchment

Table 1. Spatial Vulnerability Index for Extensive Rangeland in the Speyside MRL.

Spatial Vulnerability Index			Spatial Explicit Factor 1		
			Water supply per sub-catchment		
			Low	*Medium*	*High*
Spatial Explicit Factor 2	*Water demand per sub-catchment*	*Low*	**3**	**2**	**1**
		Medium	**4**	**3**	**2**
		High	**5**	**4**	**3**

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

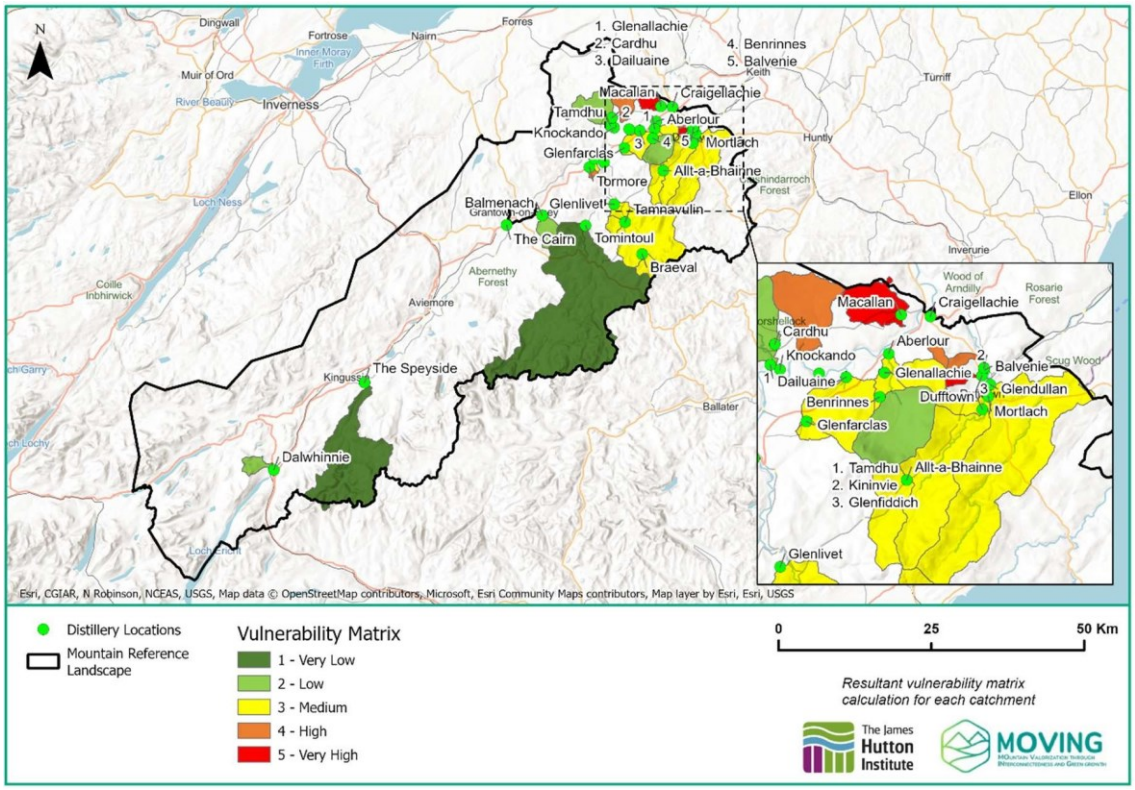

Figure 2. Vulnerability Map for the Permanent Pastures in the Highlands and Islands MRL. Source: MOVING H2020