



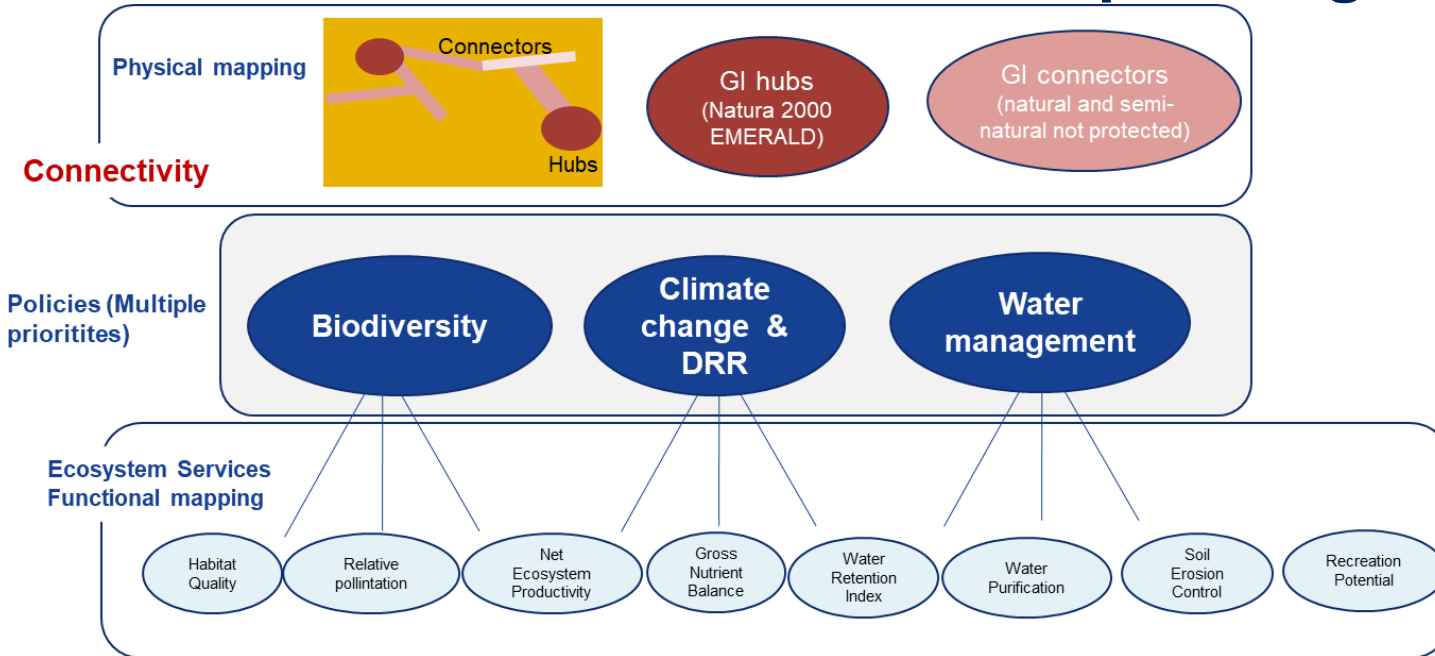
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Inspire Policy Making with Territorial Evidence

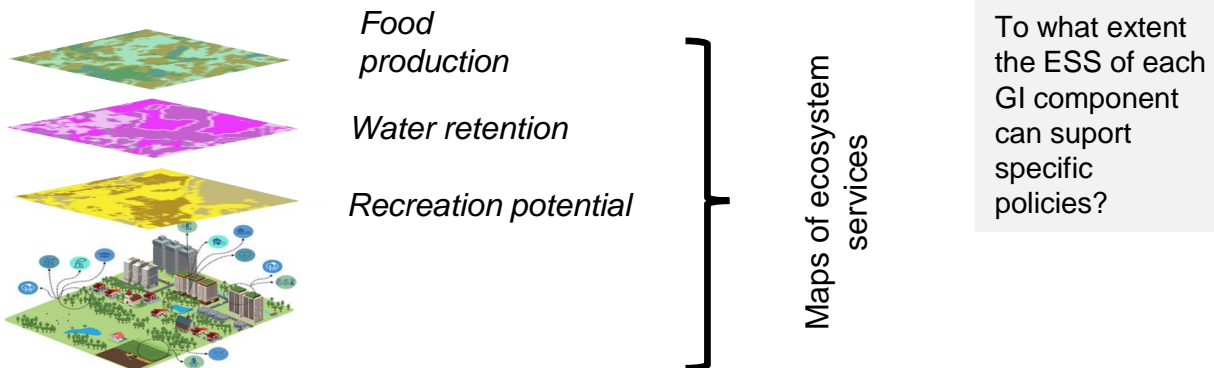
GRETA - “GReen infrastructure: Enhancing biodiversity and ecosysTem services for territoriAl development”

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Innovative spatial analysis for physical and multifunctional mapping of GI in European regions (NUTS2/3)



Multifunctionality

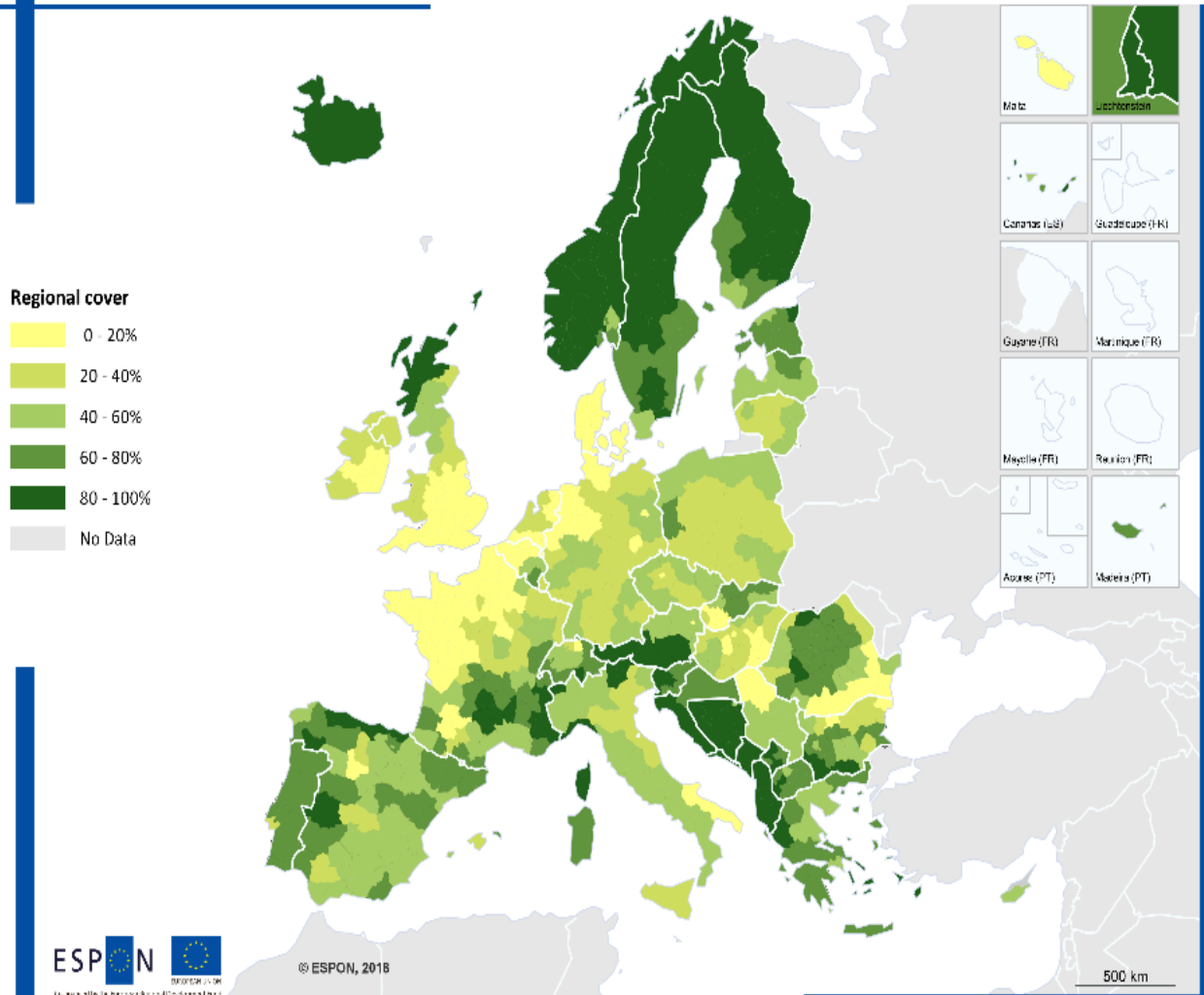


- Standardized comparison of “potential” GI
- Evaluation of the ability of GI to serve different policy objectives: i.e. biodiversity, climate change and water management.
- Transferable methodology

The physical characteristics of potential GI

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Spatial distribution of potential GI network at landscape level

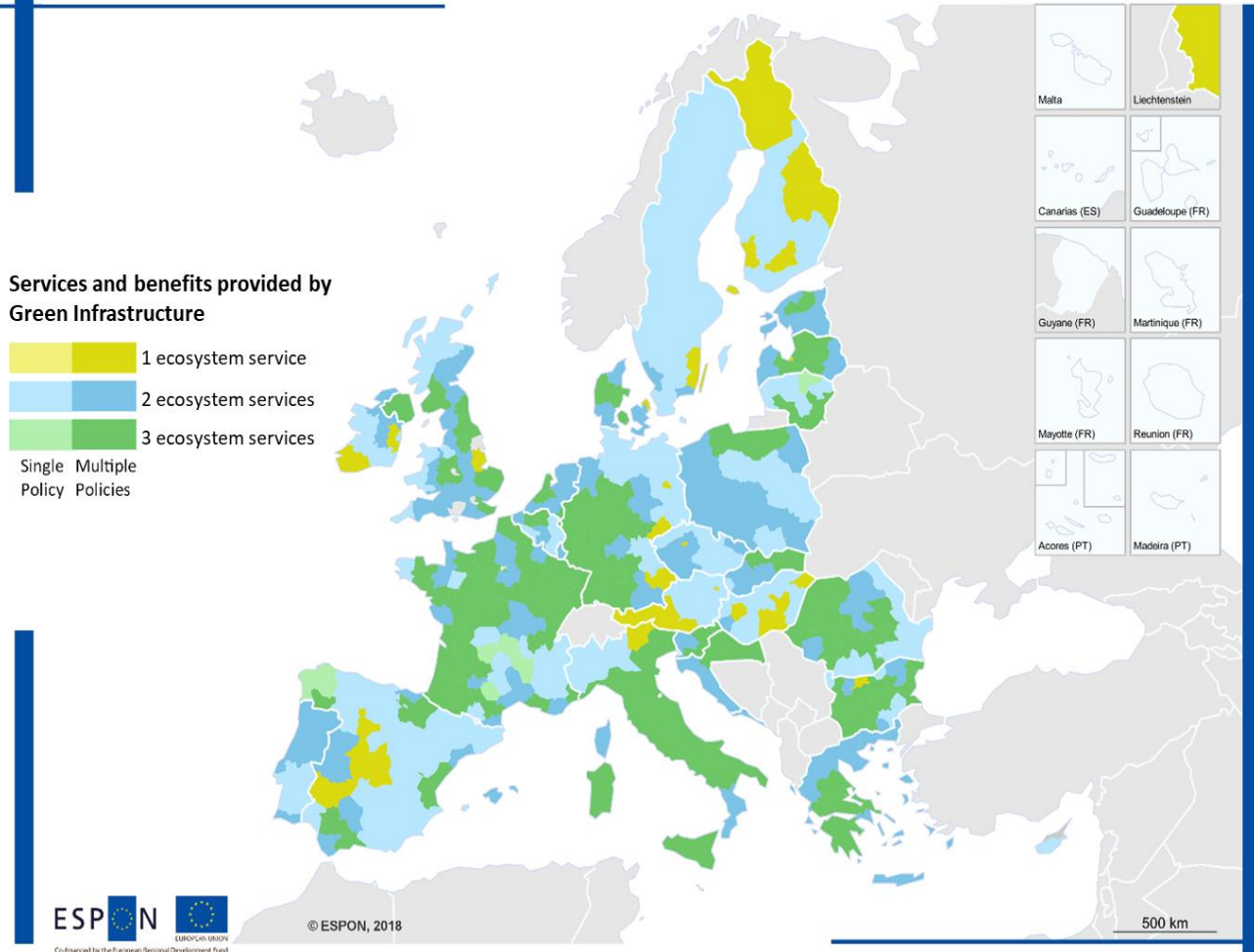


Two contrasting patterns:

- Low percentage. north-western France and Germany, south-eastern UK and Ireland, and Denmark;
- Very high percentage. the Nordic countries, the Balkan countries along the Adriatic Sea and the eastern Alpine region

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The multifunctionality of Green Infrastructure



- GI shows high multifunctional performance in most Italian regions, central Germany and northern France, and a few regions in Romania, Bulgaria and Greece
- The GI for Alpine, Boreal and Eastern Continental regions, as well as most of Iberian Peninsula is providing bundles of two ecosystem services that benefit mainly a single policy
- A few exceptions to this pattern occur only in the North of Portugal and Western Poland regions, where bifunctional bundles serve the aims of two or more policies.

■ **Green Infrastructure has the potential to contribute** to:

- Flood protection (adaptation) - Water retention
- Emission of nitrogenous gases (mitigation global warming) - Gross nutrient balance
- Carbon Sequestration (mitigation) - Net Ecosystem Productivity
- Health and well-being: i.e. temperature reduction (i.e. heatwaves effect mitigation), air quality, access to nature, recreation

From the demand side, having a pan-European GI network allows:

- Identification of hot spots: areas with GI potential + high risks i.e. Climate change vulnerable areas, flood risk hazards maps.
- Identification of areas where habitats /species are more vulnerable to climate change hazards and in need for restoration
- Detecting trends of GI network. Analysing GI network together with land use change maps (i.e. EU-LUPA) could help detecting: habitat loss, fragmentation and degradation due to heavy urbanization, intensive agriculture...
- Detecting regions in need for/or with high potential for cooperation and transboundary response to climate change challenges by means of GI planning.

BUT Spatial scale matters!!! Adaptation to climate change may require a local approach i.e. river basin, urban áreas...

▪ **Better informed and knowledge- based decision making**

- GI mapping (spatial distribution, ESS supply) to support spatial planning at different scales-
- Monitoring and reporting to provide evidence on GI performance (social, economic, environmental) and progress on trends and drivers
- Open data platforms and continuous updating of data portals with georeferenced information on green areas and their environmental qualities

▪ **Legitimizing governance structures**

- GI reinforces territorial interactions: vertical, horizontal and transboundary
- Multi-stakeholder committees for GI-governance and implementation on national and regional levels (i.e.France)
- Allow for active NGOs in hearing processes for spatial planning (Sweden, Denmark, Spain)

▪ **Incorporation of GI concept and approach into legal frameworks:**

- GI incorporated, enhanced and protected in current regulation (e.g. Finland, Croatia, Poland, Basque Country)
- Designation of GI areas/features and set up land use criteria/ restrictions/standards and different planning scales. i.e index for for biotope calculations;
- According to our research GI could make a significant contribution to spatial planning, climate change, disaster risk reduction, agriculture and forestry but the systematic incorporation of the concept into some policy sectors (e.g. finance, health, social services) still as a challenge.

▪ **Financial and economic good practice:**

- A cost effective approach to land use decisions: preserve green areas now rather than 'rewild' areas in the future;
- More visible and direct funding was seen as an opportunity for GI development (e.g. Germany, Ireland)
- Combine public and private funds: i.e use of ENRD (+LEADER and LCCD) in rural development to enhance environmental qualities (e.g. Scotland, Croatia 2014-2020)
- Use Cohesion policy to enhance degraded urban areas (e.g. Slovenia 2014-2020)

Further research for successful GI implementation

- ❖ **Understand the demand for GI.** The type of analysis presented in this research can help to inform the prioritisation of efforts to develop and invest in GI to meet current and future demand.
- ❖ **Continuous monitoring and sharing data.** The positive link between, on the one hand, GI and, on the other hand biodiversity and ES, is a starting point for the GRETA spatial analysis. Time series and change/trend analysis in this context of monitoring and data might be beneficial.
- ❖ **Establish and assess the quality of GI.** Improved indicators and metrics for assessing the quality of GI are needed. Such indicators can possibly be linked to the ongoing development of indicators for the 17 Sustainable Development Goals.
- ❖ **In-depth analysis on synergies and trade-offs in different European regions.** Further research is needed to understand the social and geographical disparities of the trade-offs and synergies. This to identify alternatives to minimize side effects.
- ❖ **Investigation into the role of the private sector.** There is a need to further highlight the importance of private sector, NGOs and private individuals in GI implementation. To further the integration of also other actors and institutions than public administration, the role of private actors (business owners, farmers and foresters, and urban land owners) in the implementation and management of GI need further research attention.
- ❖ **Investigate failure of implementation.** The GRETA research indicates a need to further identify failure of implementing GI. Such failures could for instance be found in situations with low political support for GI, and where a holistic and spatial perspective of GI is lacking.