Final Report figures

Description of the main S&T results/foregrounds

WP1 figures and table

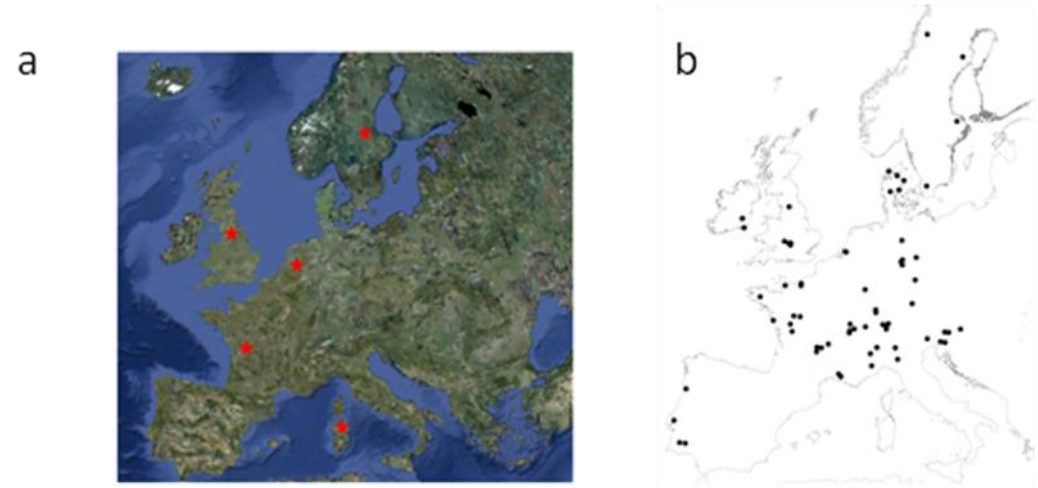

Figure 1. Maps showing the locations of the main sampling locations of the EcoFINDERS project. a) shows the locations of the 5 Long term Observatories sampled on two occasions in 2011 to assess local variance in soil biodiversity resulting from land use change. b) shows the locations of the "transect" samples which were collected in 2012 to assess the wider range of variation in soil biodiversity across Europe.

Table 1. Summary of the numbers of soils sampled within the first year of EcoFINDERS for different elements of soil biodiversity. For each different taxonomic group (or methodology) an indication of the numbers of samples assessed is shown and additionally a summary of whether any effects of land use intensification were observed. Site contrasts were as follows: Lusignan: pasture v cropland; Lancaster: unimproved v improved grassland; Berchidda: woodland v intense grassland; Veluwe: arable v restored habitat; Lamborn: Unfertilised v fertilised forest.

LTO		Lusignan		Lancaster		Berchidda		Veluwe		Lamborn	
Sampling		Spring	Autumn	Spring	Autumn	Spring	Autumn	Spring	Autumn	Spring	Autumn
Bacterial TRFLP	Samples analysed	12	12	45	45	45	45	30	30	35	36
	Intensity effect	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Fungal TRFLP	Samples analysed	12	12	45	45	45	45	30	30	36	36
	Intensity effect	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Archaeal TRFLP	Samples analysed	12	12	45	40	45	40	30	27	36	32
	Intensity effect	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Bacterial pyrosequencing	Samples analysed	8	8	30	30	27	27	21	21	36	36
	Intensity effect	Yes	Yes	No	No	No	No	Yes	Yes	No	No
Fungal pyrosequencing	Samples analysed	8	8	30	30	27	27	21	21	36	36
	Intensity effect	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Archaeal pyrosequencing	Samples analysed	8	8	30	30	27	27	21	21	36	36
	Intensity effect	Yes	Yes	No	No	No	No	Yes	Yes	No	No
Enchytraeidae species number	Samples analysed	0	45	0	45	0	45	0	30	0	36
	Intensity effect	N/A	Yes	N/A	No	N/A	Yes	N/A	Yes	N/A	No
Earthworm abundance	Samples analysed	27	0	0	9	0	15	0	0	0	10
	Intensity effect	Yes	N/A	N/A	No	N/A	Yes	N/A	N/A	N/A	No
Collembola richness & abundance	Samples analysed						90				60
	Intensity effect						yes				no
Nematode abundance	Samples analysed	0	12	0	31	0	Ongoing	0	26	0	Ongoing
	Intensity effect	N/A	No	N/A	No	N/A	N/A	N/A	No	N/A	N/A

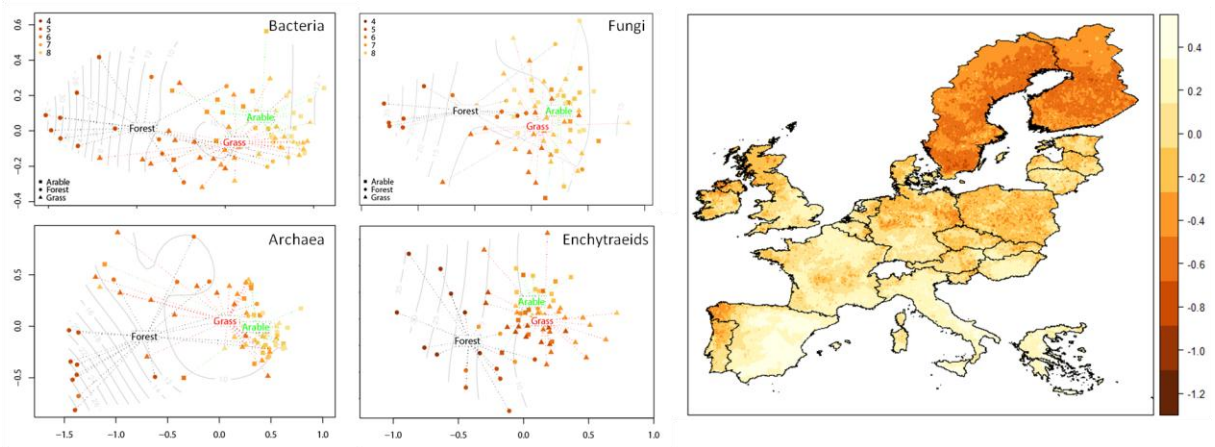

Figure 2. Ordination plots showing similar controls of different elements of soil biodiversity by land use and soil properties across the EU. The pH range (approximately pH 4 – 8) is shown as a colour gradient applied to the site symbols, and the dominant land use types arable, grass and forest, are denoted by squares, circles and triangles, respectively. Grey isobars signify the range of soil organic C:N ratios. The map shows predicted bacterial community ordination scores across EU using data from the transect sampling. Colour scale indicates predicted first axis nmds scores, with negative scores indicating acidic soils (bogs, acid grassland, upland woods etc.) and positive scores indicating communities from more neutral pH soils (productive grassland, arable etc.).

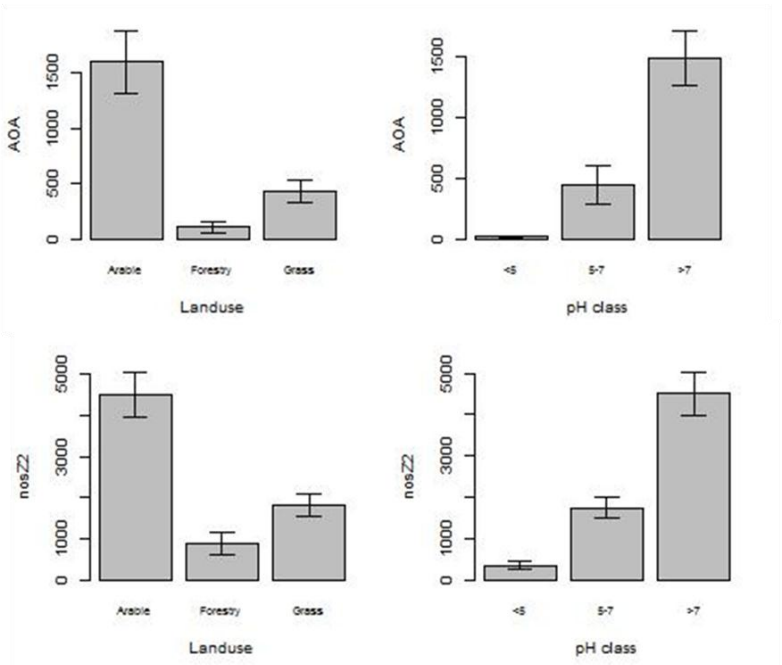

Figure 3. Ranges of variation of the abundances of the AOA, and nosZII N-cycling communities estimated by real-time PCR as a function of land use and soil pH. Functional diversity at the broad level is also determined by the covarying forces of land use and soil edaphic properties.

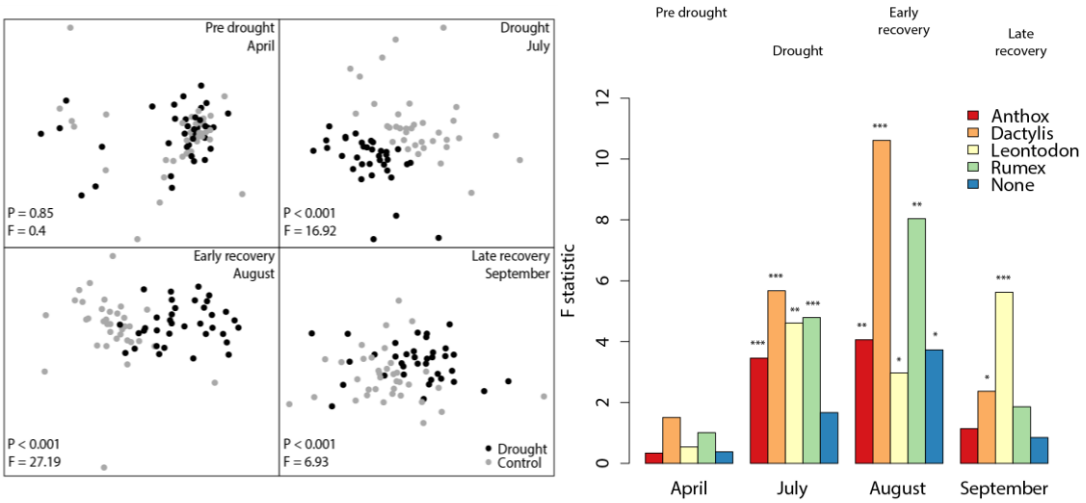

Figure 4. Effect of drought on bacterial community composition (T-RFLP) at the different sampling times (left panel) and intensity of change as the difference between control and drought-stress communities depending on the dominant plant species (right).

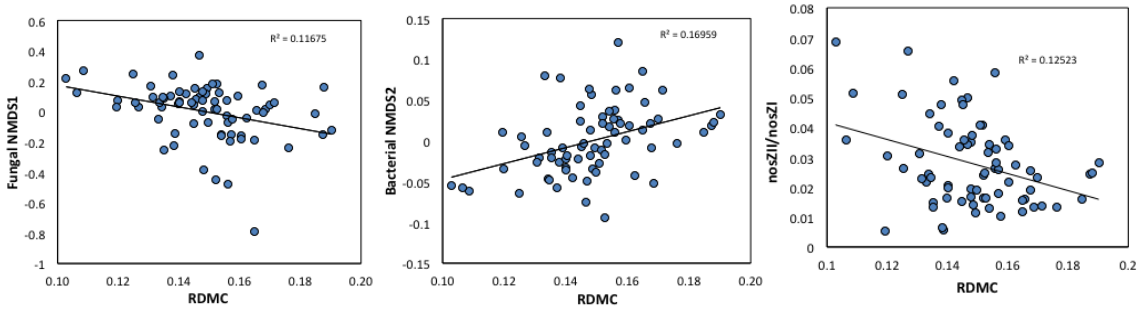

Figure 5. Relationships between fungal community composition, bacterial community composition, and the nosZII/nosZI ratio representing a component of N-cycling microbial community, with root dry matter content (RDMC) (P = 0.0035, P = 0.00033, and P = 0.0023, respectively).

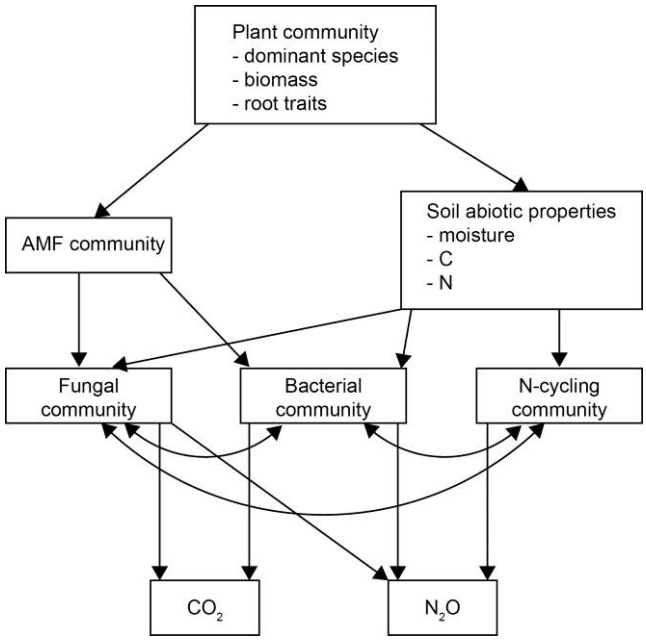

Figure 6. Conceptual model depicting the relationships between plant community composition, microbial community composition, and C and N fluxes.

WP4 figures and table

Table 2. Summary of the 'indicator' sampling sites and the replicated treatments sampled.

Land Use	Treatments	Climatic Zone	Country	Site (abbreviation)
Arable	conventional/organic	Continental	Germany	Scheyern (LSC)
Arable	till/no-till	Atlantic	Lusignan	Lusignan (LLS)
Arable	till/no-till	Pannonian	Slovenia	Moskanjci LMO)
Arable	cereal/fallow	Mediterranean	Portugal	Castro Verde (LCV)
Grass	intensive /extensive	Continental	Germany	Hainich (LHA)
Grass	intensive /extensive	Atlantic	UK	Lancaster (LLN)

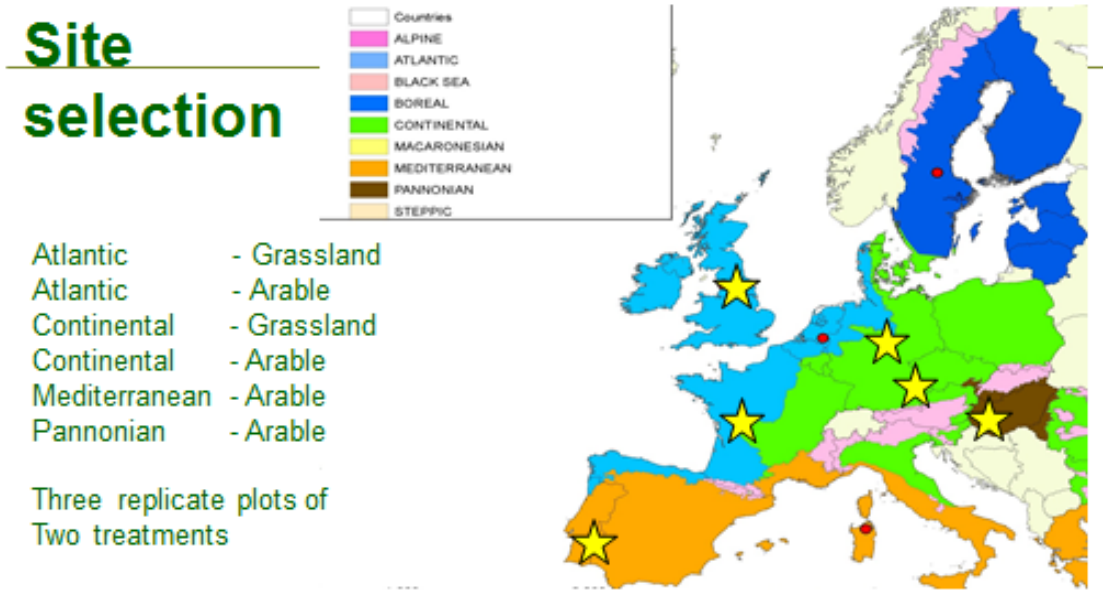

Figure 7. Location (yellow stars) of the LTOs sampled in WP4.

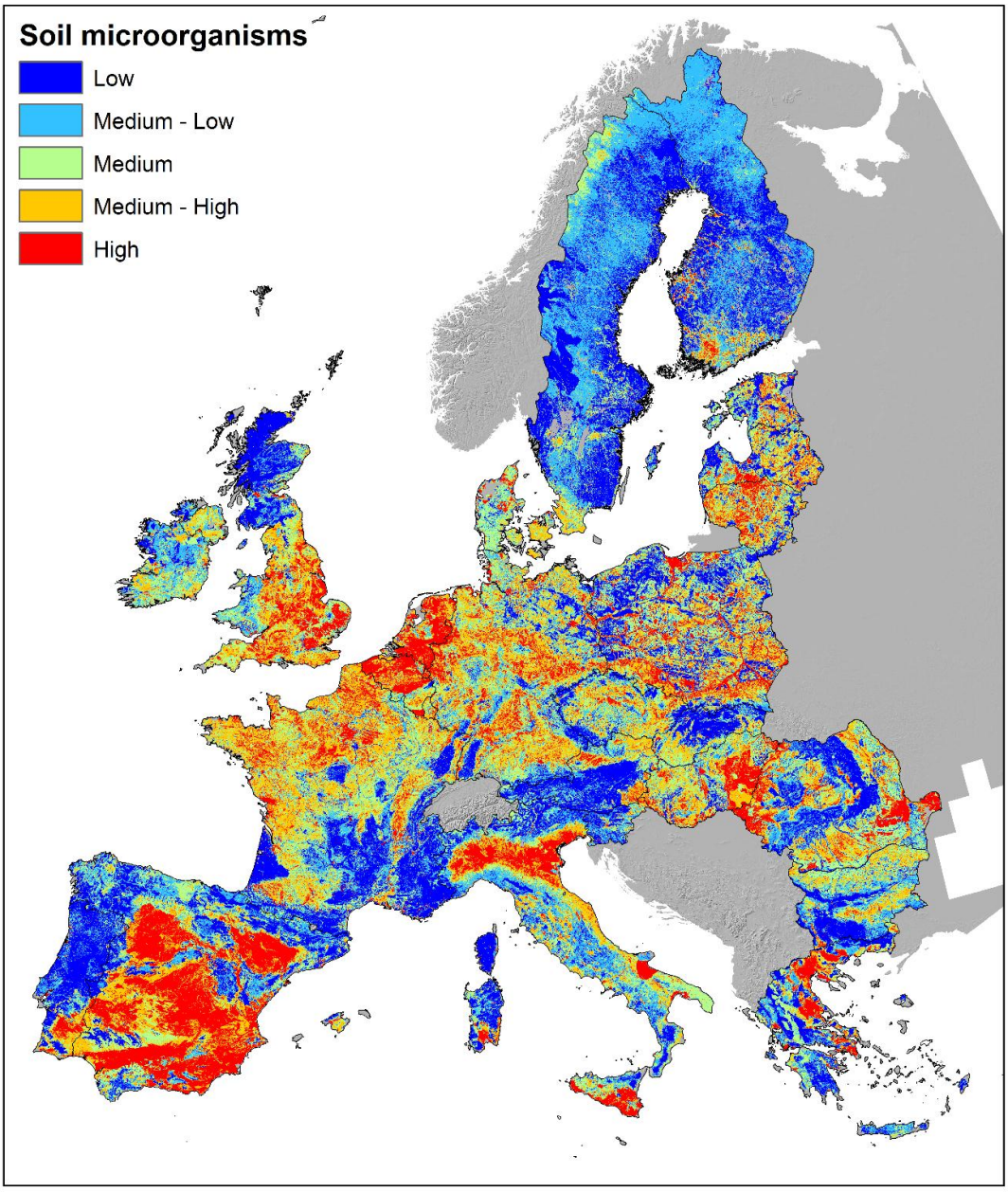

Figure 8. High-resolution (500 m grid cell size) map of potential threats to soil microorganisms in the European Union (excluding Croatia and Cyprus). The threat potential was arbitrarly divided into five classes, from low, i.e. risk absent or minimal, to high, i.e. maximum risk.

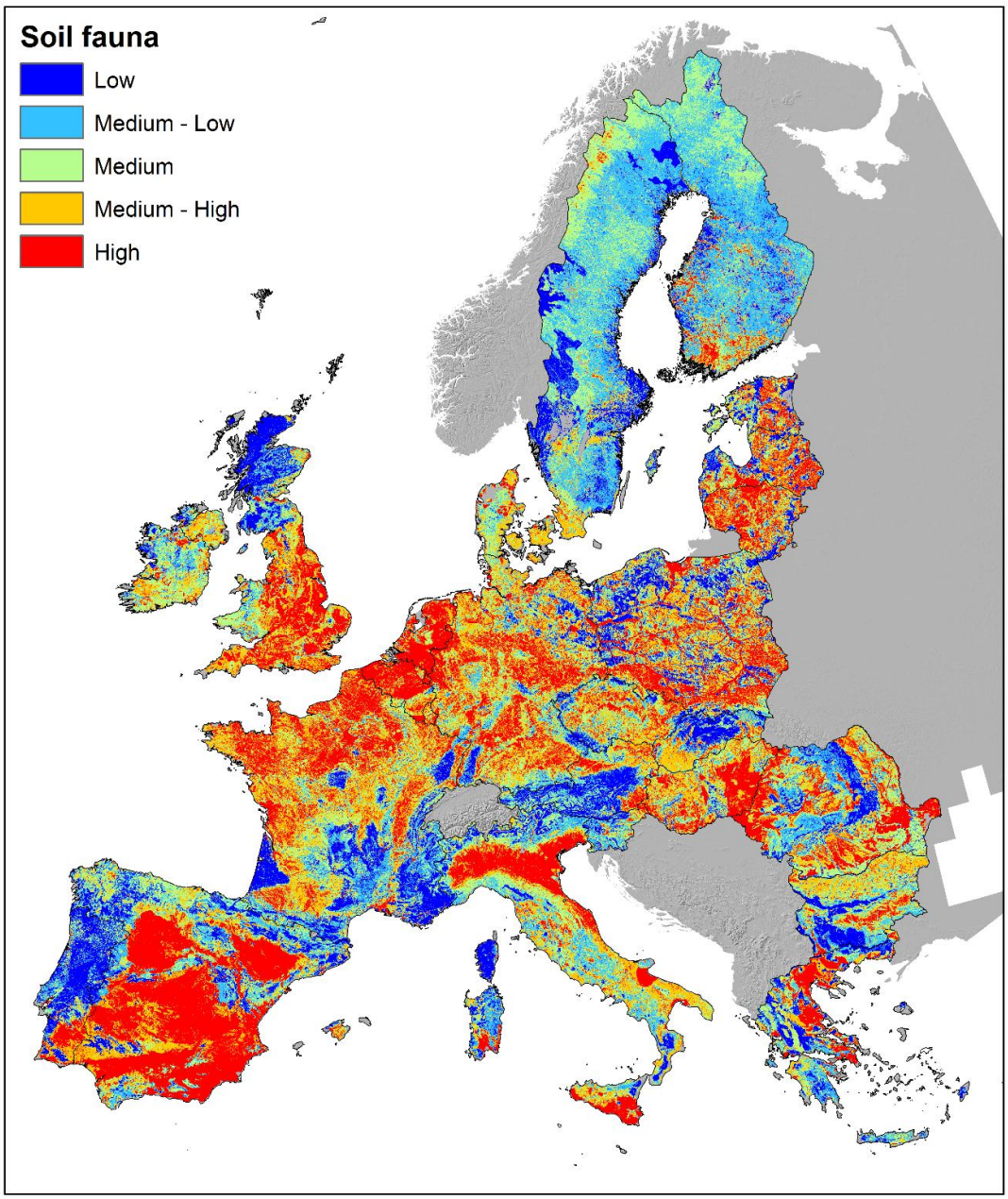

Figure 9. High-resolution (500 m grid cell size) map of potential threats to soil fauna

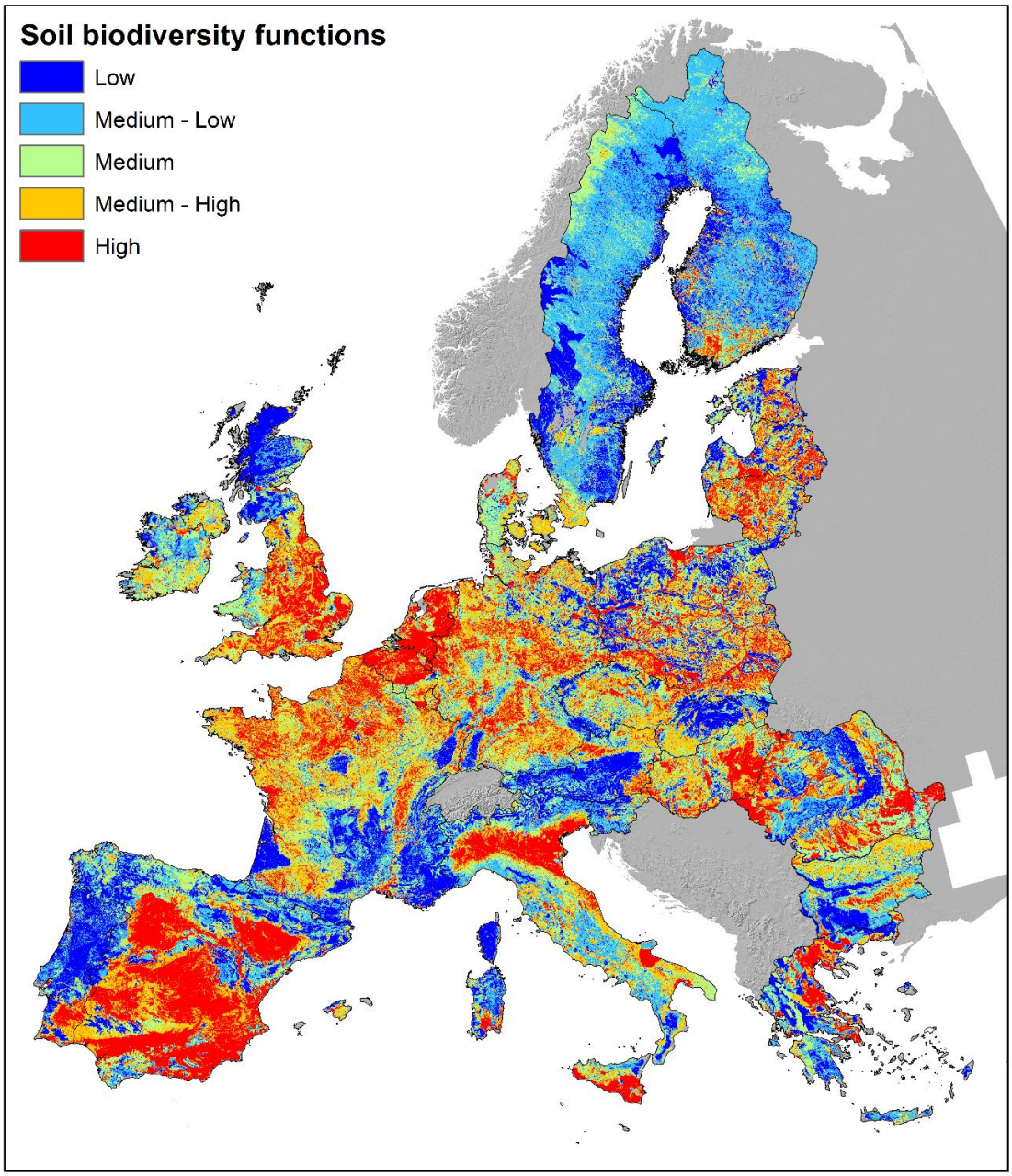

Figure 10: High-resolution (500 m grid cell size) map of potential threats to soil biodiversity functions

Project logo