SUPPLEMENTARY FILE TO: Ecosystem Services mapping and assessment for policy and decision-making: Lessons learned from a comparative analysis of European case studies (Geneletti et al.).

Table S1: An overview of the assessment of ecosystem condition in the selected case studies

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| Case Study | Assessment | Applied Data and/or method | Example of indicators used |
| Belgium | Assessment of conditions of the green infrastructure and pressures on the city | Process based models were used to map the pressures. A land cover map of 10x10m scale was used to identify the green and blue measures in the city, together with key protected areas and corridors to assess the value for biodiversity in addition to the ES.  | The selection of indicators was based on the main challenges cities face like climate change impact, environmental pollution and keeping there citizens happy and healthy. Different existing maps on related topics were used: land use map, Protected or not; air quality (µg/m³ Nox, PM10, PM2,5), noise hindrance (dB(A)), urban heat (radiation temperature), flood risk sewage network, areas with shortage local green |
| Bulgaria | Yes: As a part of a national assessment of urban ecosystems | Multiple data sources, such as cities’ digital cadastres, restored property plans, a digital orthophoto map used to outline urban ecosystems at level 3 of MAES typology. Several methods were used according to the data availability, including expert based assessment, use of statistical data and spatial proxy methods.  | A set of indicators based on the concept of ecosystem integrity. Vegetation cover derived from orthophoto images, soil sealing, trend of total CO2 emissions, climatic deficiency of potential humidity, integrated index of spatial structure of urban areas. All indicators have been normalized to 1-5 relative assessment scale.  |
| Finland | Yes | Participatory mapping by citizens of locations where there is harmful flooding due to rain water; Mapping of soil sealing; Mapping of connectivity of green infrastructure using Morphological Spatial Pattern Analysis and MatrixGreen methods;Including ecosystem condition related datasets in the GreenFrame analysis of the ES provision potential of the green infrastructure, such as high nature value farmlands, water areas having good ecological quality, etc.;Including spatial data on noise levels, good air quality, no disturbing odours, and areas needing regeneration due to landscape / townscape damages in Multi-criteria decision analysis | Flooded locations due to rain; % of impermeable land per sub-watersheds in current and planned future situation;Uniform green areas of different sizes (less than 3 ha, 3-10 ha, more than 10 ha), green connections, edges of green areas, etc.: % of green infrastructure belonging to each of the groups;Importance of each separate green area to the overall connectivity of green infrastructure (a score);Relative variation in the ES provision potential of the green infrastructure (score);A criterion / An indicator of avoiding nuisance and disturbances (sub-indicators: areas with low noise level, areas with good air quality, areas with no disturbing odours) |
| Germany | General assessment of ecosystem condition in very early studies.  | Conceptual approach |  |
| Hungary | Yes | Expert judgement complemented by data on the presence of biodiversity: the composition/diversity of the biotic components of an ecosystem is one of its most relevant characteristics determining capacities for a number of services. | The experts scored each habitat according to their general naturalness (scale 1 /lowest/ to 5 /highest/). As a modifying factor the number of protected vascular plant species occurring in each habitat polygon was used (rules: 1-4 species/polygon = +1 point; 5-10 species/polygon = +1.5 point; 11-20 species/polygon = +2 point; >21 species/polygon = +3 point). Protected vascular plants were considered good indicator species by the experts: understorey plants in forest habitats reflect naturalness while grassland species in open habitats mostly reflect to the management regimes in the past - or present landuse. |
| Italy | Only indirectly | Land use land cover and map of canopy coverage from aerial photographs. | type of soil cover and percentage of tree canopy coverage |
| Latvia | Yes:(i) Environmental status of marine waters, (ii) Benthic habitat condition, (iii) Ecological value of marine ecosystem | (i) MSFD Initial assessment, including descriptors – biodiversity, population of commercial fish and shellfish, elements of marine food webs, eutrophication, see-flor integrity ; (ii) Habitats Directive reporting according to Art. 17 requirements, (iii) A map of ecological values based on distribution of benthic habitats, algae, birds and fish species.  | (i) Benthic Quality Index, Spawning stock biomass, Zooplankton mean size vs. total stock, Summer chlorophyll a concentration; Depth distribution of Fucus vesiculosus and Furcellaria lumbricalis, Population structure of Macoma balthica; (ii) Conservation status of reef habitats;(iii) Ecological value per grid cell defined as sum of the following criteria: biodiversity, aggregation, rarity, naturalness, proportional significance. |
| Malta | Only indirectly | Land use land cover based on satellite image. | The characterization of the habitats and landscapes through the use of satellite images as a starting point for the assessment of ecosystem conditions. It is used as a proxy of the habitat and species characteristics and the pressures and disturbances acting on ecosystems |
| Poland | Yes | Analysis of Green Infrastructure fragmentation using Fragstats software based on Urban Atlas  | Mean patch area; Patch density; Euqlides Nearest Neighbour Distance; Mean Edge Contrast Index Distribution |
| Portugal (Azores) | Yes, Provided scientific information on the conditions of Azorean native forest through mapping and assessment of two ES (Pollination and Maintaining nursery populations and habitats) | Standardized sampling of arthropods in nature areas and pollinators in several types of land-uses | The selection of four indicators for pollinators (i.e. “insect pollinators richness”, “bee richness”, “bees abundance”, “insect pollinators abundance”) was based on the rational that they were easy indicators to be obtained and on the fact that species richness and abundance are surrogates of the diversity of ecosystems. Concerning the ES “Maintaining nursery populations and habitats”, the selected indicator is “Proportion of arthropod endemic species” given that it is expected that sites with a high proportion of endemic species have also lower proportion of exotic species and thus are more pristine and adequate to maintain nursery populations and habitats |
| Spain | Yes:Provided scientific information on the conditions of Spanish ecosystems through mapping and assessment key ES. | Multidimensional framework for assessing ESs, including methods ranging from biophysical (supply-side) to socio-cultural and economic approaches (demand-side).The assessment of the status and trends of ESs in Spain was performed using multiple indicators | Mapping and assessment diverse values of agricultural ESs: First, we quantified and mapped the importance of crop production expressed in biophysical (T/ha/yr) and monetary (€/ha/yr) units. Secondly, we mapped the ecological value of agro-ecosystems based on “High Nature Value farming areas” index. Thirdly we explored the spatial correlations between economic and ecological values to identify major land use patterns and trade-offs. Fourthly, we conducted a public consultation about Spanish population environmental concerns and the importance attributed towards ESs.  |
| Sweden | Main terrestrial land-cover types in a watershed gradient from alpine to marine environments with their representative and typical services.  | National monitoring data, biophysical assessment methods, reindeer husbandry digitalised data based on traditional indigenous knowledge, general additive modelling (GAM), socio-cultural methods | Area offorest land, distribution of forest age class, volume wood biomass and dominating tree species, length and density of ditches in forest, area and distribution of protected forest, old forest and old broadleaf-dominated forest, density of large trees, amount dead wood, area and distribution of priority habitats and species. Distribution and cover of forest floor lichen, edible berries, and of ptarmigan habitats. Numbers of reindeer, amounts of reindeer products (meat, skin, bones, antlers, milk used for tools and handicraft, extension of reindeer core and key areas, length and density of reindeer migration routes and amount and type of migration barriers. Area of open, grazed alpine heath, historical landscape remains of indigenous Sami land use and impact that are associated with reindeer and Sami culture. |