Scale of measurement	Ha
Data source	
Required data	Information on spatial distribution of SCI and SPA. Each EU Member has a Natura 2000 webpage, where the SCI and SPA maps can be consulted and, in some cases, downloaded. Considering that areas eligible as SCI are proposed to the Commission by the State Members, information from local authorities are needed.
Data input type	Quantitative
Data collection frequency	Annually
Level of expertise required	Medium
Synergies with other indicators	Related to indicators measuring the extension of habitat and areas and to indicators measuring the maintenance or restoration at a favourable conservation status of a natural habitat type or of a species.
Connection with SDGs	15
Opportunities for participatory data collection	Environmental stakeholders can be involved into the indicator measurement and can be interested in proposing areas to local authorities to be elected as SCI and SPA.
Additional information	
References	Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (art 1 k).

10.7.2 Article17 habitat richness

Project Name: CONNECTING Nature (Grant Agreement no. 730222)

Author/s and affiliations: Stuart Connop

Sustainability Research Institute, University of East London, UK

Article 17 habitat richness	**Biodiversity**
Description and justification	Habitat richness is a crucial component of biodiversity and habitat density describes how many bird habitats are encountered within a Functional Urban Area. This can be calculated using a count of Article 17 habitat types per hexagonal grid cell, derived from modified Article 17 dataset.

Definition	Measure of habitat richness of Article 17 habitats using bird habitat density as a habitat richness proxy as defined in The European Urban Biodiversity Index (EUBI).
Strengths and weaknesses	
Measurement procedure and tool	Method taken from The European Urban Biodiversity Index (EUBI): “The process involves several steps to obtain the Article 17 habitat count per hexagonal cell. At first a hexagonal grid with a unique identifier for each grid cell is created. This grid is merged with UA polygons which have been assigned towards specific MAES habitats with a crosswalk using the GIS Tool “Union”. In a second step the Article 17 GIS- data is clipped to the FUA Boundary and also merged with the grid. Through this process the created datasets obtain a common identifier within the hexagonal grid, which is the basis for further processing steps. The data is imported into a database system (MS-SQL) for further processing and cleaning operation. Article 17 hex-grid data are assigned towards specific MAES habitats using the species-habitat linkages database. The data is then joined using the common identifier assigned within the hexagonal grid as well as the MAES habitat. This enables the filtering out of habitats which may cover a grid cell, but which are not assigned to a MAES habitat within the cell and thus are unlikely to occur at that location.”
Scale of measurement	Functional Urban Area (city perimeter)
Data source	
Required data	Landcover, city perimeter and MAES habitats data
Data input type	Quantitative
Data collection frequency	Typically annual, but can be less frequent if resources are stretched.
Level of expertise required	Expertise is typically required either for habitat identification or interrogation of satellite imagery. This requirement can be reduced if low resolution land cover maps are used for calculations
Synergies with other indicators	Synergies with other greenspace mapping indicators and protected habitats and species indicators, particularly Article 17 listed species.

Connection with SDGs	SDGs 14, 15.
Opportunities for participatory data collection	Surveying habitats represents an excellent opportunity for widening participation. Alternatively, participatory GIS portals can be used to ground-truth satellite imagery.
Additional information	
References	Ruf, K., Gregor, M., Davis, M., Naumann, S. and McFarland, K., 2018. The European Urban Biodiversity Index (EUBI): a composite indicator for biodiversity in cities. ETC/BD report to the EEA. Reporting under Art. 17 Habitats Directive – Database: https://www.eea.europa.eu/data-and-maps/data/article-17-database-habitats-directive-92-43-eec-1 Reporting under Art. 17 Habitats Directive – GIS Data: https://www.eea.europa.eu/data-and-maps/data/article-17-database-habitats-directive-92-43-eec-1#tab-gis-data Urban Atlas (2012), Art. 17, WISE WFD reference spatial data sets – Surface Water Body (2016), Linkages of species and habitat types to MAES ecosystems

10.8 Number of veteran trees per unit area

Project Name: CONNECTING Nature (Grant Agreement no. 730222)

Author/s and affiliations: Stuart Connop

Sustainability Research Institute, University of East London, UK

Number of veteran trees per unit area	**Biodiversity**
Description and justification	In addition to the multifunctional benefits that are provided by trees, veteran trees play a crucial role in the conservation of biodiversity. An effective measure of conservation of veteran trees is the number of such trees within a unit area (e.g., Formal Urban Area).
Definition	Although not as old as ancient trees provide holes, cavities and crevices which are especially important for wildlife. In particular, trees with decay containing cavities are important habitats for many saproxylic invertebrate species. As such, targets and measures of number of veteran trees in a landscape can contribute the biodiversity conservation objectives and strategies. Whilst provision of nature-based solutions rarely created new veteran trees (due to long time-sales involved in veteran tree development), nature-based solutions can