# 10 Additional Indicators of Biodiversity Enhancement

## 10.1 Proportion of natural areas within a defined urban zone

**Project Name:** UNaLab (Grant Agreement no. 730052)

**Author/s and affiliations:** Laura Wendling[1], Ville Rinta-Hiiro[1], Maria Dubovik[1], Arto Laikari[1], Johannes Jermakka[1], Zarrin Fatima[1], Malin zu-Castell Rüdenhausen[1], Peter Roebeling[2], Ricardo Martins[2], Rita Mendonça[2]

[1] *VTT Technical Research Centre Ltd, P.O. Box 1000 FI-02044 VTT, Finland*

[2] *CESAM – Department of Environment and Planning, University of Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal*

| Proportion of natural area | Biodiversity |
|---|---|
| **Description and justification** | Biodiversity is the measure of biological variety in the environment and it has an important role in functioning ecosystems services and health of environment and society. Biodiversity is an aspect of natural environment that is most directly affected by anthropogenic influence. City biodiversity is seen as an important aspect of sustainable and resilient urban development. Natural areas are defined as ecosystems, which are not significantly influenced by human actions and comprise mainly of native species in natural environments. Such environments are important in preserving biodiversity as natural areas typically harbour much larger biodiversity than urban or constructed green spaces. |
| **Definition** | Proportion of natural areas within a defined urban zone (fraction or %) |
| **Strengths and weaknesses** | + Simple and easy to assess<br>- Does not imply the intactness of biodiversity but provides a measure for habitat evaluation |
| **Measurement procedure and tool** | The area can be calculated using mapping tools, including satellite images from Google Maps. Calculate the share of the sum of natural and naturalized areas to the total area to get the indicator value. Natural areas include forests, swamps, streams, lakes, etc., but exclude parks and green infrastructure. Re-naturalized areas can be included. |
| **Scale of measurement** | District to region scale |
| **Data source** | |
| **Required data** | Data on zones in natural or naturalized condition in the urban area of interest from, e.g., government agencies, municipalities, nature groups, universities, etc. |
| **Data input type** | Quantitative |

| | |
|---|---|
| **Data collection frequency** | Annually |
| **Level of expertise required** | Low |
| **Synergies with other indicators** | Partly related to *Reclamation of contaminated land* indicator |
| **Connection with SDGs** | SDG 11 Sustainable cities and communities, SDG 13 Climate action, SDG 15 Life on land |
| **Opportunities for participatory data collection** | No opportunities identified |
| **Additional information** | |
| **References** | Chan, L., Hillel, O., Elmqvist, T., Werner, P., Holman, N., Mader, A., & Calcaterra, E. (2014). User's Manual on the Singapore Index on Cities' Biodiversity (also known as the City Biodiversity Index). Singapore: National Parks Board, Singapore. |

## 10.2 Area of habitats restored

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

**Author/s and affiliations:** Stuart Connop

*Sustainability Research Institute, University of East London, UK*

| **Area of habitats restored** | **Biodiversity** |
|---|---|
| **Description and justification** | When NBS delivery is associated with the restoration of target habitats (e.g., Article 17 habitats, national priority habitats, or local priority habitats), quantification of the extent of restored habitats can function as an indicator of success. |
| **Definition** | Extent of habitat as a proportion of total area, or total area of a specific habitat type (e.g., proportion of amenity grassland restored to wildflower meadow. |
| **Strengths and weaknesses** | A simple and effective measure of habitat change, but this must be updated regularly and combined with condition assessment surveys to be sure that habitat restoration is successfully conserved |