

<b>References</b>	EEA (2014) Terrestrial habitat mapping in Europe: an overview: Joint MNHN-EEA Technical report No 1/2014: <a href="https://www.eea.europa.eu/publications/terrestrial-habitat-mapping-in-europe/at_download/file">https://www.eea.europa.eu/publications/terrestrial-habitat-mapping-in-europe/at_download/file</a>
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### 10.3 Shannon Diversity Index of habitats

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Shannon Diversity Index of Habitats		Green Space Management Biodiversity
<b>Description and justification</b>	This indicator is defined as the simple ratio of the natural areas (An) per the total area (Ac). The objective is to determine if the NBS solution increases or maintains the proportion of areas supporting biodiversity in the city or neighbourhood.	
<b>Definition</b>	Indicates the proportion of bare turf and sparse vegetation, grassland and herbs, shrubs, trees and of built environment to the total area.	
<b>Strengths and weaknesses</b>	+ standardizable, which makes the comparison with other cities easier	
<b>Measurement procedure and tool</b>	<ul style="list-style-type: none"> <li>- spreadsheet methods</li> <li>- or GIS-based models (spatial resolution of 1 meter)</li> <li>- calculation method:</li> </ul> $D = - \sum_{i=1}^5 (p_i \log_2 p_i)$ <p>Where pi corresponds to the proportion of each of the five kind of habitat</p>	
<b>Scale of measurement</b>	Object and neighbourhood scale	
<b>Data source</b>		
<b>Required data</b>	- Proportion of each class of habitat	
<b>Data input type</b>	quantitative	
<b>Data collection frequency</b>	Before and after the NBS implementation	

<b>Level of expertise required</b>	It is relatively easy to calculate, but field data is required.
<b>Synergies with other indicators</b>	Shannon Index and Biotope Area Factor are also based on landcover data and assess the vegetation coverage and their quantities comparing to the total surveyed area.
<b>Connection with SDGs</b>	SDG 13 Climate action, SDG 15 Life on land
<b>Opportunities for participatory data collection</b>	-
<b>Additional information</b>	
<b>References</b>	<p>Cornelis, Johnny, and Martin Hermy. "Biodiversity Relationships in Urban and Suburban Parks in Flanders." <i>Landscape and Urban Planning</i> 69, no. 4 (October 30, 2004): 385–401. doi:10.1016/j.landurbplan.2003.10.038.</p> <p>Nagendra, H. (2002). Opposite trends in response for the Shannon and Simpson indices of landscape diversity. <i>Applied Geography</i>, 22(2), 175-186.</p> <p>Whitford, V., A. R. Ennos, and J. F. Handley. "'City Form and Natural Process'—indicators for the Ecological Performance of Urban Areas and Their Application to Merseyside, UK." <i>Landscape and Urban Planning</i> 57, no. 2 (November 20, 2001): 91–103. doi:10.1016/S0169-2046(01)00192-X</p> <p>Nature4Cities, D2.1 - System of integrated multi-scale and multi-thematic performance indicators for the assessment of urban challenges and NBS.  <a href="https://www.nature4cities.eu/post/nature4cities-defined-performance-indicators-to-assess-urban-challenges-and-nature-based-solutions">https://www.nature4cities.eu/post/nature4cities-defined-performance-indicators-to-assess-urban-challenges-and-nature-based-solutions</a>.</p> <p>Nature4Cities, D2.2 - Expert-modelling toolbox</p> <p>Nature4Cities, D2.3 – NBS database completed with urban performance data  <a href="https://www.nature4cities.eu/post/applicability-urban-challenges-and-indicators-real-case-studies">https://www.nature4cities.eu/post/applicability-urban-challenges-and-indicators-real-case-studies</a></p> <p>Nature4Cities, D2.4 - Development of a simplified urban performance assessment (SUA) tool</p>