Indicator Factsheet: Diversity of land cover classes

Indicator: Landscape composition **Sub-Indicator: Diversity of land cover classes**	
Description	The indicator describes the diversity of the landscape and reflects the variety of different land cover classes per reference unit. Quantification is carried out using the Shannon-Wiener index (*H*). The representation is based on the Shannon element count (or 'effective number of classes' or 'Hill number'). This is a measure of the number of classes in a landscape required, assuming an equal distribution of classes, to achieve the corresponding Shannon index value.
Data basis	Digital Basic Landscape Model (Basis-DLM) from the Official Topographic and Cartographic Information System (ATKIS), aggregated to the land cover classes specified in Annex 1, Level 2 of the 2024 Indicator Report.
Calculation	(1)Shannon-Wiener Index: $H = -\sum_{i} pLS_i \cdot lnpLS_i$mit $pLS_i = \frac{a_i}{A_{LS}}$ $pLS_i =$ proportion of land cover class i ; $a_i =$ area class i; $A_{LS} =$ total area (2)Shannon Hill number : ${}^{1}D = exp\,(H)$
Spatial reporting level	**Coverage**: National; **Resolution**: Hexagons (100 ha, proportion of open land > 25%); **Reference area**: Landscape
Reporting period/ interval	from 2017 / annually
Interpretation	Higher Shannon Hill number counts generally indicate greater landscape diversity. High landscape diversity is present when several classes have similar proportions. If, on the other hand, one land cover class dominates, this leads to lower index values. The Shannon index is generally sensitive to classes with moderate area proportions and is therefore suitable for quantifying complex landscape patterns. The maximum value of the Shannon Hill number is equal to the total number of classes present. The reference area for the calculation is the total area of the respective reference unit (e.g., hexagon).
Limitations	Although higher index values indicate greater landscape diversity, they do not necessarily imply higher biodiversity, as qualitative characteristics of individual land cover classes are not included in the calculation.
Latest Update	2026