9.5 Number of species within defined area per Shannon Evenness Index

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Shannon Evenness Index	**Biodiversity**
Description and justification	The Shannon Evenness Index provides information about area comparison and species richness. It gives information about homogeneity of individual distribution between species in the community
Definition	Shannon Evenness Index it is calculated as Shannon Diversity Index dived by its maximum. It varies between 0 and 1, heterogeneous vs homogeneous
Strengths and weaknesses	Strengths • applicable to different taxonomic group • easy to interpret • easy to apply and very plastic, in fact we can use it for flora and fauna • repeatable and standardized • cheaper data collecting Weaknesses • high staff specialization • high sampling efforts
Measurement procedure and tool	Shannon Evenness Index needs semiquantitative data. In this case, data must be collected through linear transect (linear paths with fixed length), in which experts record number of specimens for each species
Scale of measurement	Interval scale
Data source	
Required data	Number of individuals for each species recorded
Data input type	Number of individuals for each species recorded
Data collection	Butterfly survey: at least once a month from April to September Bee survey: at least once a month from April to September Plant survey: at least once a month from April to September

frequency	
Level of expertise required	Shannon Evenness Index is easy to apply but data collection required high level of taxonomic knowledge, in order to recognise the correct species
Synergies with other indicators	Shannon Evenness Index is in synergy with “Global Warming Potential” indicator, because our target taxa (bees, butterflies and vegetation) are very sensitive to Global Warming and so we can see remarkable change in the community composition. This index has also a connection with “Equivalent used soil”, indeed we know that soil with a high degree of naturalness hosts a greater biodiversity. This indicator could also affect “Greenness” and “Walkability” indicator since the number of pollinator species is highest in open meadow environments
Connection with SDGs	Shannon Evenness Index is in connection with 15th SDGS that aims to protect and preserve a suitable use of terrestrial ecosystem. Indeed this index could be a scientific evaluation of change in biodiversity richness, and can guide political choices in land management
Opportunities for participatory data collection	It is possible to involve citizens in butterfly surveys, through Citizen Science projects. It is necessary a proper volunteer training that allow them to recognise butterfly species and to learn transect sampling methods.
Additional information	
References	https://ec.europa.eu/eurostat/statisticsexplained/index.php/Glossary:Shannon_evenness_index_(SEI) https://ec.europa.eu/eurostat/statisticsexplained/index.php?title=File:Shannon_Diversity_Index_and_Shannon_Evenness_Index,_2009.PNG Mårtensson, R. (2016). Species and Biological Diversity-Choices of Diversity Indices and their Potential Consequences for Nature Conservation