

Biosphere-Viewer

Background

The Taskforce on Nature-related Financial Disclosures (TNFD), aims to shift the global financial trend and to cause changes to be nature positive. TNFD encourages companies to identify, address, and report on the nature-related dependencies and impacts, and risks and opportunities of their business activities. For this purpose, TNFD has developed and provides a framework for risk management and disclosure, and presents TNFD global disclosure metrics.

Nature Contributions to People (NCP), was proposed, prior to TNFD, in the Global Assessment Report on Biodiversity and Ecosystem Services 2019 published by IPBES: The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. NCP is an alternative concept to "ecosystem services" that has been used in the past to assess the value of nature's contribution to human life.

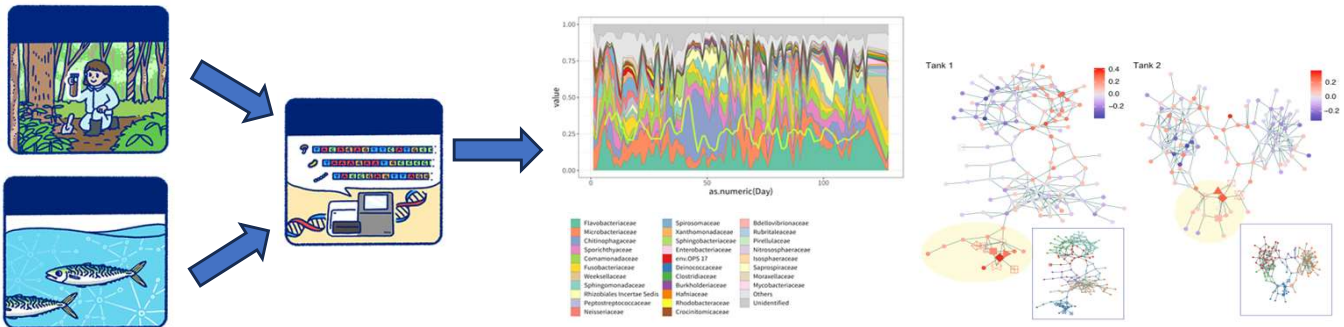
TNFD global disclosure metrics and NCP are key biodiversity indicators, respectively. These two indicators do not necessarily define a specific evaluation methodology, nor is there a strong direct relationship between the two. Thus, there is a need for practical analytical methods or tools that target and bridges the gap between the two. On the basis of accumulated expertise in ecology, genomics, and information science that is the result of basic research conducted by the Hirokazu Toju Laboratory of Kyoto University, we have developed an analytical tool or flow, enabling visualization and objective evaluation of "biodiversity and environment, that is, Biosphere".

Tools (Biosphere-Viewer)



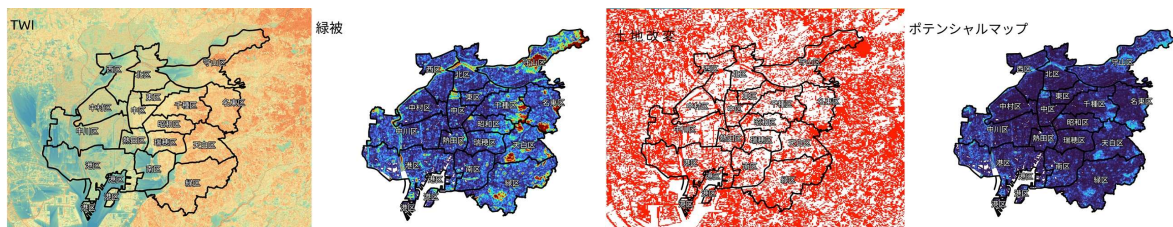
A) Environmental DNA Analysis

- Collecting Samples from soil or water environment, which is the foundation of various industrial activities.
- DNA metabarcoding; prokaryotic 16S rRNA, eukaryotic 18S rRNA, fungal ITS.
- Elucidating the diversity and structure of biomes, time-series monitoring, and visualizing interactions between organisms.



B) Geographic Information Analysis (GIS)

- Ad hoc analysis of environmental factors to be considered for each business sector.
- Quantification of habitat potential using Land-use category, Topographic Wetness Index, NDVI and other methods.
- Integrating environmental DNA data with GIS to predict changes in biomes in both space and time.



C) Fieldwork

- Collect information on " biomes on the spot " through surveys by ecological experts and image analyses of local landscapes.
- On the spot design of the target biome or Biosphere-Design.

