

# Biodiversity Assessment Initiatives

GUIDE FOR DECISION MAKERS

## List of authors

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## HOW TO USE THIS GUIDE

### ABOUT

The [One Planet Program on Sustainable Food Systems](#) is a multistakeholder initiative aiming to achieve food systems that are sustainable and deliver food security and nutrition for present and future generations. The initiative currently has more than 120 members from government agencies, intergovernmental organizations, civil society organizations, the private sector, and scientific and technical organizations.

The current document has been developed by a project team on biodiversity, coordinated by the One Planet Sustainable Food Systems Program. The following organizations have contributed:

I Care & Consult, Sayari, Bioversity International, IUCN, UN Environment, Cambridge Institute for Sustainability Leadership, Global Nature Fund & Lake Constance Foundation, ETH Zurich, and Nestlé Research.

The current report is a summary of the complementary document “Technical report on existing methodologies & tools for biodiversity metrics”, [available on the One Planet Network website](#). While the complementary technical report is recommended for a technical audience, e.g. method developers, the current document is intended for executive decision makers.

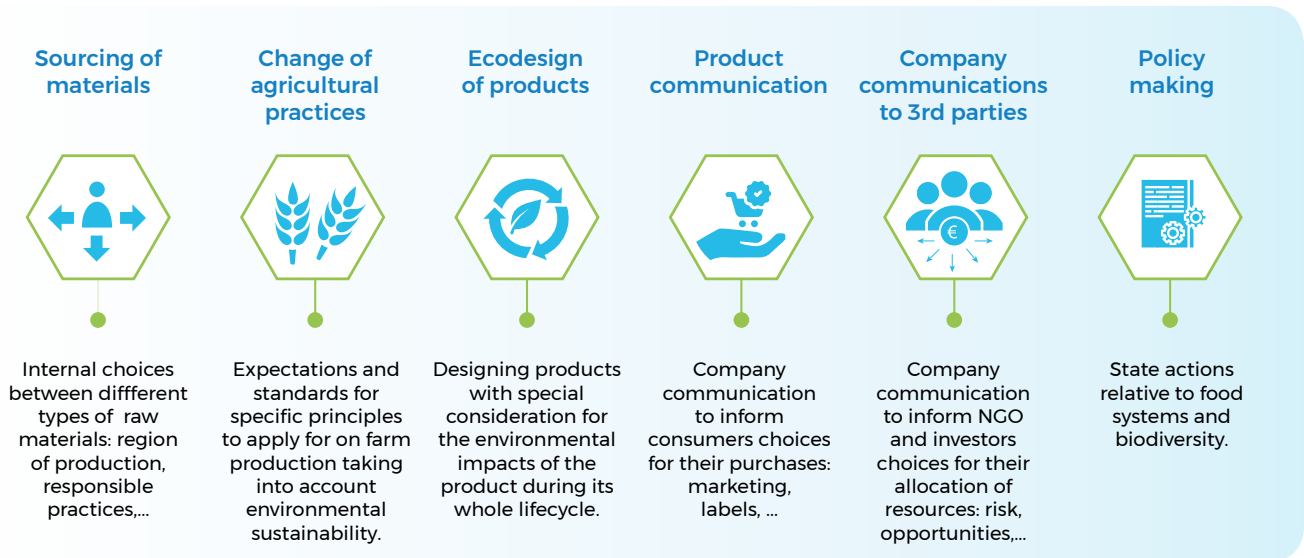
### WHY GUIDANCE ON BIODIVERSITY?

Biodiversity loss is one of the principal global challenges in pursuit of the Sustainable Development Goals, with SDGs 14 (Life Below Water) and 15 (Life On Land), in particular, being directly concerned with biodiversity. Addressing this challenge requires sound metric systems to monitor both ongoing loss of biodiversity and success of conservation measures. Yet there is currently no generally accepted, reliable, and actionable biodiversity system of metrics. Such system of metrics is needed if biodiversity should be assessed alongside more established environmental impacts, for instance for greenhouse gas emissions. In addition, communicating on biodiversity is more challenging due to its intrinsic complexity and the lack of simple units, such as CO<sub>2</sub>-eq for carbon footprint. Furthermore, biodiversity needs to be assessed across multiple levels and spatial and temporal scales to yield meaningful results – this includes the landscape level for which there are many current tools and methods but an apparent lack of cohesion or compatibility among methods, landscape types and taxa.

### WHAT THIS REPORT BRINGS

**This report has collected biodiversity assessment methods that are being used by the member organizations involved.** Other approaches exist, and we do not mean to recommend the methods in the current report over other methods. This report describes and compares characteristics of different assessment methods and compares methods according to a number of objective criteria and attributes. This should enable users of methods to better understand which biodiversity assessment method is best suited for their application. We do not expect to be able to develop or recommend a single biodiversity assessment approach that suits every possible application of biodiversity assessments.

Biodiversity metrics aim to be useful to decision-making, from the company to the citizen. From a decision-maker perspective (private or public), we have identified six main objectives for biodiversity metrics:



➤ **Internal business decision-making**

- Sourcing of materials:
  - ▶ plans to establish a production site at a given location, or to source ingredients from a specific area (ideally avoiding high conservation value areas, or contributing to biodiversity preservation in such areas)
  - ▶ Hotspot assessments to evaluate where biodiversity protection measures could make the most sense or yield the best results per investment
- Change of agricultural production practices in a given region and for a given crop
- Eco-design of products, to protect diverse food systems and support biodiversity on the field

➤ **Business external communication, to substantiate communication on biodiversity to third parties, e.g. :**

- Product communication for customers
- Company communication to 3rd parties (NGOs and investors)

➤ **Policy making**

Furthermore, this report (and the more comprehensive [“Technical report”](#) associated) also helps method developers on biodiversity to better understand other biodiversity assessment methods that are being promoted, and to identify areas of overlap, and methodological gaps. It is expected that such comparisons enable a methods alignment process, while keeping the diversity of tools which is necessary to fulfill the different objectives above.

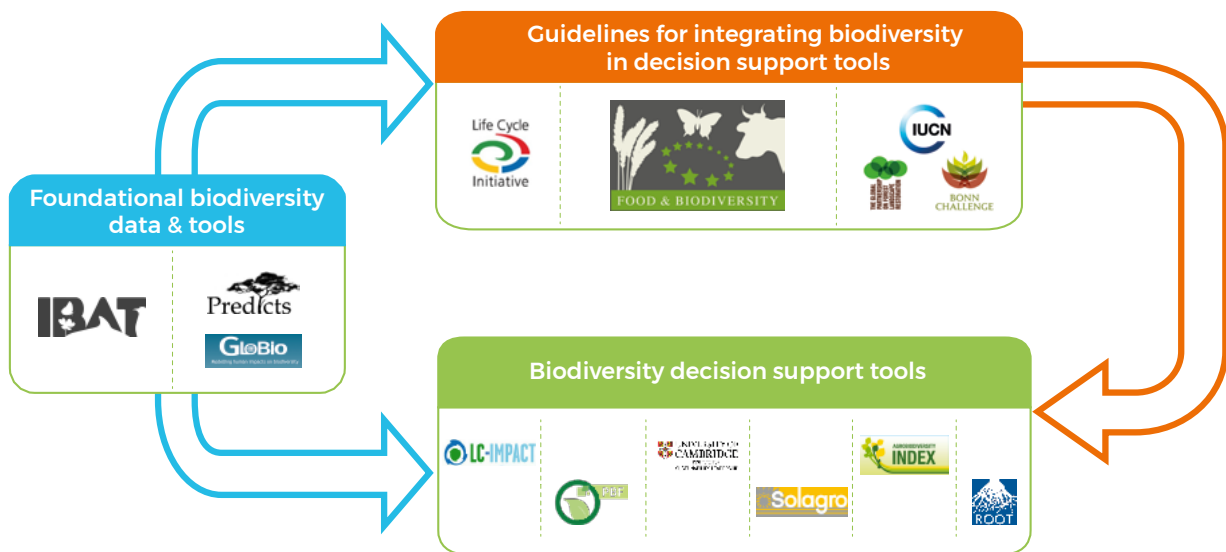
## OVERVIEW OF METHODS INCLUDED

In the current report, we have included three types of biodiversity assessment initiatives:

- 1) **Foundational biodiversity data & tools** that are not by themselves directly useable for decision making (except IBAT), but deliver crucial data on biodiversity, on which other assessments methods can build;
- 2) **Guidelines** that aim at establishing consensus on how biodiversity should be assessed. These are mostly used by an expert audience with a good technical understanding of biodiversity concepts;
- 3) **Biodiversity decision support tools** that are built on foundational data and implement guidelines into a simplified interface that can be used by a non-expert audience. Decision makers will mostly rely on this type of assessment.



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We've included in our overview a total of 12 assessment methods for biodiversity (listed in the table of page 8). While the "Technical report" assesses in detail all three categories of tools, the "Guide for decision makers" focuses on "Biodiversity decision support tools", expecting these will be most useful for decision makers. Still the following section gives a quick overview of "Foundational biodiversity data and tools" as well as of "guidelines for integrating biodiversity". Therefore, the following section gives a brief overview of "Foundational biodiversity data & tools" and "Guidelines for integrating biodiversity in decision support tools" for reference, followed by a detailed mapping of "Biodiversity decision support tools". The table in page 8 provides an overview of the methods included in our assessment.



## QUICK OVERVIEW OF FOUNDATIONAL DATA & TOOLS AND GUIDELINES

### Foundational biodiversity data & tools



- **The Integrated Biodiversity Assessment Tool (IBAT)** provides key decision-makers with access to critical information on biodiversity priority sites to inform the decision-making processes and address any potential biodiversity impacts. It includes the IUCN Red List of Threatened species, the World Database on Protected Areas, the World Database of Key Biodiversity Areas TM (KBA).



- **Projecting Responses of Ecological Diversity In Changing Terrestrial Systems (PREDICTS)** is a collaborative project aiming to use a meta-analytic approach to investigate how local biodiversity typically responds to human pressures such as land-use change, pollution, invasive species and infrastructure, and ultimately improve our ability to predict future biodiversity changes.



- **GLOBIO** is a modelling framework to calculate the impact of environmental drivers on biodiversity for past, present and future. It is based on cause-effect relationships, derived from the literature, including the following drivers: land use, atmospheric nitrogen deposition, infrastructure, fragmentation, climate change. Impacts on biodiversity are captured in terms of the biodiversity indicators Mean Species Abundance (MSA) and Ecosystem extent.

### Guidelines for integrating biodiversity in decision support tools



- **Land Use Impacts on Biodiversity in Life Cycle Impact Assessment:** this guideline aim to provide a measurable and simple indicator or guidance on how to assess potential impacts due to land use on biodiversity in Life Cycle Assessment.



- **Biodiversity in Standards and Labels for the Food Sector (Global Nature Fund, Lakes Constance Foundation, Fundación Global Nature, Solagro, IST, agoodforgood and AUF!):** this initiative is directed at standard setting organizations and companies with individual sourcing requirements, to improve biodiversity performance of the food industry by including effective biodiversity criteria into standards and requirements, training of assessors, certifiers and managers and cross-standard monitoring.













- **Guidelines for Biodiversity in Forest Landscape Restoration Assessments (IUCN) and the Restoration Opportunities Assessment Methodology:** these guidelines provide practitioners with tools and knowledge to translate between biodiversity conservation goals and forest landscape restoration objectives and to utilize effective assessments and information on biodiversity in designing assessments and strategies at national and sub-national scales.

## FOCUS: ANALYTICAL MAPPING OF BIODIVERSITY DECISION SUPPORT TOOLS

We have developed an analytical mapping of key initiatives to help businesses and policy-makers to find the right tools to measure the impact of human activities on biodiversity. The present report presents a summary of this mapping. The full mapping includes further criteria, and extends beyond the decision support tools – we recommend interested stakeholders to consult the full mapping in the technical report, available [here](#).





The first mapping (table 1) focuses on different scales – from a product scale to organization, supply chain, territory, or production system scale. Decision making focusing on product innovation should typically use product-level decision support tools, such as the methodologies that are developed for life cycle assessment applications (LC-Impact and Product Biodiversity Footprint). These tools would likely not have sufficient granularity to inform decisions on agricultural production systems, which would work better using e.g. the Biodiversity Impact Metric, Biodiversity Performance, or Agrobiodiversity Index metrics. At a territorial level, food system tools such as ROOT take into account complex interactions across an agricultural production system across a larger territory.

**Table 1: Biodiversity decision support tools at different scales**

	 Territory	 Agricultural production system	 Product	 Organisation
LC-METHOD method 	✓	✓	✓	
Product Biodiversity Footprint 	✓		✓	
Biodiversity Impact Metric 	✓	✓		✓
Biodiversity performance tool 	✓	✓		
Agrobiodiversity index 	✓	✓		✓
ROOT 	✓			

Second (see table 2) biodiversity initiatives have been mapped according to their purpose or supported application. All methods can be used for several applications, and for most applications, there is the choice of using several complementary methods. Sourcing of material and improvement of agricultural practices are the most targeted objectives. Product eco-design is only supported by the two life cycle assessment-derived methods LC-Impact and Product Biodiversity Footprint. Interestingly, communication (to third parties or consumers) is currently supported only by two tools, but should be integrated in the future development of other approaches.

**Table 2: Mapping of biodiversity decision support tools according to their application**

		 Sourcing of materials	 Change of agricultural practices	 Ecodesign of products	 Product communication	 Company communication to 3rd parties	 Policy making
LC-METHOD method		✓		✓	✓		✓
Product Biodiversity Footprint		✓	✓	✓	✓		
Biodiversity Impact Metric		✓	✓			✓	
Biodiversity performance tool			✓		✓		
Agrobiodiversity index		✓	✓		✓	✓	✓
ROOT			✓				✓

The third mapping (see table 3) describes the different types of pressures that the biodiversity assessment methods take into account. Land use is the most frequently assessed pressure, and all tools take land use into account. Other key pressures on biodiversity such as water stress, pollution and climate change are also taken into account by a majority of tools, in order to capture the full impact of business activity on biodiversity.

**Table 3: Types of pressures taken into account by the different biodiversity decision support tools**

		 Land use	 Water stress	 Pollution	 Climate change	 Other pressures
current						
planned						
LC-METHOD method		✓	✓	✓	✓	
Product Biodiversity Footprint		✓	✓	✓	✓	✓
Biodiversity Impact Metric		✓	✓			
Biodiversity performance tool		✓	✓	✓	✓	✓
Agrobiodiversity index		✓				✓
ROOT		✓	✓	✓	✓	✓













## OUTLOOK

To illustrate potential applications of the biodiversity assessment methods described in the present report, the authors have set up a case study compilation. This compilation is available online [here](#), and will be extended, as new case studies become available. As many of the biodiversity assessments contained in this report are in the process of being finalized, the case study compilation at the moment of publication of this report, is still rather limited in size. Note that we would like the case study compilation to be as broad as possible, and therefore are looking for contributions – if you have applied any of the methods described in this report in a case study, feel free to contact the authors and submit your case study.

The authors of this report agree that more work is required before biodiversity will be mainstreamed and systematically applied in business decision making. In particular, the availability of suitable data for biodiversity assessments is often limited. This applies to specific regional contexts, specific crop types, and agricultural practices with a specific impact on biodiversity. Therefore, as the next steps in the biodiversity work, we intend to specifically focus on the delivery and transformation of data and the adaptation of data into the data formats required for the different assessment methods presented in this report.

In addition to the data availability and data format issues above, we understand that different organizations will see additional barriers for further application of biodiversity assessments. We therefore encourage stakeholders to reach out to the project team through the One Planet Network website to highlight other issues that they believe should be addressed, and where a multi-stakeholder project group on biodiversity could make a meaningful difference.

**Table 4: Overview of Biodiversity Assessment Methods included in our comparison**

Name of Method	Owned / developed by	Type of approach	Where can I get more info?
IBAT 	IUCN, UN Environment World Conservation Monitoring Centre, Conservation International, and BirdLife International.	Foundational data & tools	<a href="http://www.ibat-alliance.org">www.ibat-alliance.org</a>
Globio 	PBL Netherlands Environmental Assessment Agency, UNEP GRID-Arendal and UNEP-WCMC	Foundational data & tools	<a href="http://www.globio.info">www.globio.info</a>
Predicts 	Natural History Museum & UN-Environment	Foundational data & tools	<a href="http://www.predicts.org.uk">www.predicts.org.uk</a>
Biodiversity in Standards & Labels 	Lake Constance Foundation / Global Nature Fund and Partners	Guidelines	<a href="http://www.business-biodiversity.eu/en/biodiversity-criteria-in-standards">http://www.business-biodiversity.eu/en/biodiversity-criteria-in-standards</a>
Land Use Impacts on Biodiversity in LCA 	Life Cycle Initiative / ETH Zurich	Guidelines	<a href="http://www.lifecycleinitiative.org/training-resources/global-guidance-lcia-indicators-v-1/">http://www.lifecycleinitiative.org/training-resources/global-guidance-lcia-indicators-v-1/</a>
Biodiversity in Forest Restoration Assessment 	IUCN	Guidelines	<a href="https://portals.iucn.org/library/sites/library/files/documents/2018-022-En.pdf">https://portals.iucn.org/library/sites/library/files/documents/2018-022-En.pdf</a>
LC-Impact Method 	European Consortium (including NTNU, RUN, ETH)	Decision Support Tools	<a href="http://lc-impact.eu/downloads/%20documents/LC-Impact_report_%20SEPT2016_20160927.pdf">http://lc-impact.eu/downloads/%20documents/LC-Impact_report_%20SEPT2016_20160927.pdf</a>
Product Biodiversity Footprint 	I Care & Consult, Sayari	Decision Support Tools	<a href="http://www.productbiodiversityfootprint.com/">http://www.productbiodiversityfootprint.com/</a>
Biodiversity Impact Metric 	University of Cambridge, Institute for sustainability leadership	Decision Support Tools	<a href="https://www.cisl.cam.ac.uk/publications/working-papers-folder/healthy-ecosystem-metric-framework">https://www.cisl.cam.ac.uk/publications/working-papers-folder/healthy-ecosystem-metric-framework</a>
Biodiversity Performance Tool 	Solagro and Partners	Decision Support Tools	<a href="https://solagro.com">https://solagro.com</a>
Agrobiodiversity Index 	Bioersity International	Decision Support Tools	<a href="https://www.bioersityinternational.org/abd-index/">https://www.bioersityinternational.org/abd-index/</a>
ROOT 	IUCN and the Natural Capital Project	Decision Support Tools	<a href="https://portals.iucn.org/library/sites/library/files/documents/2018-031-En.pdf">https://portals.iucn.org/library/sites/library/files/documents/2018-031-En.pdf</a>