



# Experimental Biodiversity Accounting?

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@IUCNscience

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# Work to date...

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**77**

**ECOSYSTEM NATURAL CAPITAL ACCOUNTS:**

**A Quick Start Package**

**Coordinating Lead authors:** Steven King and Lucy Wilson. **Lead authors:** Matthew Dixon, Claire Brown and Eugenie Regan. **Contributing authors:** Ralph Blassey, Ruth Fletcher, Hedley Grantham (Conservation International), Matthew Ling, Brian O'Connor, Marlies Savels, Made Christensen, Corinne Martin.

This work was undertaken by the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) as part of the project Advancing the SEEA Experimental Ecosystem Accounting. This note is part of a series of technical notes developed as an input to the *SEEA Experimental Ecosystem Accounting*. It includes a synthesis of the work undertaken by the Convention on Biological Diversity (CBD) in collaboration with the United Nations Environment Programme (UNEP) through its Economics of Ecosystems and Biodiversity Office, and the Secretariat of the Convention on Biological Diversity (CBD). It is funded by the Norwegian Ministry of Foreign Affairs.

**Logos:** International Monetary Fund, World Bank, European Environment Agency, UNEP-WCMC, IUCN, République Française.

**United Nations** **UNEP** **Convention on Biological Diversity** **NORWEGIAN MINISTRY OF FOREIGN AFFAIRS** **The Economics of Ecosystems and Biodiversity**

**Experimental Biodiversity Accounting as a component of the System of Environmental-Economic Accounting Experimental Ecosystem Accounting (SEEA-EEA)**

**Coordinating Lead authors:** Steven King and Lucy Wilson. **Lead authors:** Matthew Dixon, Claire Brown and Eugenie Regan. **Contributing authors:** Ralph Blassey, Ruth Fletcher, Hedley Grantham (Conservation International), Matthew Ling, Brian O'Connor, Marlies Savels, Made Christensen, Corinne Martin.

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**System of Environmental Economic Accounting**

**SEEA EEA REVISION**

**OPTIONS FOR INCORPORATING BIODIVERSITY IN THE SEEA**

**Discussion note**

Version: 14 June, 2019

Prepared by Carl Obst, UNSD Consultant with input from Tom Brooks (IUCN), Joachim Maes & Balint Cruz (EU JRC) and Emily Nicholson (Deakin University).

**EXECUTIVE SUMMARY**

This note discusses the use of the term and concept of "biodiversity" in the System of Environmental-Economic Accounting (SEEA), including both the SEEA Central Framework and the SEEA Experimental Ecosystem Accounting (SEEA EEA). The paper starts from the definition of biodiversity provided in the Convention on Biological Diversity (CBD) spanning genetic, species, and ecosystem levels of ecological assessment. The same definition has been the starting point for discussion in the SEEA EEA but the assessment in this paper finds that, in general, the use of the term "biodiversity" in the SEEA EEA is used as a synonym for "species abundance/diversity", that is, the abundance and diversity of species within individual ecosystems. The paper also recognises that the concept of biodiversity (although not the term) also figures in the SEEA Central Framework at ecosystem levels (implicitly within the land cover accounts) and at species levels (within the natural resource asset accounts eg timber, fisheries).

The SEEA EEA offers a more comprehensive coverage, but it does not create a single "biodiversity account". Thus some aspects (e.g. the presence/abundance of ecosystem types) are covered by the ecosystem extent accounts, many others (e.g. the abundance and diversity of local species populations) are incorporated in the condition accounts, but some aspects (e.g. the genetic diversity within the species, and capturing beta or global diversity) are not covered.

This note identifies a number of aspects for consideration in the current revision of the SEEA EEA, and as part of the broader process of implementation and development of the SEEA. The intention of these proposals is to ensure that the SEEA accounts appropriate reflect all levels of diversity, that the definitions used are consistent in wording and interpretation with those of the CBD and other MEAs, and that descriptions and terminology are clear and unambiguous. The proposals are:

**SEEA**

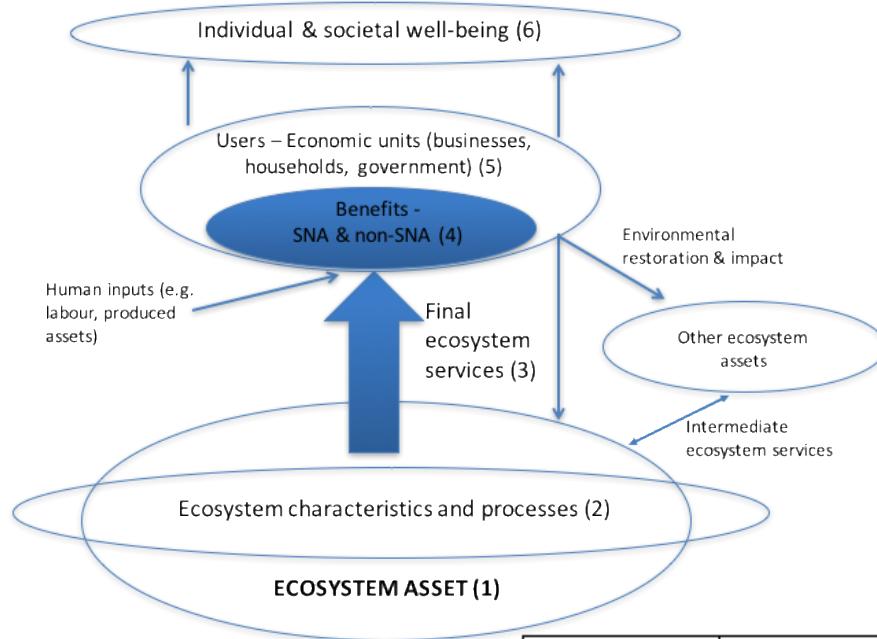


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<https://www.cbd.int/doc/publications/cbd-ts-77-en.pdf>

<https://www.unep-wcmc.org/news/guidance-on-experimental-biodiversity-accounting-using-the-seea-eea-framework>

## Core structure of SEEA-EEA



1.	Ecosystem extent account – physical terms
2.	Ecosystem condition account – physical terms
3.	Ecosystem services supply and use account – physical terms
4.	Ecosystem services supply and use account – monetary terms
5.	Ecosystem monetary asset account – monetary terms

# Definition of “biodiversity”

Have agreed as follows:

## *Article 1. Objectives*

The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

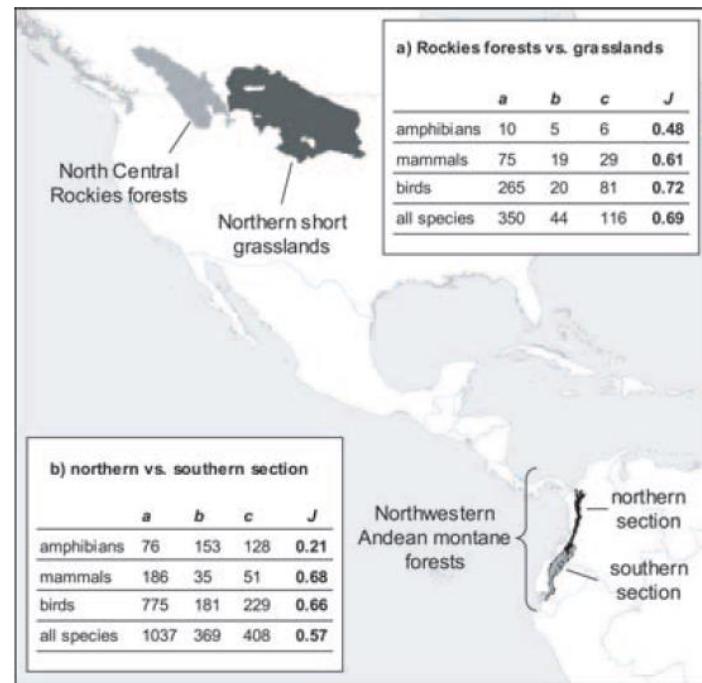
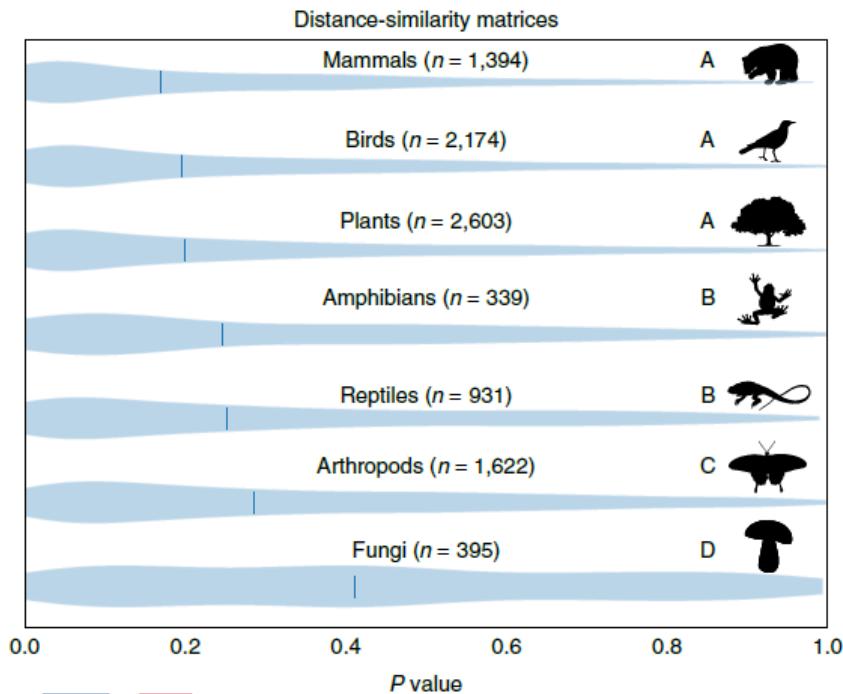
## *Article 2. Use of Terms*

For the purposes of this Convention:

*“Biological diversity” means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems.*

*“Biological resources” includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with*

# Imperfect nestedness among levels of biodiversity



## Species level ecosystem services





# Data availability (ecosystems)

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# Data availability (species)

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## AMAZING SPECIES



ANIMALIA - MAMMALIA

### Santiago Galapagos Mouse

*Nesoryzomys swarthi*

Unknown

GLOBAL

 VU

PLANTAE - MAGNOLIOPSIDA  
***Malus sieversii***

 Decreasing



ANIMALIA - MAMMALIA

### Black Rhinoceros

*Diceros bicornis*

 Increasing

GLOBAL

 CR



ANIMALIA - MAMMALIA

### Indian Pangolin

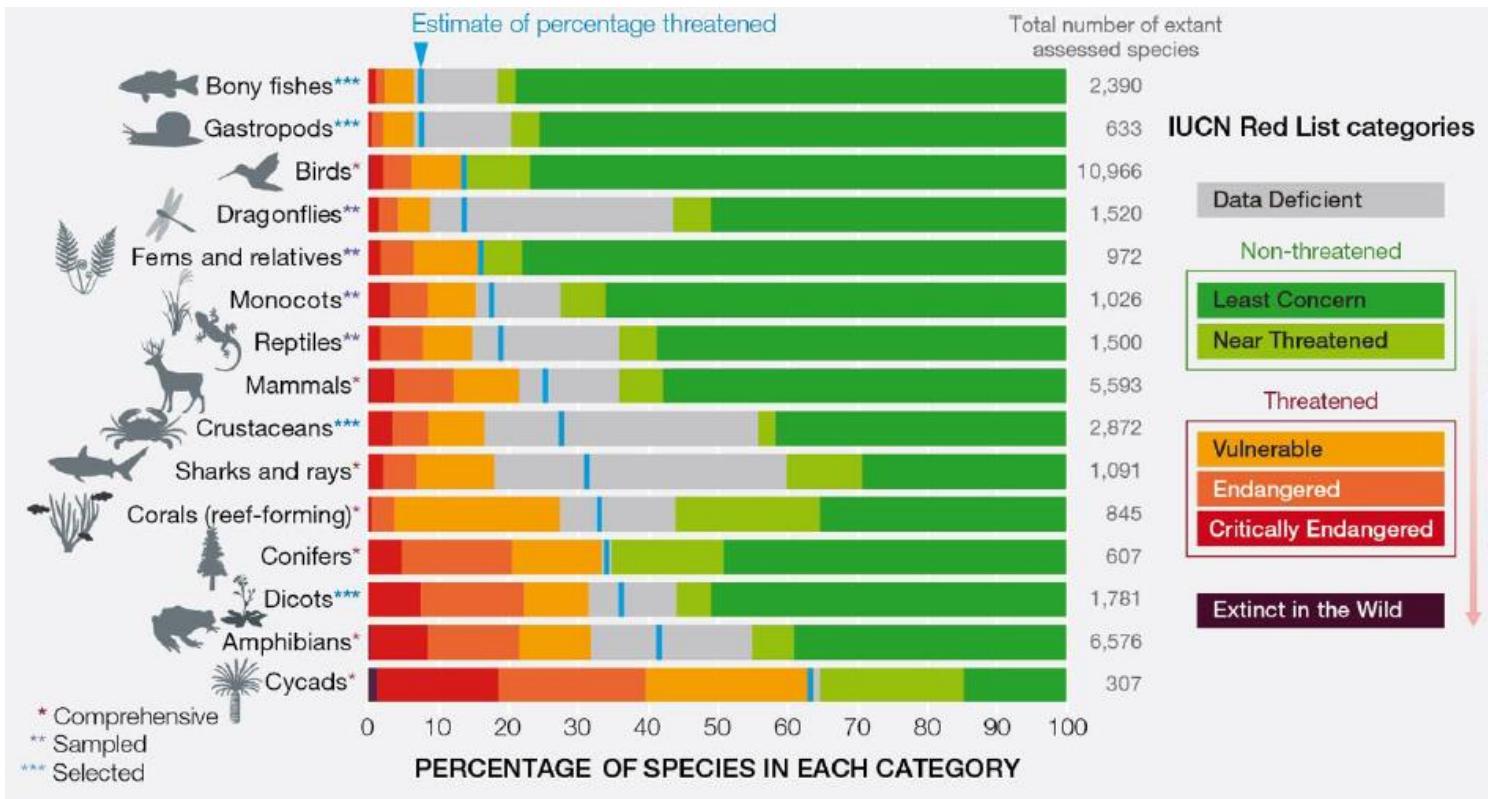
*Manis crassicaudata*

 Decreasing

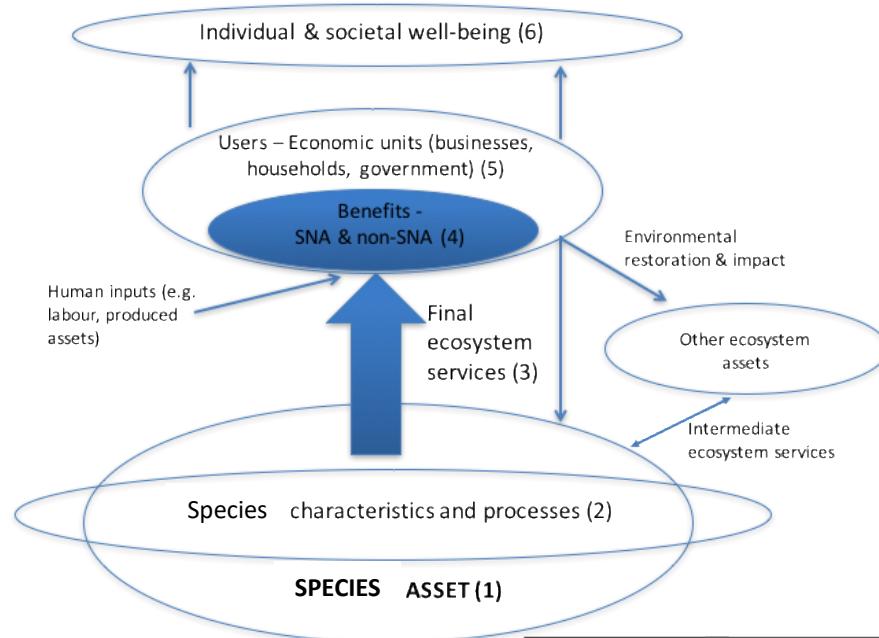
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## Spanning ~40,000 species

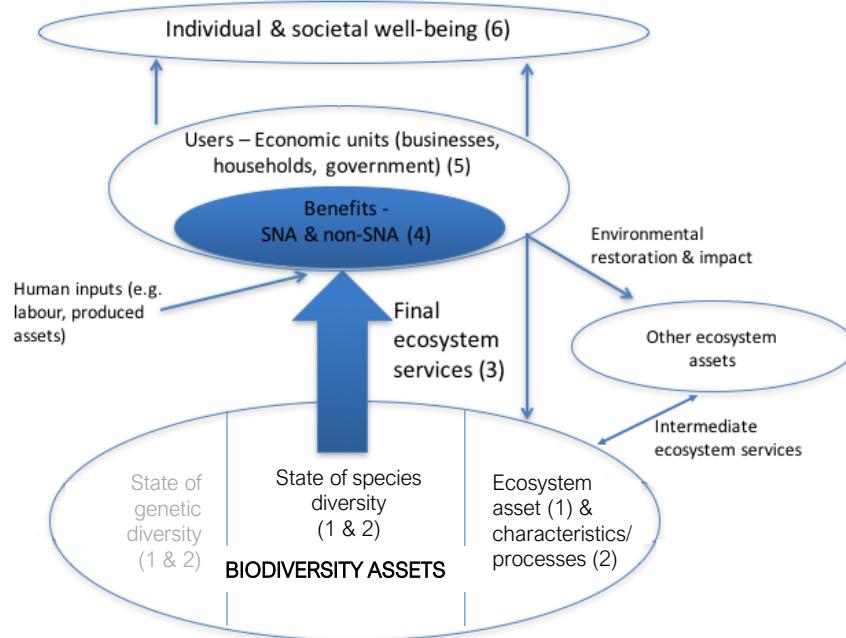


## Possible complementary structure – SEEA-ESA



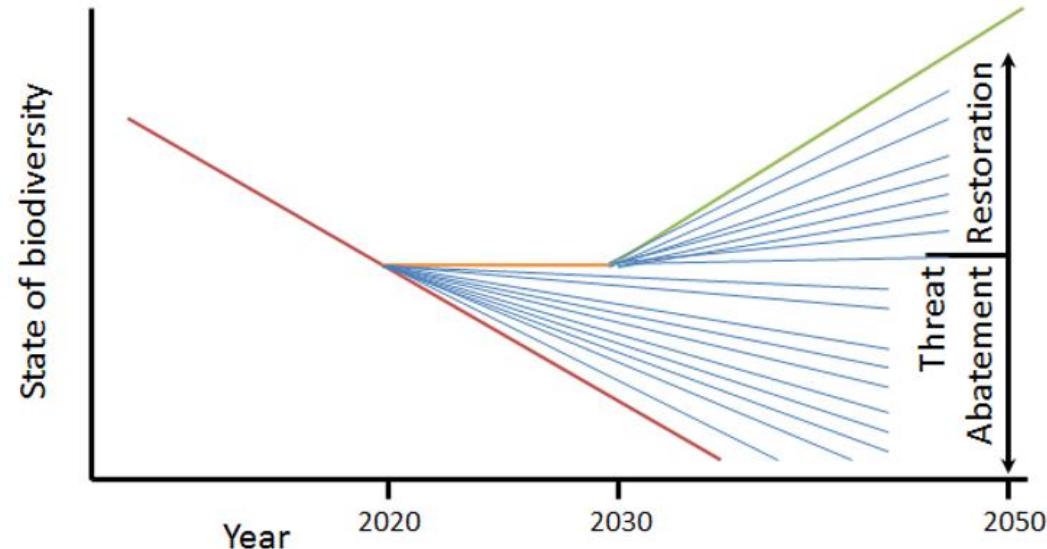
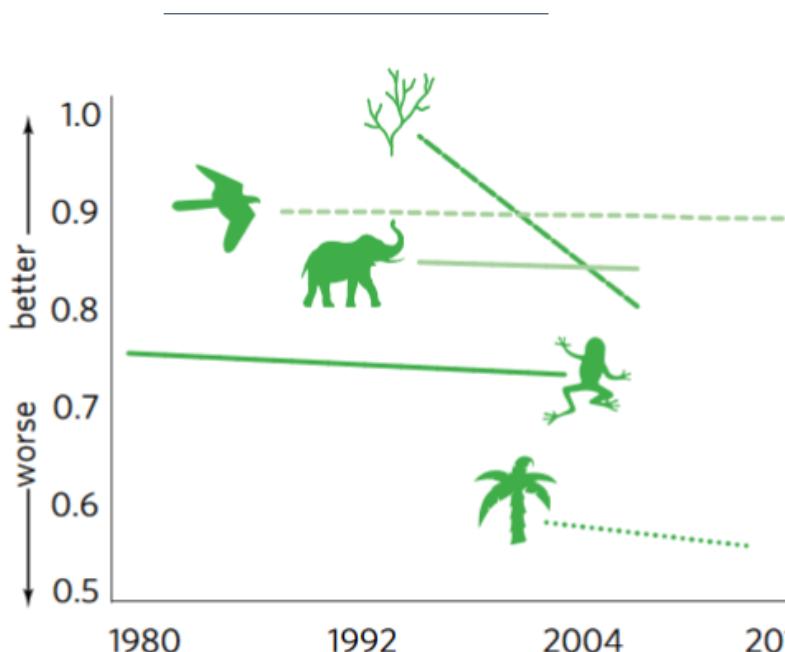
1.	Species	extent account – physical terms
2.	Species	condition account – physical terms
3.	Ecosystem services supply and use account	– physical terms
4.	Ecosystem services supply and use account	– monetary terms
5.	Ecosystem monetary asset account	– monetary terms

## Possible complementary structure – SEEA-EBA



1.	Biodiversity extent account – physical terms
2.	Biodiversity condition account – physical terms
3.	Ecosystem services supply and use account – physical terms
4.	Ecosystem services supply and use account – monetary terms
5.	Ecosystem monetary asset account – monetary terms

## Science-based targets for the post-2020 biodiversity agenda



# Integrated Biodiversity Assessment Tool

The world's most authoritative biodiversity data for your world-shaping decisions



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