IPBES TCA Chapter 1. Literature and data review regarding the underlying causes of biodiversity loss / IPBES transformative change assessment

Project leaders:

Julia Leventon (leventon.j@czechglobe.cz)

Jerneja Penca (jerneja.penca@zrs-kp.si)

Esther Turnhout (e.turnhout@utwente.nl)

Researchers:

Janita Gurung (janita.gurung@icimod.org)

Rainer Krug (rainer.krug@senckenberg.de)
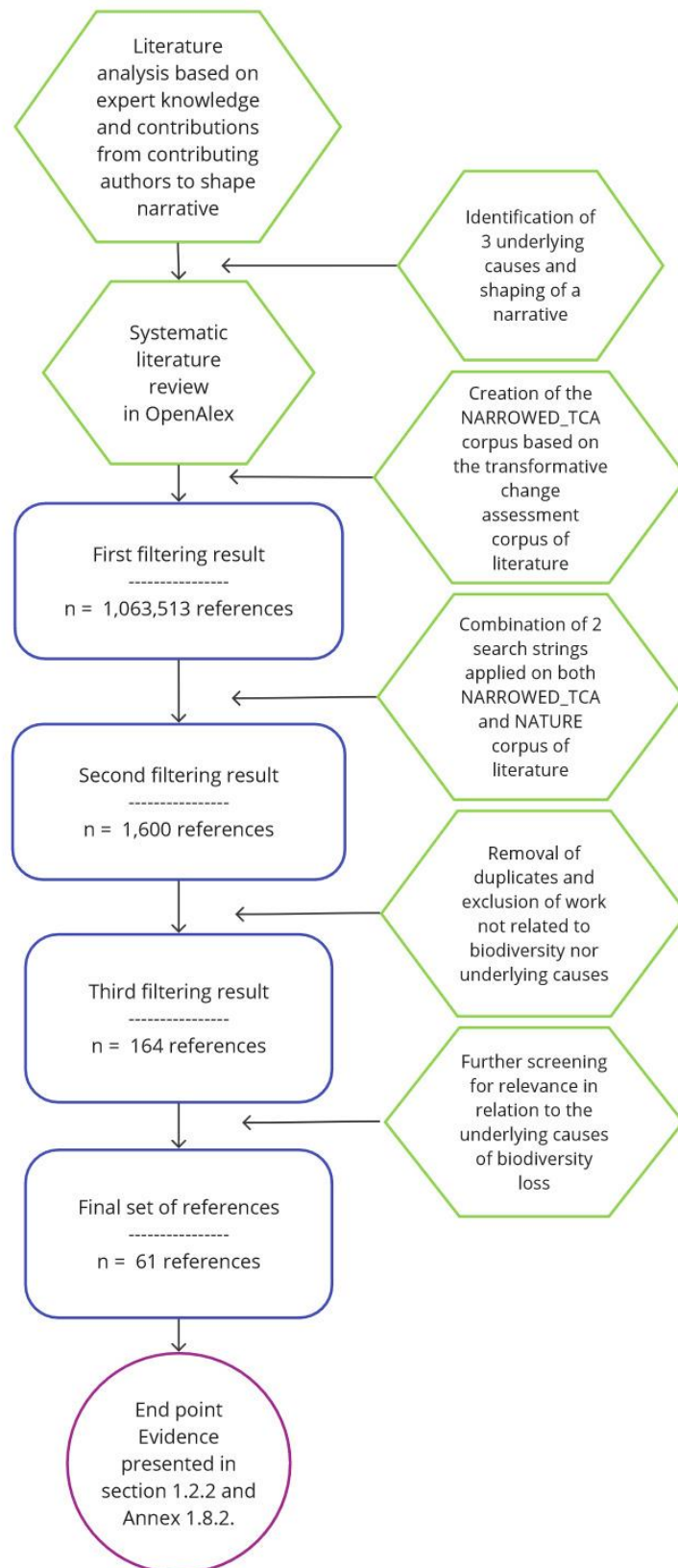
Fern Wickson (fern.wickson@uit.no)

Data curator:

Anouk Renaud (anouk.renaud@umontpellier.fr)

Description

The IPBES scoping document for the transformative change assessment describes that chapter 1 should address "the direct and indirect drivers of biodiversity loss and nature deterioration, including climate change and development and environmental inequities, and how to reverse biodiversity loss and restore and safeguard nature and its contributions to people. The chapter will consider the impacts of production and consumption systems, resource use and extraction, trade and financial flows, pollution, legacies of colonialism, and of human population dynamics and social practices related to nature and the resultant distribution of material and non-material benefits, degradation of nature and vulnerabilities across global societies and scales." The section 1.2.2 provides evidence on the underlying causes of biodiversity loss and responds to the above mandate. In this context, an assessment of the literature has been conducted and is further described below.

Process overview

Literature analysis based on expert knowledge and contributions from contributing authors to shape narrative

Identification of 3 underlying causes and shaping of a narrative

Systematic literature review in OpenAlex

Creation of the NARROWED_TCA corpus based on the transformative change assessment corpus of literature

First filtering result
----
n = 1,063,513 references

Combination of 2 search strings applied on both NARROWED_TCA and NATURE corpus of literature

Second filtering result
----
n = 1,600 references

Removal of duplicates and exclusion of work not related to biodiversity nor underlying causes

Third filtering result
----
n = 164 references

Further screening for relevance in relation to the underlying causes of biodiversity loss

Final set of references
----
n = 61 references

End point
Evidence presented in section 1.2.2 and Annex 1.8.2.

Protocol

The evidence informing Chapter 1 subsections 1.2.2 and 1.2.3 was gathered in two main steps as follows:

Process 1: Literature analysis based on expert knowledge

Based on their expertise and on texts received by contributing authors in response to the invitation under section 1.3., the project leaders selected an extensive number of publications (academic articles, books, opinions and news items) to identify the root-causes of biodiversity loss and nature's decline and started shaping the narrative about the inter-related factors of the underlying causes of biodiversity loss.

Process 2: Systematic literature analysis using the transformative change assessment corpus of literature

In order to support the three underlying causes identified as a result of the expert-based knowledge review, a systematic literature review has been done using the transformative change assessment corpus of literature. With support from the IPBES data task force, the assessment experts followed these steps :

1. The transformative change assessment corpus of literature is very broadly defined, mainly because it uses separate words and not connected ones. To remedy this, the following search string was applied to the transformative change assessment corpus of literature in OpenAlex and experts selected works that contained the terms as defined in NARROWED_TCA:

   Transformation OR "Transformative Change" OR Transition OR revolution OR "Deep Change" OR "deep shift" OR "deep reform" OR "Fundamental Change" OR "fundamental shift" OR "fundamental reform" OR "Radical change" OR "Radical change" OR "radical shift" OR "radical reform" OR "Revolutionary change" OR "revolutionary shift" OR "revolutionary reform" OR "Systemic change" OR "systemic shift" OR "systemic reform" OR "System wide change" OR "system wide shift" OR "system wide reform" OR "System-wide change" OR "System-wide shift" OR "system-wide reform" OR "Structural change" OR "structural shift" OR "structural reform"

   This resulted in **1,063,513 works (4.1)**

2. Based on the NARROWED TCA and the NATURE corpus of literature, the experts focused on the selection of literature discussing the underlying causes of biodiversity loss. Literature that included the terms in BIODIV_LOSS_1 was selected:

"Environmental crisis" OR "environmental destruction" OR "biodiversity loss" OR "biodiversity crisis" OR "nature's decline" OR "polycrisis" OR "planetary disruption" OR "planetary crisis" OR "global crisis" OR "global crises" OR Environmental Crises" OR "unsustainable" OR "sustainability crisis"

AND included the terms included in BIODIV_LOSS_2:

"Underlying cause" OR "Structural cause" OR "Root cause" OR "Systemic cause" OR "Significant cause" OR "key cause" OR "fundamental cause" OR "Underlying problem" OR "Structural problem" OR "Root problem" OR "Systemic problem" OR "Significant problem" OR "key problem" OR "fundamental problem" OR "Underlying issue" OR "Structural issue" OR "Systemic issue" OR "fundamental issue" OR "Underlying reason" OR "Structural reason" OR "Systemic reason" OR "Significant reason" OR "key reason" OR "fundamental reason" OR "Underlying driver" OR "Structural driver" OR "Systemic driver" OR "Significant driver" OR "key driver" OR "fundamental driver" OR "Persistent challenge" OR "Persistent obstacle" OR "persistent Barrier"

3. These two combined (6.1 and 6.2) represented **1,600 unique works** in total that were all screened for relevance. Specifically, experts filtered out duplicates, works that were not about biodiversity, nature or environment, or that did not discuss underlying causes, for example because they were only referring to direct drivers. This resulted in **164 works** for more in-depth analysis.

4. These 164 works were further screened for relevance and relation to underlying causes. Several papers have been excluded because of lack of relevance.

5. This resulted in **61 works** (A) that were coded. These references are included in Chapter 1, section 1.2.2 and Annex 1.8.2.

Definition of files

ID	Names	File Type	Size	Description
A	1_IPBES_TCA_1.4_06_2024_(A)	csv	15KB	Final 61 references supporting the identified underlying causes of biodiversity loss