



Life Cycle Initiative

A joint organisation
of UNEP & SETAC



LCIA Global Guidance Flagship Project

Phase 1: Biodiversity loss & land use

Phase 2: Ecosystem services & soil quality

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LCIA Global Guidance Flagship Project

- Provide **global guidance** and **build consensus** on environmental Life Cycle Impact Assessment indicators.
- More specifically
 - Identify **best-suited indicator** or set of indicators,
 - Develop **scientifically sound methods** to quantify them
 - Provide **characterization factors** with corresponding uncertainty and variability ranges
- **Motivation** for Consensus LCIA Indicators
 - Global supply chains of products and multinational companies ask for consensual set of environmental indicators
 - EC asks for broadly accepted indicators for its PEF activities
 - UNEP SETAC Life Cycle Initiative has long-term experience with consensus-finding processes



LCIA Global Consensus Project: Biodiversity Land Use TF

GOAL

To provide **global guidance and consensus building** regarding indicators and methods for the assessment of **biodiversity impacts from Land Use** in LCA

Tasks developed

- ❖ **Critical review of the existing framework for LU impact assessment** ✓
- ❖ **Expert workshops + Stakeholder consultations** ✓
- ❖ **Review and evaluation of existing indicators** ✓
- ❖ **Pellston workshop: Recommendation on models, indicators** ✓
- ❖ **Call for case studies**

Biodiversity & Land Use: Pellston Workshop™

Recommendation

- We **provisionally** recommend the global average CFs based on the method developed by **Chaudhary et al. (2015)** as suitable to assess impacts on biodiversity due to land use and land use change as **hotspot analysis** in LCA only.
- Suggested name for the indicator **Potential Species Loss from Land Use**. The indicator can be applied both as:
 - a regional indicator (**PSL_{reg}**), where changes in relative species abundance within the ecoregion is included
 - a global indicator (**PSL_{glo}**) where also the threat level of the species on a global scale is included

Chaudhary, A., Veronesi, F., de Baan, L. & Hellweg, S. (2015) *Quantifying Land Use Impacts on Biodiversity: Combining Species–Area Models and Vulnerability Indicators*. [Environmental Science & Technology](#), 49, 9987–9995

Biodiversity & Land Use: Impact Pathway

LIFE CYCLE INVENTORY

IMPACT CATEGORIES

DAMAGE CATEGORIES

LAND OCCUPATION AND TRANSFORMATION

LAND USE MANAGEMENT AND INTENSITY

What?

How?

Where?

IMPACTS ON HABITAT STRUCTURE

Physical changes to vegetation cover /land structure

Fragmentation

Degradation

Conversion

Habitat heterogeneity

Physical changes to soil

Erosion

Sealing

SOC changes

Compaction

IMPACT ON ECOSYSTEMS

Ecosystem vulnerability

Ecosystem representativeness

IMPACT ON SPECIES (ABOVE AND BELOW-GROUND)

Species composition

Species abundance

Functional diversity

Genetic diversity

Number of endemic species

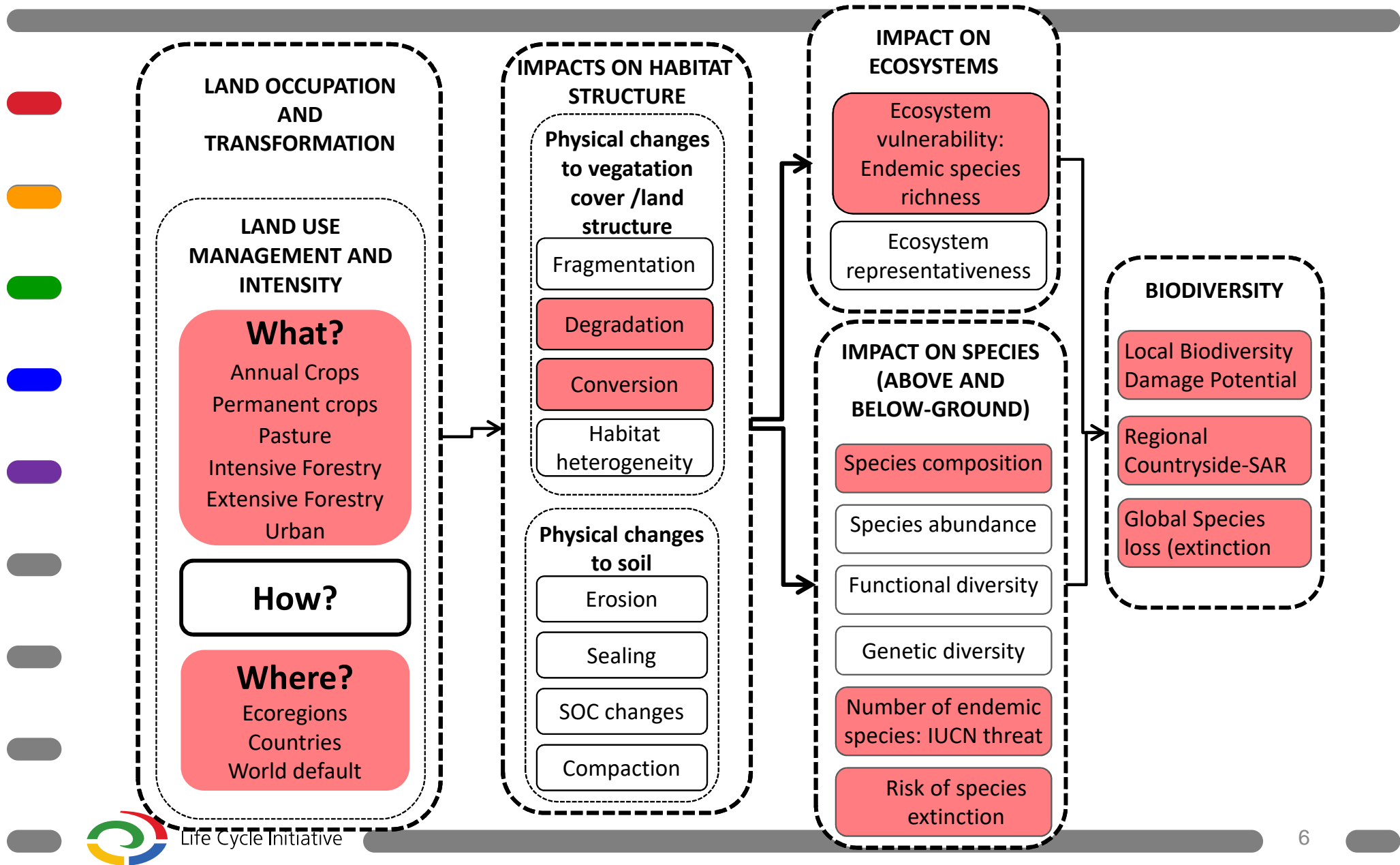
Risk of species extinction

BIODIVERSITY

Local Biodiversity Damage Potential (BDP_L)

Regional Biodiversity Damage Potential (BDP_R)

Biodiversity & Land Use: Impact Pathway covered



Biodiversity & Land Use: Description of indicator selected

- Land use types covered by the method include intensive forestry, extensive forestry, annual crops, permanent crops, pasture and urban land.
- The reference state is a natural or close to natural habitat.
- The indicator covers 5 taxonomic groups; birds, mammals, reptiles, amphibians and vascular plants.
- The taxonomic groups can be analyzed separately or can be aggregated to represent the Potentially Disappeared Fraction (PDF) of species.

Biodiversity & Land Use: Call for case studies

- We recommend the following:
 - Test the main land use types responsible for threats to biodiversity: cropping, grazing, plantation forestry and infrastructure;
 - Test its use in background data sets;
 - Compare results between land occupation and land transformation;
 - Compare against the global rate of extinction;
 - Test the same process in multiple and diverse ecoregions (e.g. different biomes, different species conditions - umbrella species)

- **Interested in collaborating with a case study? →**

info@lifecycleinitiative.org



Consensus building in LCIA- phase 2: Call for interest

- Focus areas of LCIA guidance Expertise is needed in the following areas and task forces
 - **acidification & eutrophication** and effect of eco-toxicity,
 - **human toxicity** (including indoor) and fate of eco-toxicity (+PM)
 - **natural resources**, with focus on mineral primary resources
 - **ecosystem services, with initial focus on soil quality (+finalize LU)**
 - **cross-cutting** LCIA issues
 - **water use impacts** (WULCA)
- If you are interested, please fill in the **expression of Interest form** until **30 October 2016**, indicating your domain of interest and your expertise. TF have both agenda (receive information, can send comments) and full members (minimum of 8 full day work/year or 6 hours per month dedicated to the task force)

Consensus building in LCIA- phase 2: Call for interest

Tasks to be developed

- Method review (*starting point Vidal et al JCP 2015, extend review?*)
- Pathway agreement (*starting point biodiversity TF*)
- Reference states for soil quality assessment
- Stakeholders workshops (when? , where?, budget?)
- Call for case studies





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THANKS FOR YOUR ATTENTION,

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