# IPBES Thematic assessment report on land degradation and restoration

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# Definitions

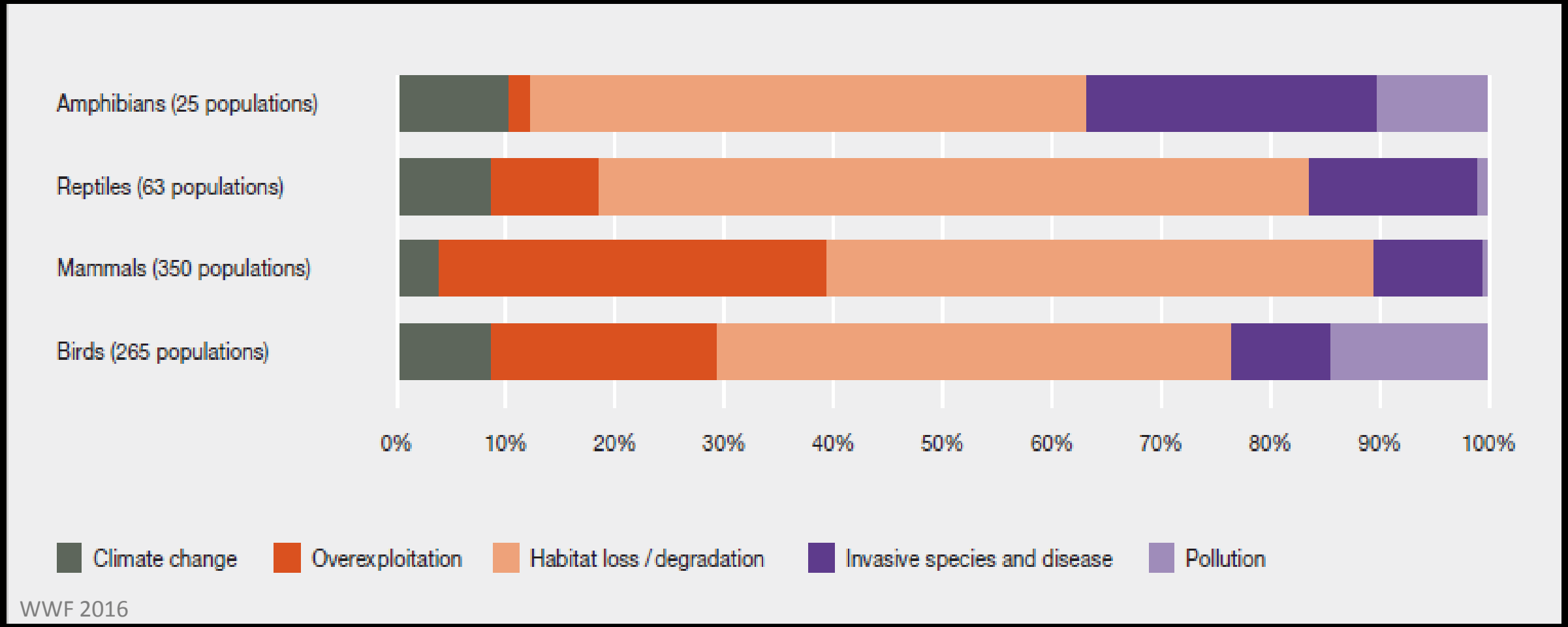
- **Land degradation: human-caused processes that drive the decline or loss in biodiversity, ecosystem functions or ecosystem services in any terrestrial and associated aquatic ecosystems.**

- **Degraded land: state of land which results from the persistent decline or loss in biodiversity and ecosystem functions and services that cannot fully recover unaided within decadal time scales**

- **Restoration: activity that initiates or accelerates the recovery of an ecosystem from a degraded state**

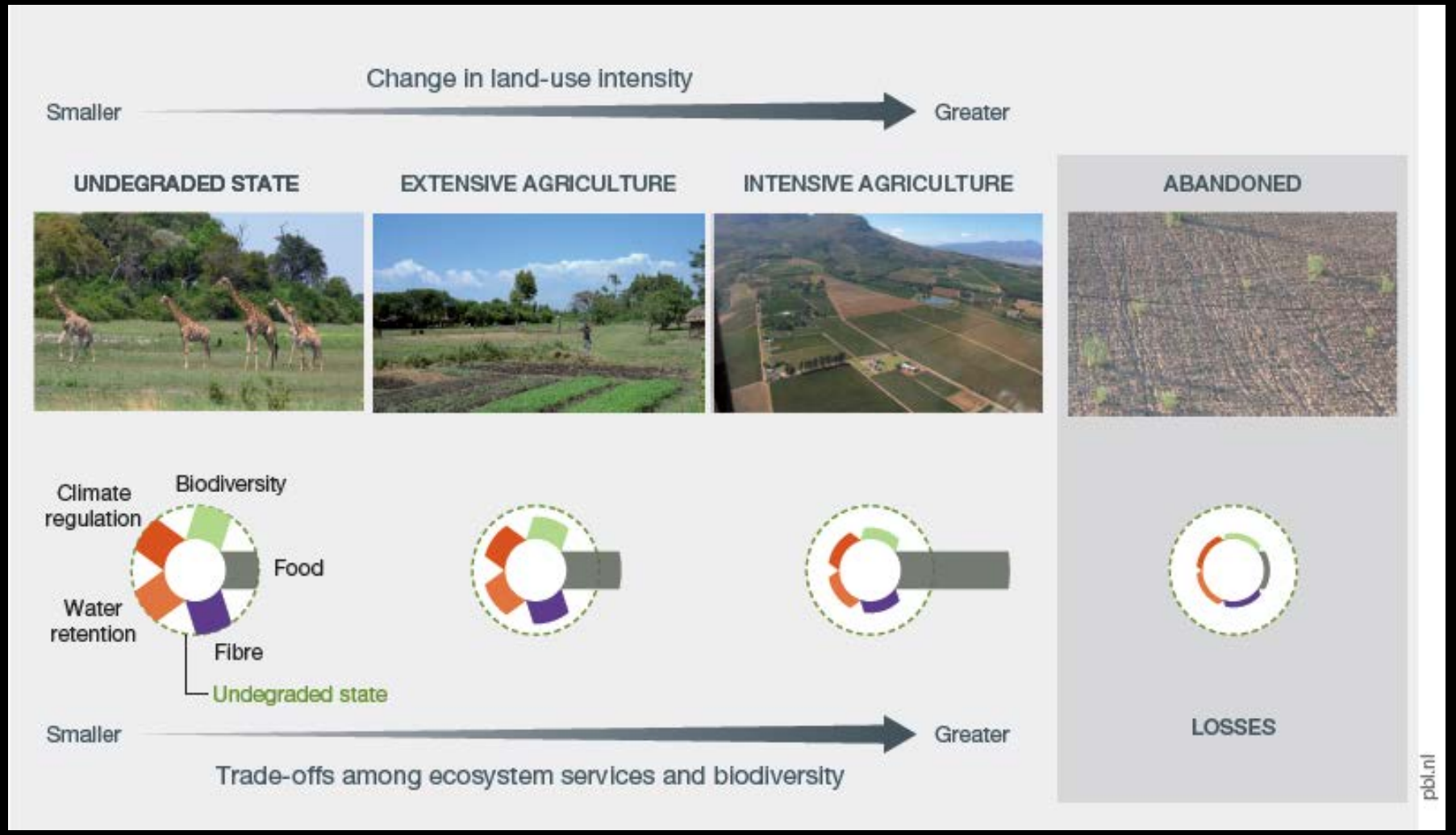
- **Rehabilitation: restoration activities that may fall short of fully restoring the biotic community to its pre-degradation state**

# The most common drivers of biodiversity loss




WWF 2016

# Human transformation of natural ecosystems and trade-offs among ecosystem services and biodiversity

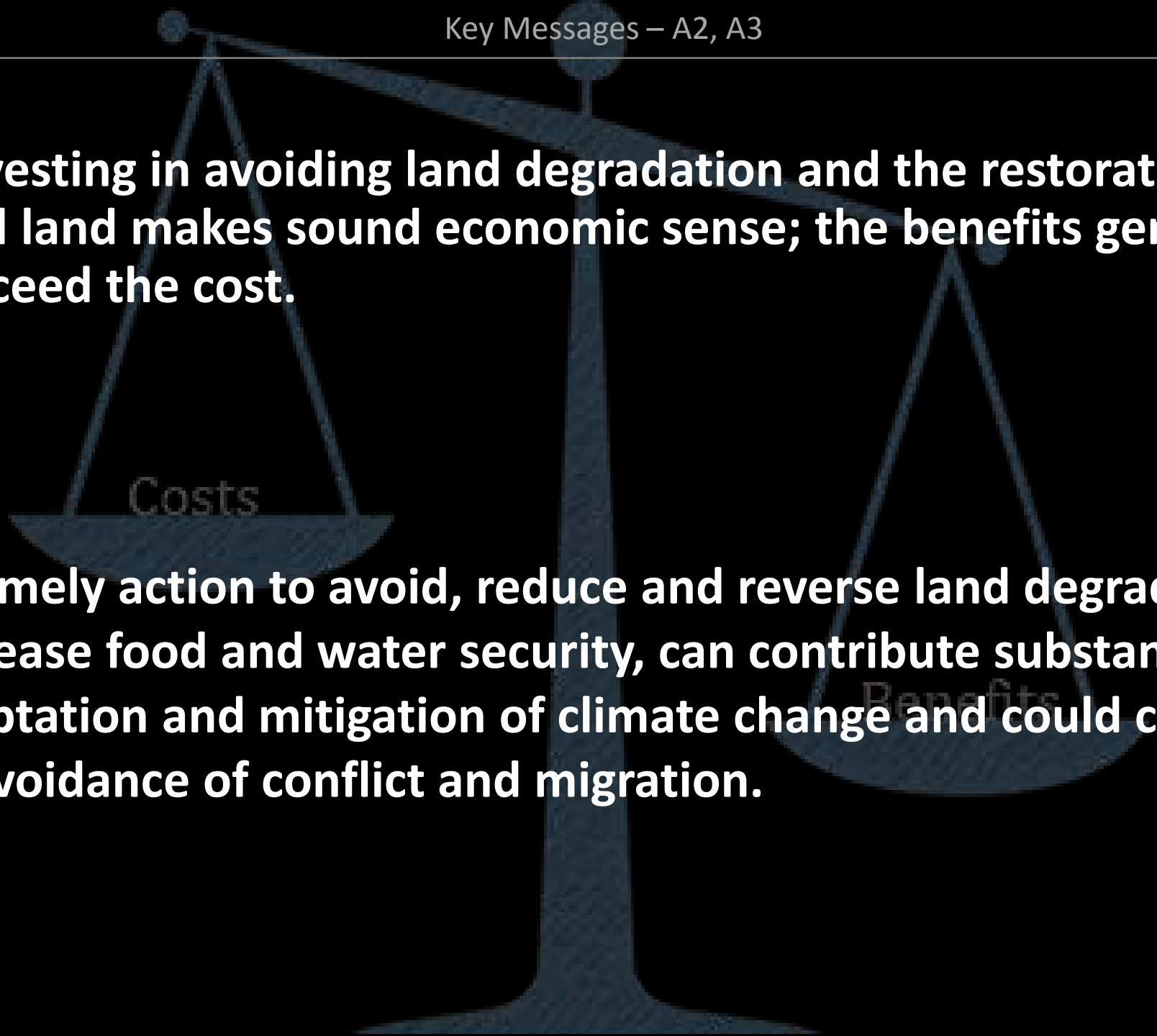



Van der Esch et al. (2017)

**A. Land degradation is a pervasive, systemic phenomenon: it occurs in all parts of the terrestrial world and can take many forms**

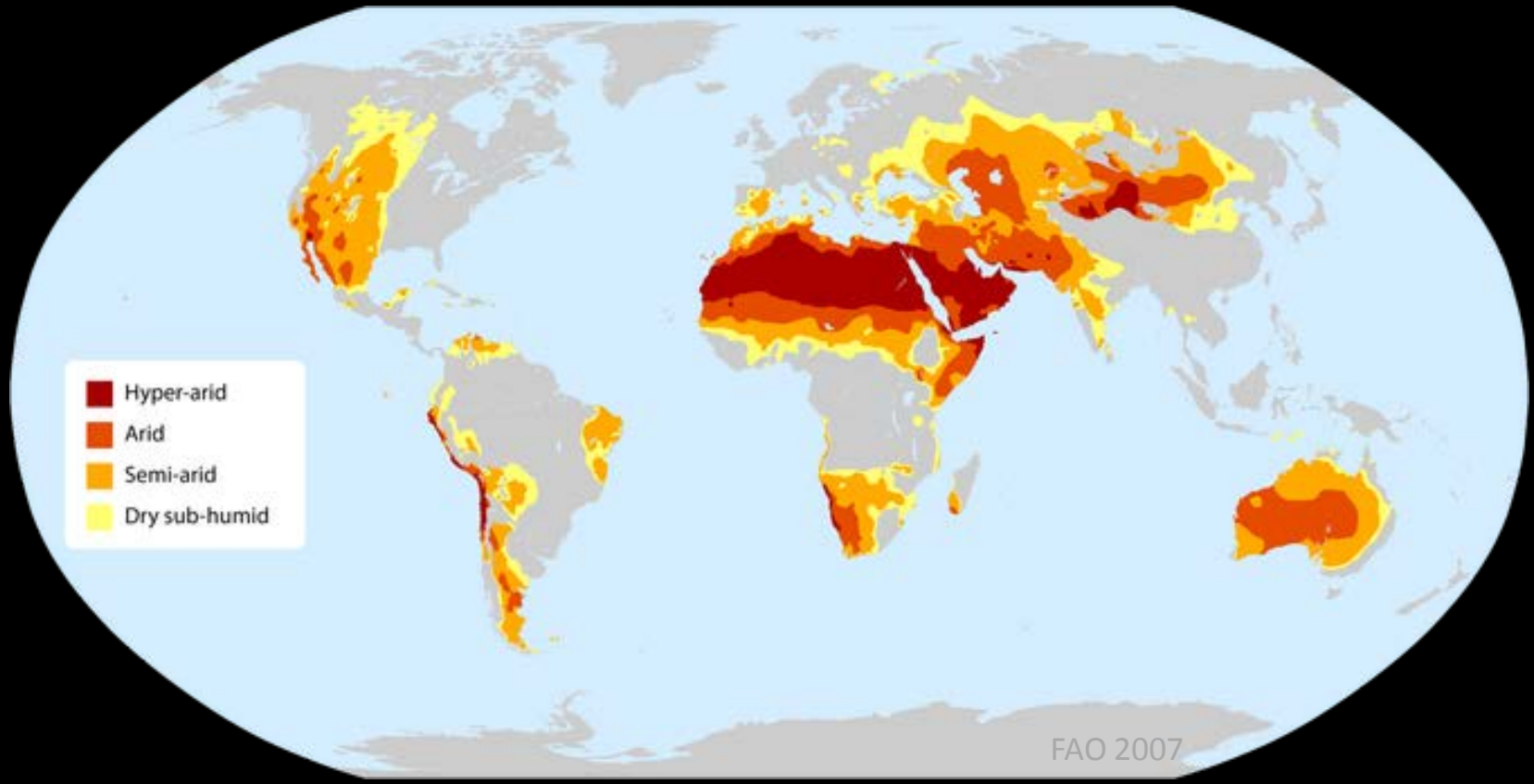
**A1. Currently, degradation of the Earth's land surface through human activities is negatively impacting the well-being of at least 3.2 billion people, pushing the planet towards a sixth mass species extinction, and costing more than 10 per cent of the annual global gross product in loss of biodiversity and ecosystem services.**

**A2. Investing in avoiding land degradation and the restoration of degraded land makes sound economic sense; the benefits generally by far exceed the cost.**




**A3. Timely action to avoid, reduce and reverse land degradation can increase food and water security, can contribute substantially to the adaptation and mitigation of climate change and could contribute to the avoidance of conflict and migration.**

- 4 billion people live in drylands in 2050
- Every 5% loss of GDP is associated with a 12% increase in likelihood of violent conflict
- 50 to 700 million people will be forced to migrate by 2050 due to land degradation and climate change



**A4. Avoiding, reducing and reversing land degradation is essential for meeting the Sustainable Development Goals contained in Agenda 2030**

Avoid

Reduce

Reverse

**B. Unless urgent and concerted action is taken, land degradation will worsen in the face of population growth, unprecedented consumption, an increasingly globalized economy and climate change**

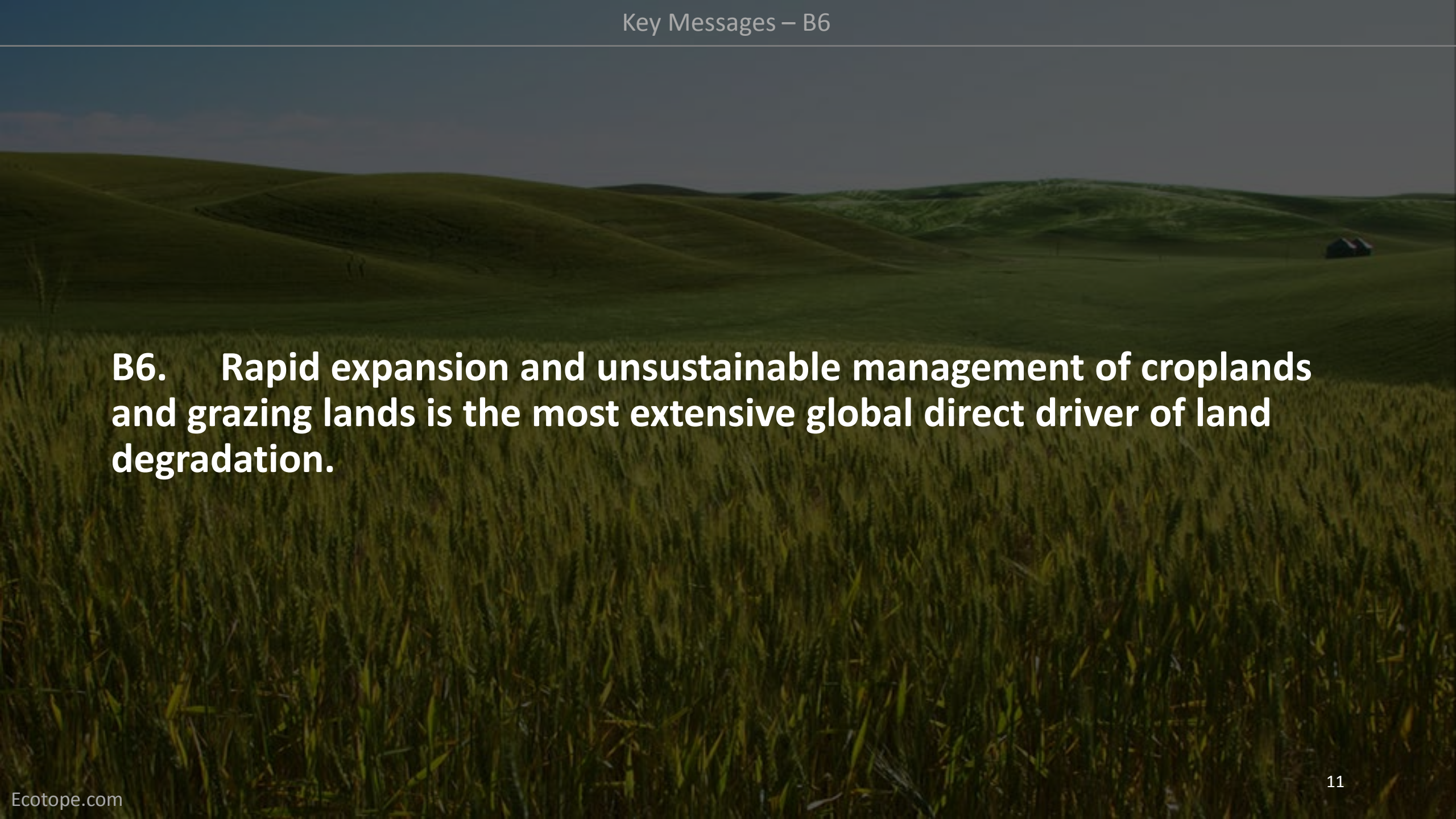
**B1. Widespread lack of awareness of land degradation as a problem is a major barrier to action.**

**B2. High consumption lifestyles in more developed economies, combined with rising consumption in developing and emerging economies, are the dominant factors driving land degradation globally.**

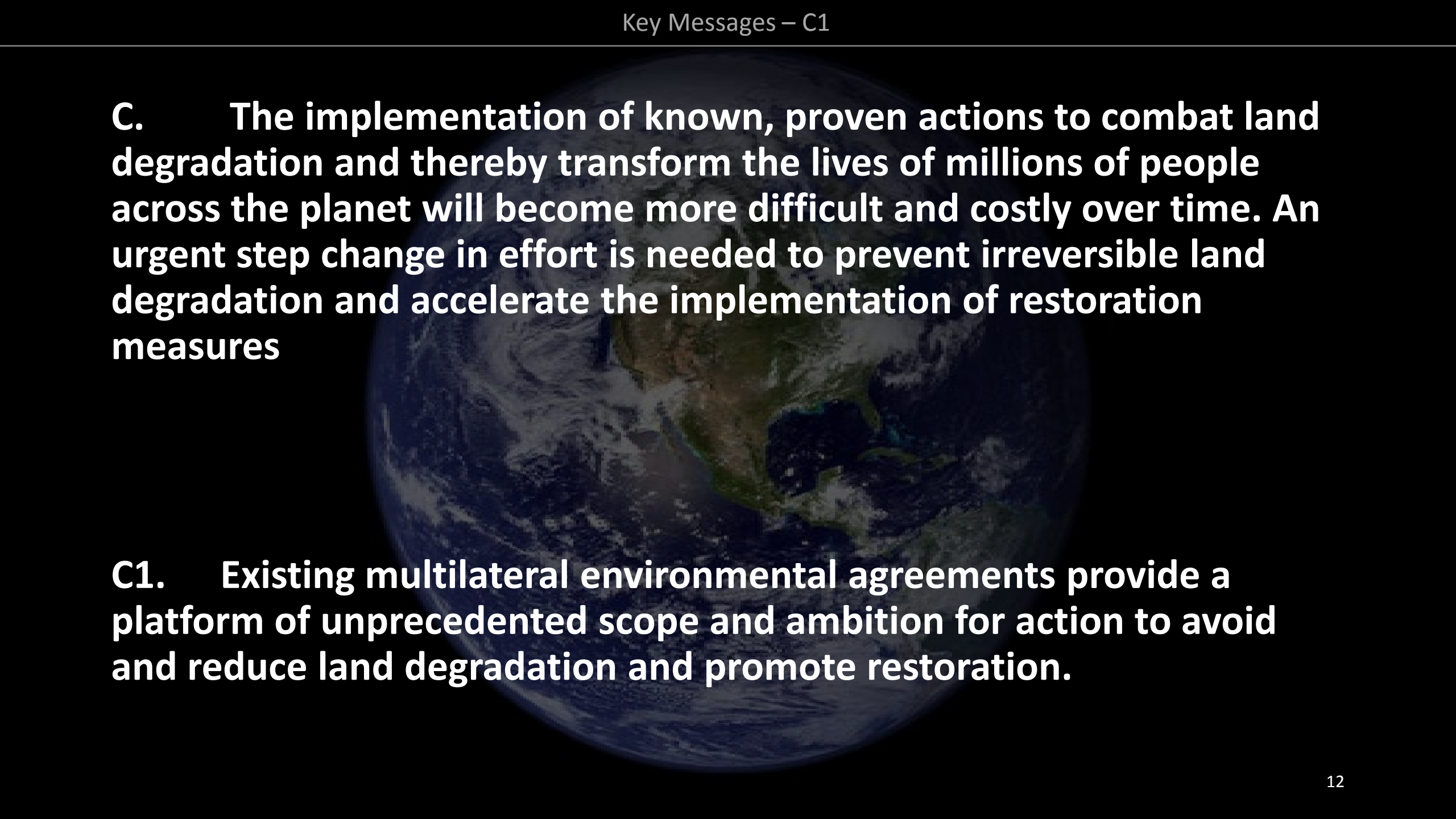
**B3. The full impact of consumption choices on land degradation worldwide is not often visible due to the distances that can separate many consumers and producers.**

**B4. Institutional, policy and governance responses to address land degradation are often reactive and fragmented, and fail to address the ultimate causes of degradation.**

**B5. Land degradation is a major contributor to climate change, while climate change can exacerbate the impacts of land degradation and reduce the viability of some options for avoiding, reducing and reversing land degradation**



**B6. Rapid expansion and unsustainable management of croplands and grazing lands is the most extensive global direct driver of land degradation.**



**C. The implementation of known, proven actions to combat land degradation and thereby transform the lives of millions of people across the planet will become more difficult and costly over time. An urgent step change in effort is needed to prevent irreversible land degradation and accelerate the implementation of restoration measures**

**C1. Existing multilateral environmental agreements provide a platform of unprecedented scope and ambition for action to avoid and reduce land degradation and promote restoration.**

**C2. More relevant, credible and accessible information is needed to allow decision makers, land managers, and purchasers of goods to improve the long-term stewardship of land and sustainability of natural resource use.**

**C3. Coordinated policy agendas that simultaneously encourage more sustainable production and consumption practices of land-based commodities are required to avoid, reduce and reverse land degradation.**


**C4. Landscape-wide approaches that integrate the development of agricultural, forest, energy, water and infrastructure agendas, all informed by the best available knowledge and experience, are required to avoid, reduce and reverse land degradation.**

**C5. Eliminating perverse incentives that promote degradation and devising positive incentives that reward the adoption of sustainable land management practices are required to avoid, reduce and reverse land degradation.**

**C6. Responses to reduce environmental impacts of urbanization not only address the problems associated with urban land degradation, but can also significantly improve quality of life while simultaneously contributing to climate change mitigation and adaptation.**

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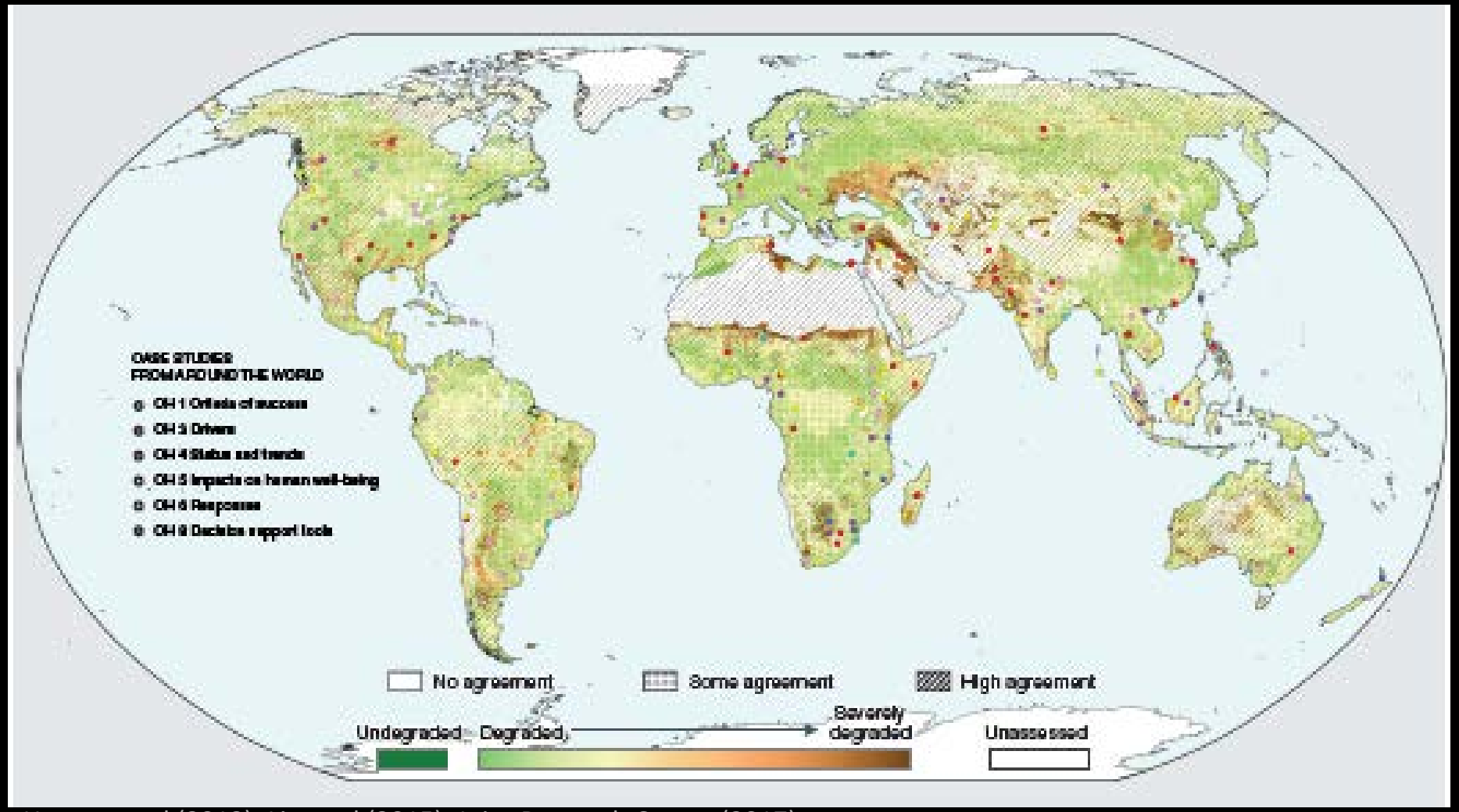
# Future Challenges and further Research Areas

- Clear evidence for urgent need to address the loss of ecosystem functions
- Current state of knowledge BUT a lot of unanswered research areas:
  - What are the key factors that can facilitate efforts to avoid, reduce and reverse land degradation?
  - What needs to be done to avoid, reduce and reverse land degradation, and what is the effectiveness of different approaches available?

IPBES (2018): Summary for policymakers of the thematic assessment report on land degradation and restoration of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. R. Scholes, L. Montanarella, A. Brainich, N. Barger, B. ten Brink, M. Cantele, B. Erasmus, J. Fisher, T. Gardner, T. G. Holland, F. Kohler, J. S. Kotiaho, G. Von Maltitz, G. Nangendo, R. Pandit,
J. Parrotta, M. D. Potts, S. Prince, M. Sankaran and L. Willemen (eds.). IPBES secretariat, Bonn, Germany. [ ] pages.

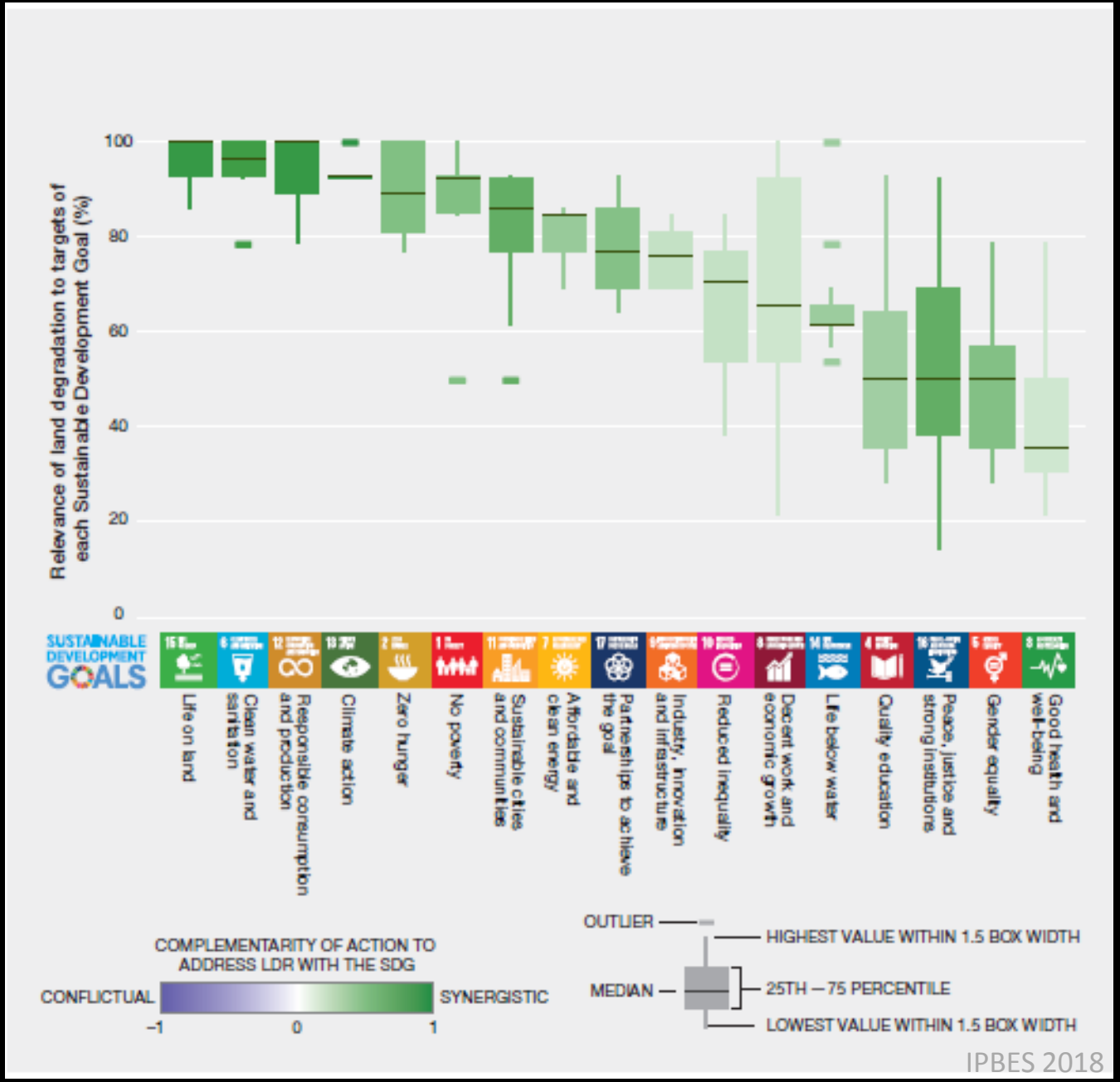

1.Introduction and **Definitions**
**1.Key Messages** of the report on land degradation and restoration
1.Future Challenges and further **Research Areas**

# Overview

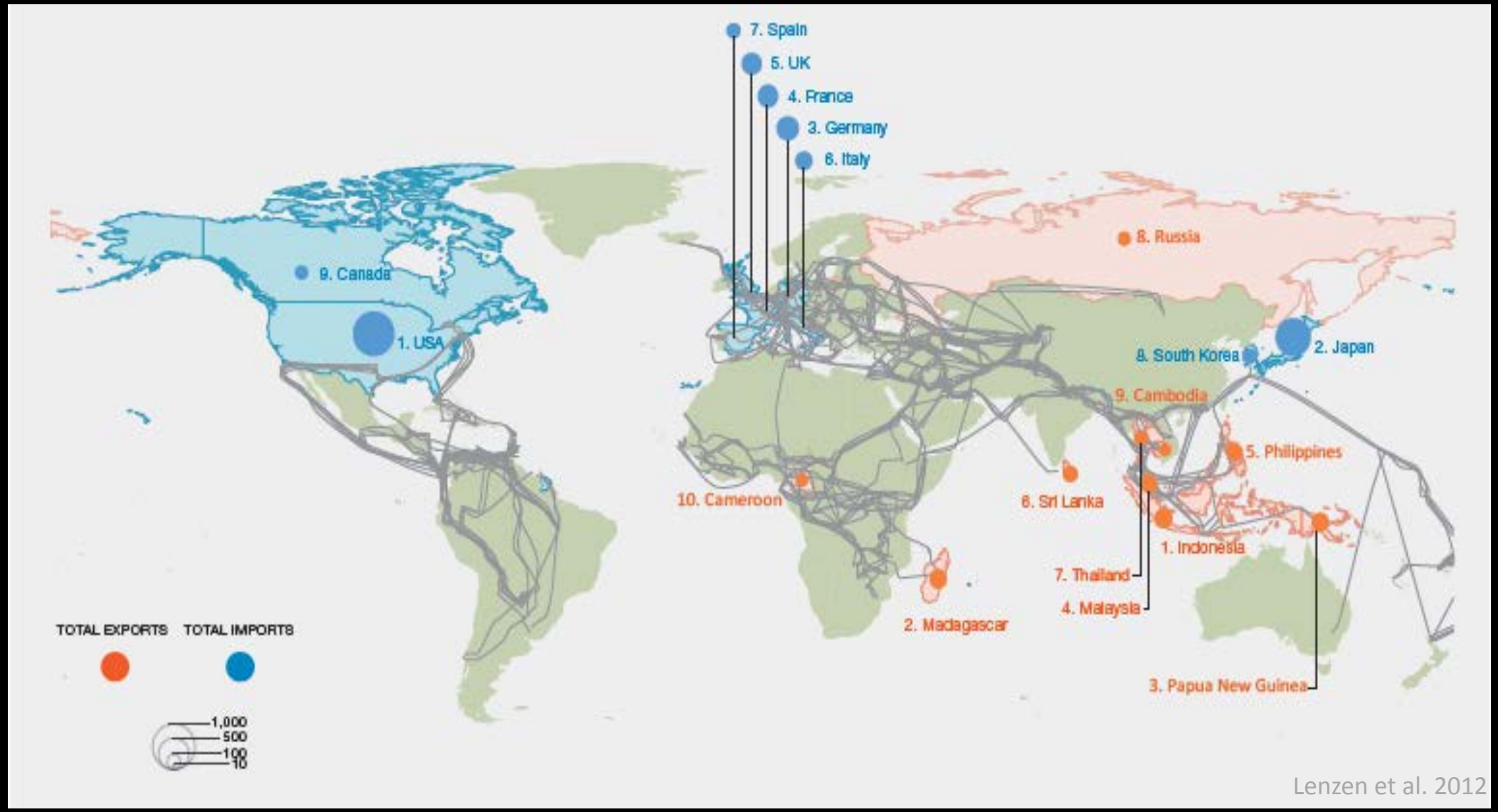



Hansen et al (2013), Liu et al (2015), Joint Research Centre (2017)

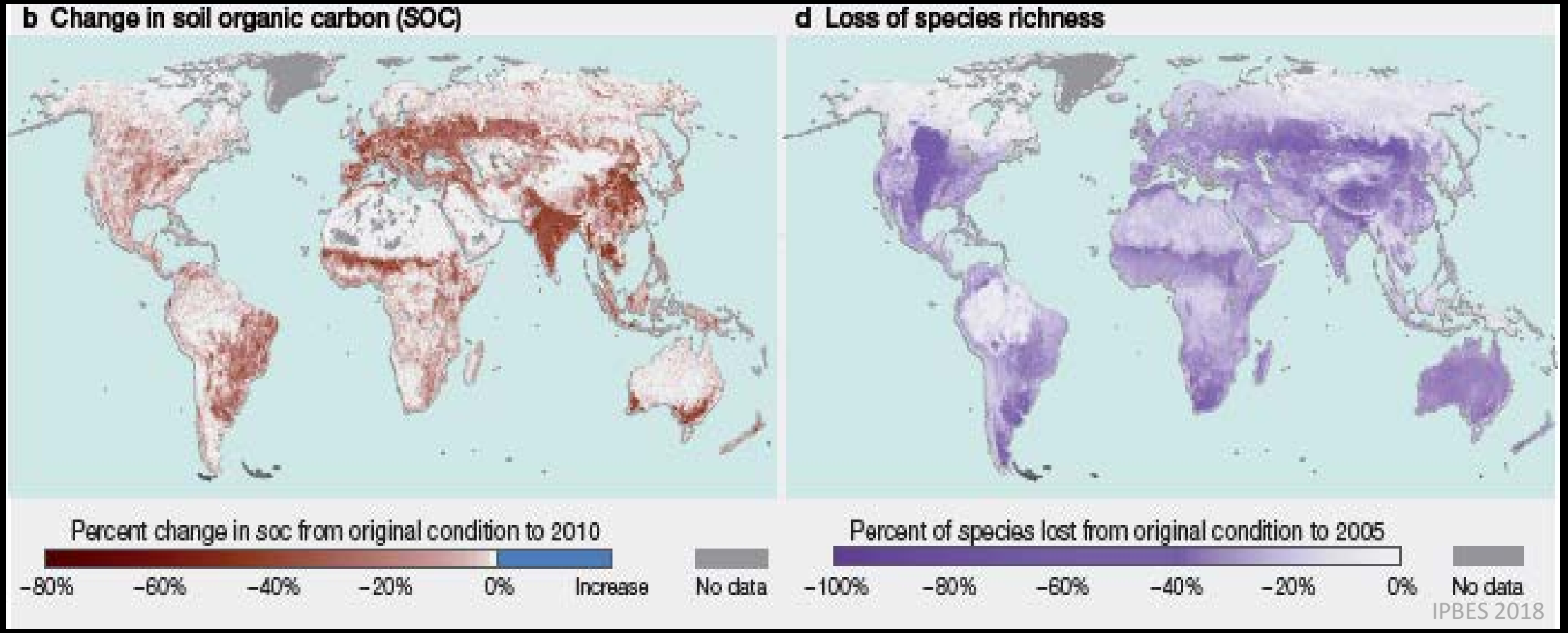
Less than one quarter of the Earth's land surface remains free from substantial human impacts.


Relevance of land degradation to targets of each Sustainable Development Goal (%)
100
80
60
40
20
0
SUSTAINABLE DEVELOPMENT GOALS
Life on land
Clean water and sanitation
Responsible consumption and production
Climate action
Zero hunger
No poverty
Sustainable cities and communities
Affordable and clean energy
Partnerships to achieve the goal
Industry, innovation and infrastructure
Reduced inequality
Decent work and economic growth
Life below water
Quality education
Peace, justice and strong institutions
Gender equality
Good health and well-being
COMPLEMENTARITY OF ACTION TO ADDRESS LDR WITH THE SDG
CONFLICTUAL
SYNERGISTIC
−1
0
1
OUTLIER
HIGHEST VALUE WITHIN 1.5 BOX WIDTH
MEDIAN
25TH – 75 PERCENTILE
LOWEST VALUE WITHIN 1.5 BOX WIDTH

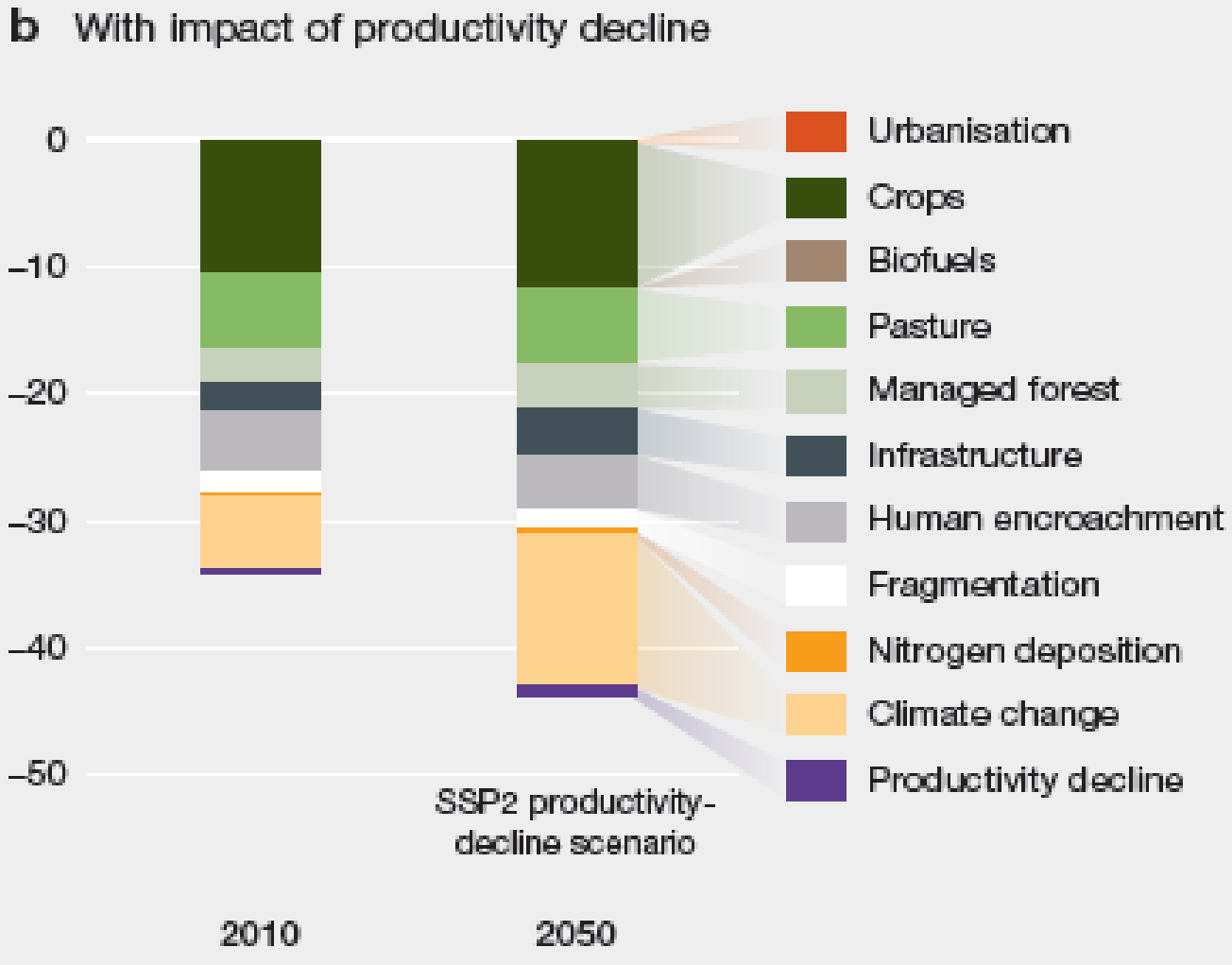
IPBES 2018




Lenzen et al. 2012


b Change in soil organic carbon (SOC)
d Loss of species richness
Percent change in soc from original condition to 2010
−80%
−60%
−40%
−20%
0%
Increase
No data
Percent of species lost from original condition to 2005
−100%
−80%
−60%
−40%
−20%
0%
No data

IPBES 2018




Van der Esch et al 2017

Mean species abundance with impact of productivity decline