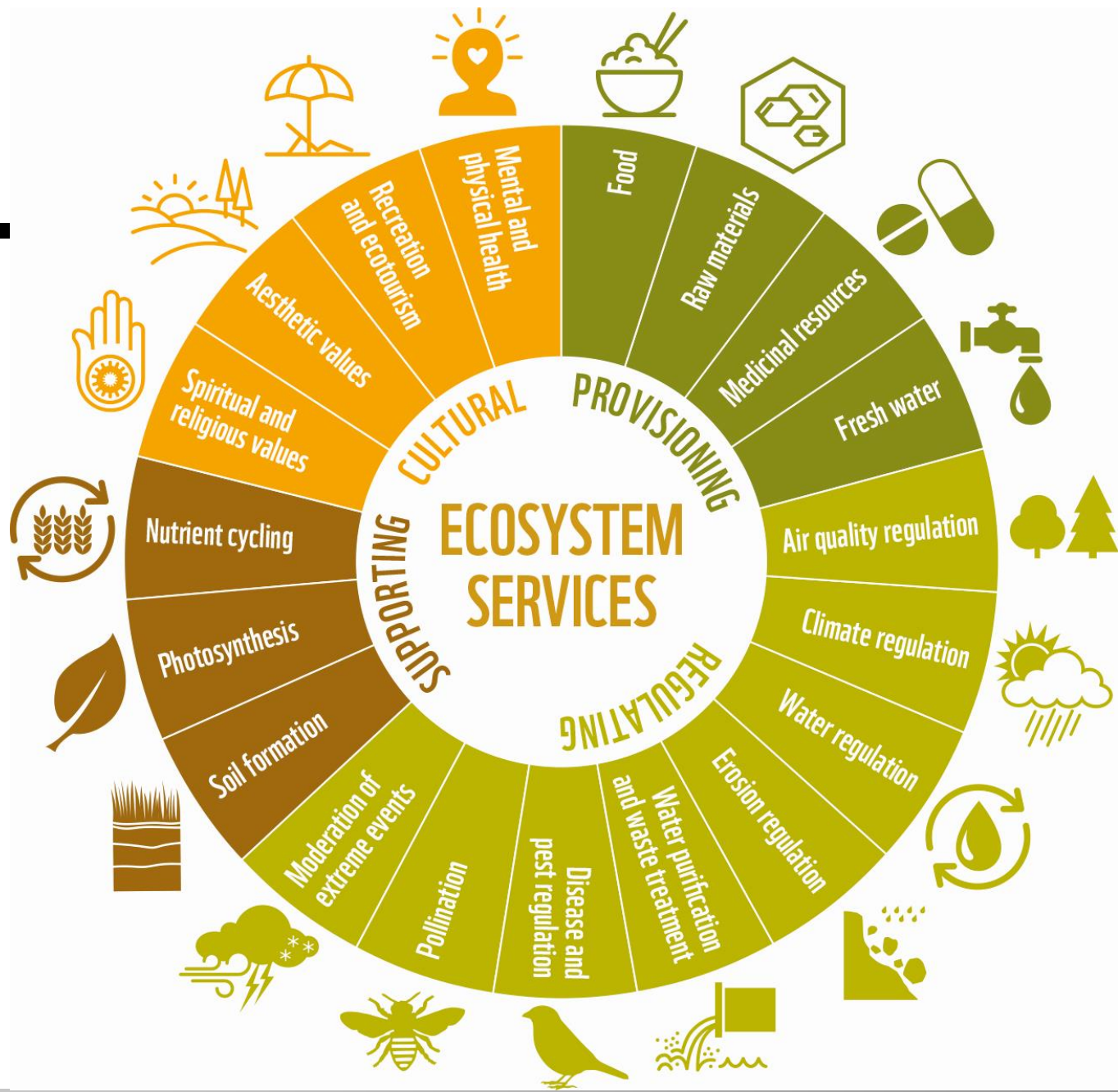


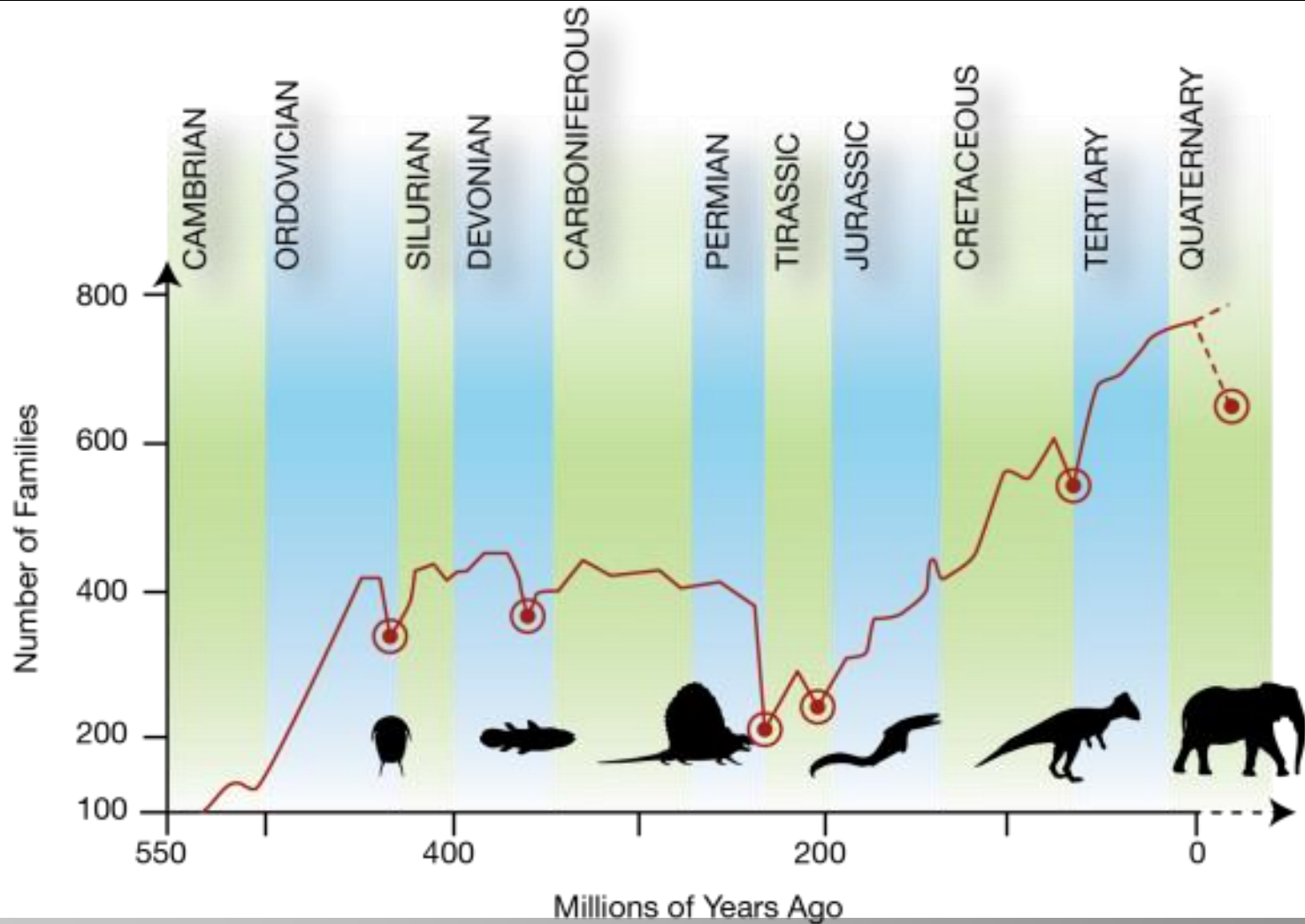
# Introduction to biodiversity

---

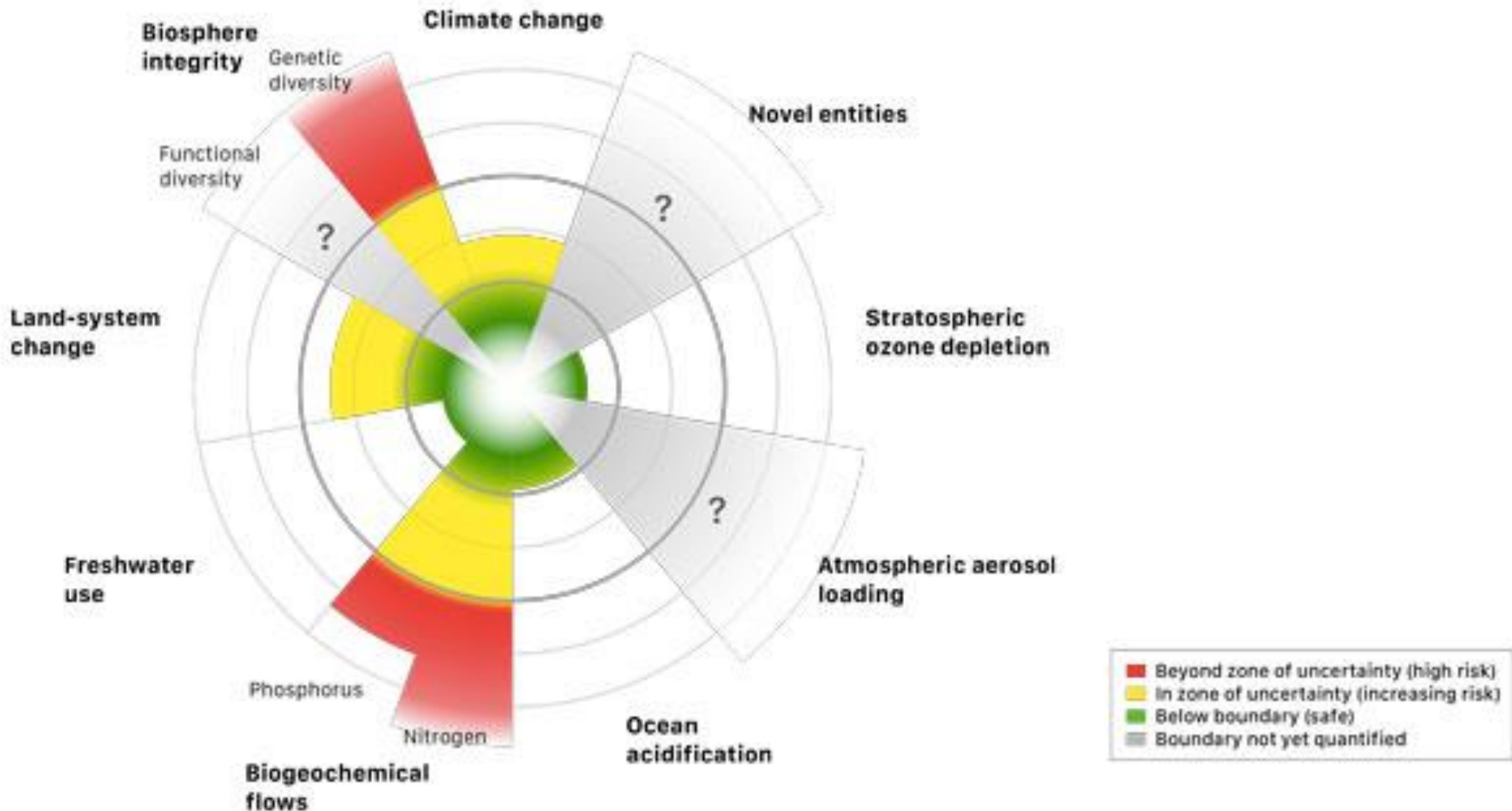
- What is "biodiversity"?
  - Distinguish between levels of biodiversity
  - Development of biodiversity
  - The concept of species
- What are the benefits of biodiversity?
  - To humans – ecosystem services
  - To "life on earth"
- What is the status of biodiversity?
- What are the prospects for biodiversity?
- Which are the main threats against biodiversity?
  - The role of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
- Biodiversity related treaties



# Mass extinctions (Margaret Wilson, Healing Earth)



# Planetary boundaries (Steffen et al. 2015)





# Human Threats to Biodiversity

## Habitat Loss

- Wetland drainage
- Farming and aquaculture
- Human population growth
- Deforestation, flooding, droughts
- Trawling and other fishing techniques
- Dead zones from nutrient runoff into oceans
- Water projects, dams, change entire ecosystems

**COMPLEX INTERACTIONS:** One change in an ecosystem can trigger others. Multiple human threats occur simultaneously. Many species and systems are poorly understood in their native surroundings.

Forest clearing for crops and livestock threatens over 20% of terrestrial species.

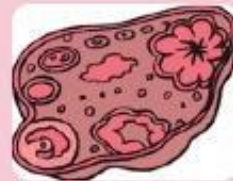
## Climate change



- Species migrate as temperatures change
- Change in food supply for species changes
- Change of predator:prey balance in systems
- Mating and reproductive cycles change
- Coral reefs are bleached

## Introduced Species

- Global warming migration of species
- Local introduction of species
- Accidental introduction
- Alteration of habitat
- Genetic modification



## War and Conflict

- Damage to ecosystems
- Resource mismanagement
- Pollution

## Infectious Diseases

- Species weakened by habitat change
- Pathogens migrate, strengthen with warming

## Ultraviolet Radiation

Thinning of ozone layer has damaged species

## Pollution

- Acid precipitation changes soil health, threatening plants
- Some species very sensitive to toxic environments
- Other species thrive as predators die off
- Drugs for one species may kill others
- Plastics kill many seabirds

## Overexploitation

- Overharvesting for food, medicine
- Overfishing



**HOT SPOTS:** centers of species densities with high levels of habitat destruction. There are 25 major hotspots.

When ecosystems are altered, often the pest-eaters are reduced and the pest populations increase.

# Approaches to protection

- Addressing individual threats
  - Land use in general – state sovereignty
  - Area protection – Ramsar, World Heritage, Migratory Species
  - Harvesting and exploitation – CITES, Bern, CMS, species based treaties
  - Pollution – hazardous substances, UNCLOS
  - Climate – UNFCCC, UN-REDD
  - Alien species, including GMOs – Ballast water, Biosafety
- Addressing specific areas
  - Terrestrial vs. marine
  - Special areas (Antarctic, high seas, deep seabed, the Alps, the Amazon, shared water resources)
- In situ and ex situ protection
  - Formal and informal arrangements
  - The issue of “endemic” species, genes or ecosystems

# General normative issues

- State sovereignty
  - Modified by "common heritage", "common inheritance", "common interest", "common concern", "common property", the controversial issue of indigenous peoples
  - Tragedy of the commons?
- Cross border issues
- Threatened species
- The role of "mixed" NGOs – the example of IUCN
- Conservation vs. sustainable use (CBD art. 1)
  - Which status should be "conserved"?
  - From a static to a dynamic view on biodiversity
- The content and role of soft law
  - Two levels of soft law
  - General declarations: Rights based approach?
  - Slow progress based on soft law instruments and obligations

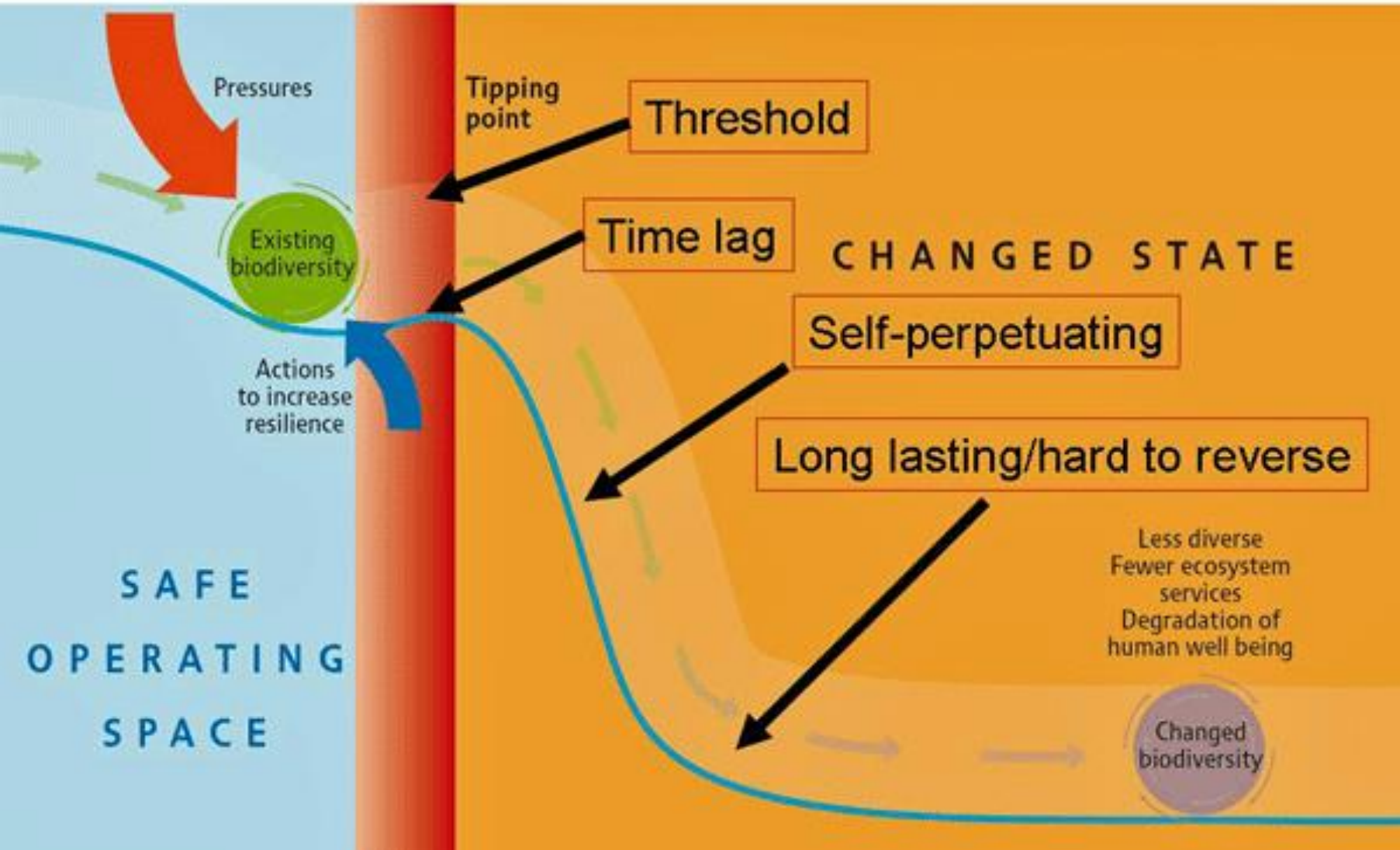
# Applying principles to biodiversity

- Precautionary principle (Rio princ. 15)
  - The danger of an ecosystem «tipping» into a new state
- Prior informed consent
  - GMOs, trade in endangered species, transfer of genetic resources
- Common but differentiated responsibilities (Rio princ. 7)
  - Wording of the CBD «as far as possible and as appropriate»
  - Where is biodiversity located? Who benefit from sustaining biodiversity?
- Polluter pays principle -> User pays principle?
- ILC draft articles on prevention
  - Do the general rules cover management of common resources? CBD art. 3
  - Example: hunting of wolves in Norway



# What is a tipping point?

From CBD 2010



# CBD art. 3

---

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

# The CBD

- CBD as lex generalis? Art. 22
- CBD as a "framework" and "umbrella" convention?
  - "as far as possible and as appropriate"
  - The quality of the commitments
  - The relationship to existing treaties - «clustering»
  - Joint development of strategy
- The scope of the CBD – subject matter and geographic
- The objectives of CBD (art. 1)
  - Striking a balance between developed and developing countries
  - Striking a balance between conservation and sustainable use
- The importance of processes initiated under CBD
  - Two protocols: Cartagena + Nagoya
  - "Thematic programmes" and "cross-cutting issues"
  - Future developments? Areas beyond national jurisdiction

# CBD arts. 1 & 22

---

Art. 1: The objectives of this Convention ... 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 ...

Art. 22: 1. The provisions of this Convention shall not affect the rights and obligations of any Contracting Party deriving from any existing international agreement, except where the exercise of those rights and obligations would cause a serious damage or threat to biological diversity.

2. Contracting Parties shall implement this Convention with respect to the marine environment consistently with the rights and obligations of States under the law of the sea.

# The rules of CBD

---

- Need for knowledge
  - Art. 7, 12, 13, 14 - programs and cooperation
  - Panel on biodiversity - IPBES
- Need for national strategies
  - Art. 6 - report obligation
- Need for conservation measures
  - Art. 8, 9 - in situ / ex situ
    - Art. 8 (in situ): Habitats (a-f), alien species (g-h), overexploitation (i-k), other (l)
    - Art. 9 (ex situ): Complementary, country of origin
- Sustainable use
  - Art. 10, 11, 14 - local communities, lack of specificity

# The rules of CBD, cont.

---

- Making it profitable to conserve biodiversity
- Sharing of benefits
  - Art. 15, 16, 17, 18, 19 - create incentives, hard law, balance of interests (access / benefit sharing)
  - Distinction between wild and cultivated species
  - "Prior informed consent" and "mutually agreed terms"
  - The Nagoya Protocol
  - The interaction between the CBD / Nagoya Protocol and the WTO / WIPO / WHO / FAO / UNCLOS
- Funding
  - Art. 20, 21 - link to obligations, new and additional resources, interpretative declaration
  - The link to the Global Environment Facility and the Climate Change Regime (Clean Development Mechanism), as well as UN-REDD



# Discussion: IPR and biodiversity

