Conference

Biodiversity and Re/insurance

Objectives and conclusions of the report "Biodiversity and Re/insurance: An Ecosystem at Risk"

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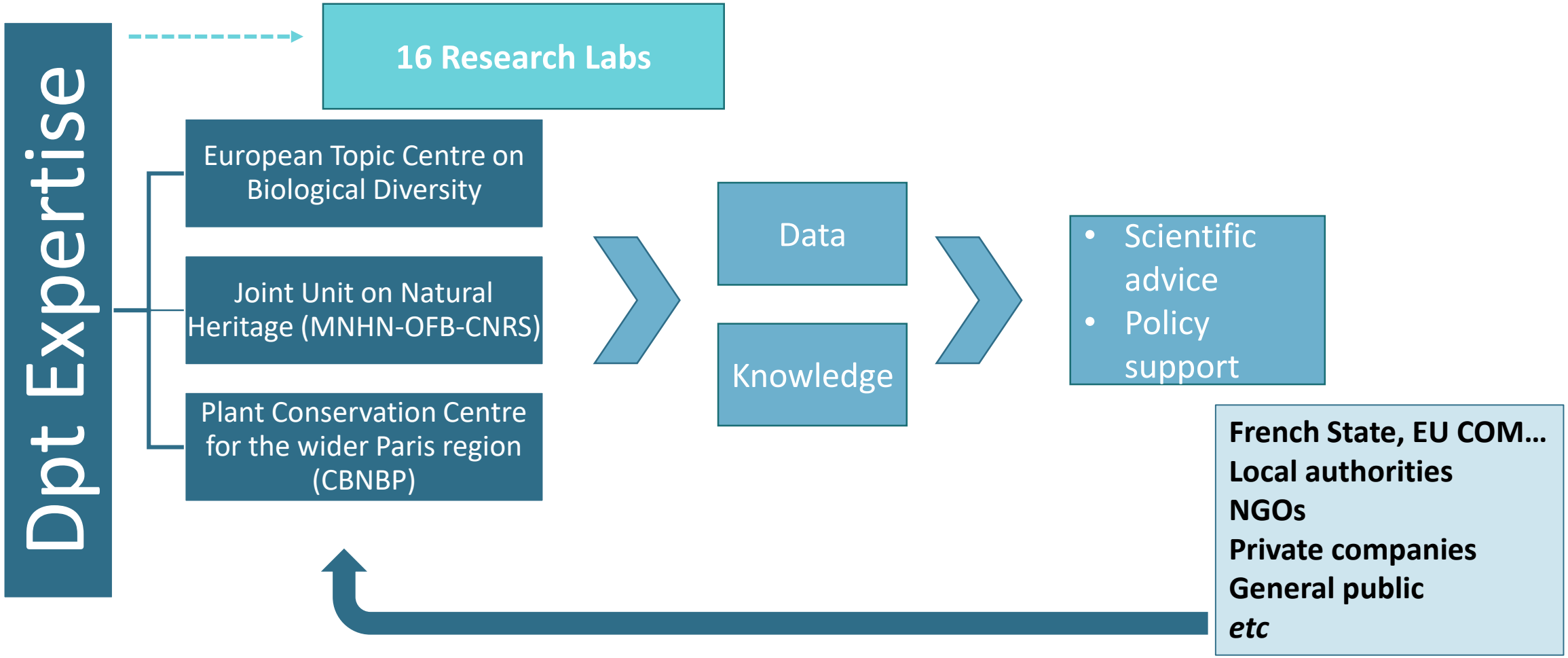
SCOR The Art & Science of Risk | Foundation for science

MUSÉUM NAL HIST NATURELLE

Expertise in MNHN



Partnership with the SCOR Foundation for Science

Biodiversity & Re/Insurance: an ecosystem at risk

Scope

- Indirect interaction – underwriting & investing activities
- Whole re/insurance ecosystem
- From short to long term

Organization

- Project team in Dpt of Expertise: Jules Chandellier, Marine Malacain and Magali Gorce
- Scientific council of 6 senior MNHN researchers
- SCOR team to provide insurance expertise and insights

Outputs

- Technical report - https://hal-mnhn.archives-ouvertes.fr/hal-03213905
- Conference (today)

Biodiversity and Re/insurance: An Ecosystem at Risk

Table of contents

PART I. A scientific perspective on biodiversity and human societies

I. Biodiversity, ecosystem services and Nature's contributions to people: definitions and dynamics

II. Biodiversity and human activities: a two-way relationship

III. Research perspectives on biodiversity and human activities

PART II. Human societies at risk from biodiversity loss

I. Features of biodiversity-related risks

II. Individuals

III. Businesses

IV. Financial Institutions

V. The economic system

PART III. Building bridges between biodiversity and re/insurers: dealing with uncertainty

I. Biodiversity, the backbone of the re/insurance business

II. Risks: how biodiversity loss exposes re/insurers

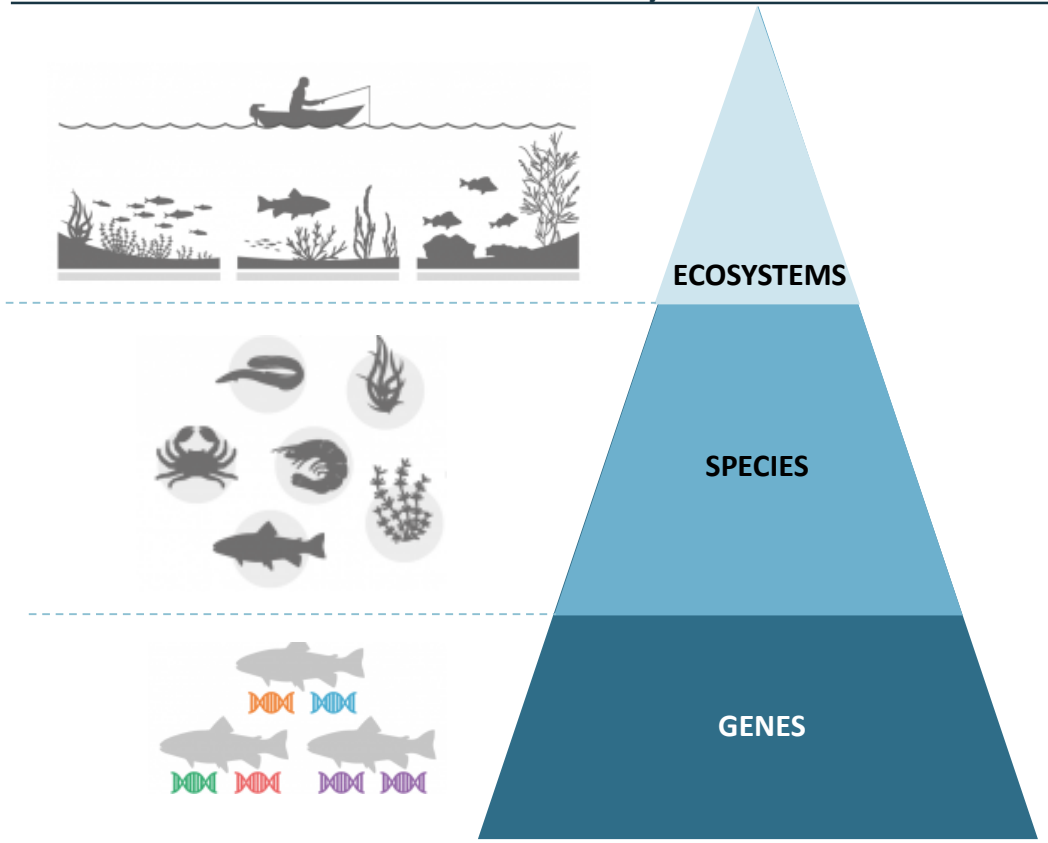
III. Impacts: how re/insurers affect biodiversity

IV. Opportunities to align re/insurers' agenda with biodiversity

Biodiversity underpins human existence through Nature's contributions to people

What are we talking about, when we talk about biodiversity?

From biodiversity …



Adapted from University of Gothenburg, Centre for Marine Evolutionary Biology

… to Nature's contributions to people

REGULATING	HABITAT CREATION AND MAINTENANCE
	POLLINATION AND DISPERSAL OF SEEDS
	REGULATION OF AIR QUALITY
	REGULATION OF CLIMATE
	REGULATION OF OCEAN ACIDIFICATION
	REGULATION OF FRESHWATER QUANTITY, LOCATION AND TIMING
	REGULATION OF FRESHWATER AND COASTAL WATER QUALITY
	FORMATION, PROTECTION & DECONTAMINATION OF SOILS
	REGULATION OF HAZARDS AND EXTREME EVENTS
	REGULATION OF ORGANISMS DETRIMENTAL DU HUMANS
MATERIAL	ENERGY
	FOOD AND FEED
	MATERIALS AND ASSISTANCE
	MEDICINAL, BIOCHEMICAL AND GENETIC RESOURCES
NON-MATERIAL	LEARNING AND INSPIRATION
	PHYSICAL AND PHYSIOLOGICAL EXPERIENCES
	SUPPORTING IDENTITIES
	MAINTENANCE OF OPTIONS

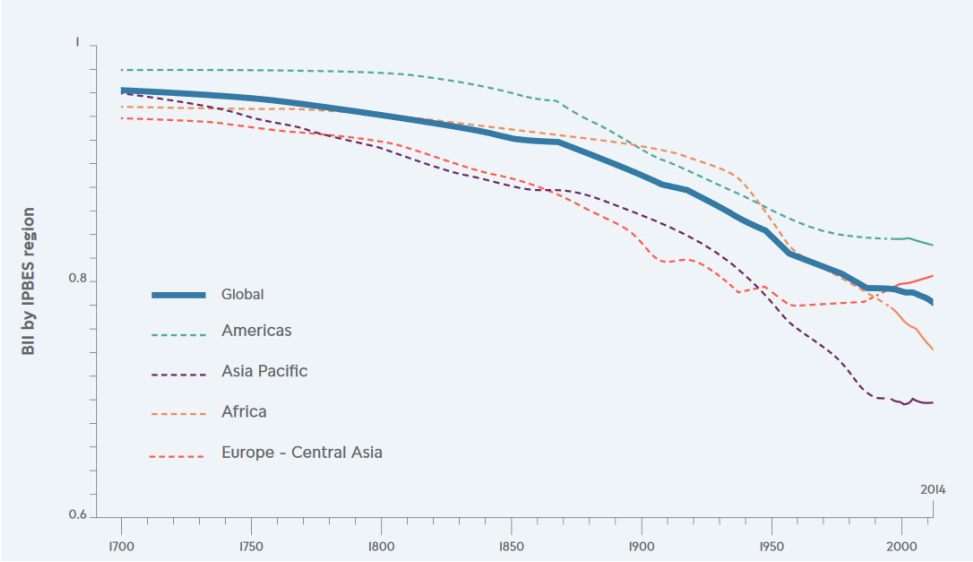
Adapted from IPBES, Global Assessment Report 2019 and WWF, Living Planet Report 2020

Biodiversity is severely declining, and with it, all vital contributions to people

The loud and clear scientific message: "*Much of nature has already been lost, and what remains is continuing to decline*" (IPBES, 2019)

Biodiversity in all its forms is degrading at an alarming and unprecedented rate

An indicator among others: the Biodiversity Intactness Index



Adapted from WWF, Living Planet Report 2020

Same alarming trends for other key biodiversity indicators:

International indicators, e.g.	National indicators, e.g.
Red List Index Species Habitat Index Living Planet Index	ONB Observatoire National de la Biodiversité • *Artificialization of continental territory* • *Date of arrival of migratory birds* • *Pasture surfaces*

… causing an inevitable decline in Nature's contributions to people

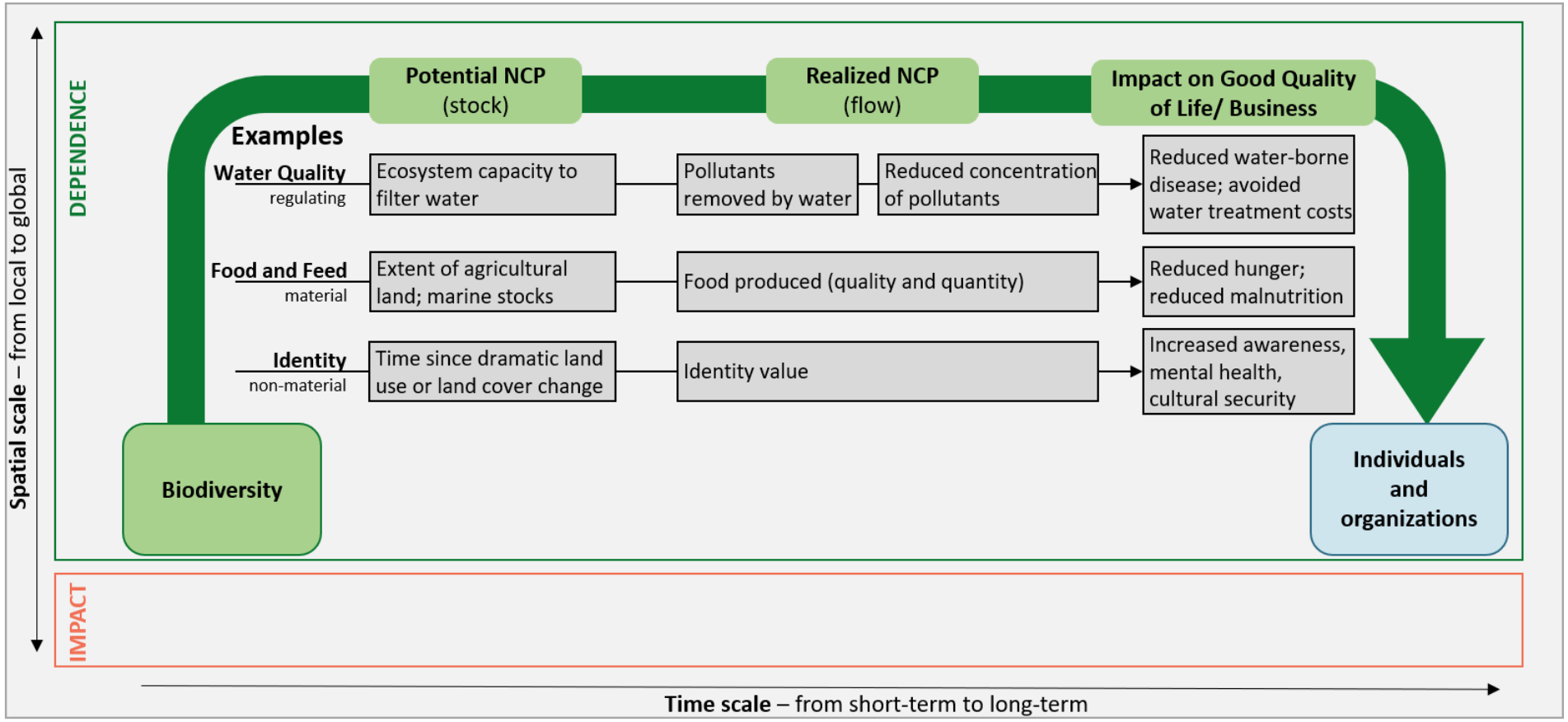
NCP *(examples)*	Indicators	50-year global trend (Major Decrease / Small Decrease / No change / Small Increase / Major Increase)
2 Pollination and seed dispersal	Pollinator diversity	
	Natural habitat in agriculture	
7 Freshwater quality regulation	Extent of ecosystems that filter or add constituent components to water	
12 Food and feed	Extent of agricultural land	
	Marine stocks	
15 Learning	Proximity of people and nature	
	Diversity of life from which to learn	

Adapted from IPBES, Global Assessment Report 2019

Individuals and organizations largely depend on biodiversity

Biodiversity and Nature's contributions to people are essential to fulfil a good quality of life and business

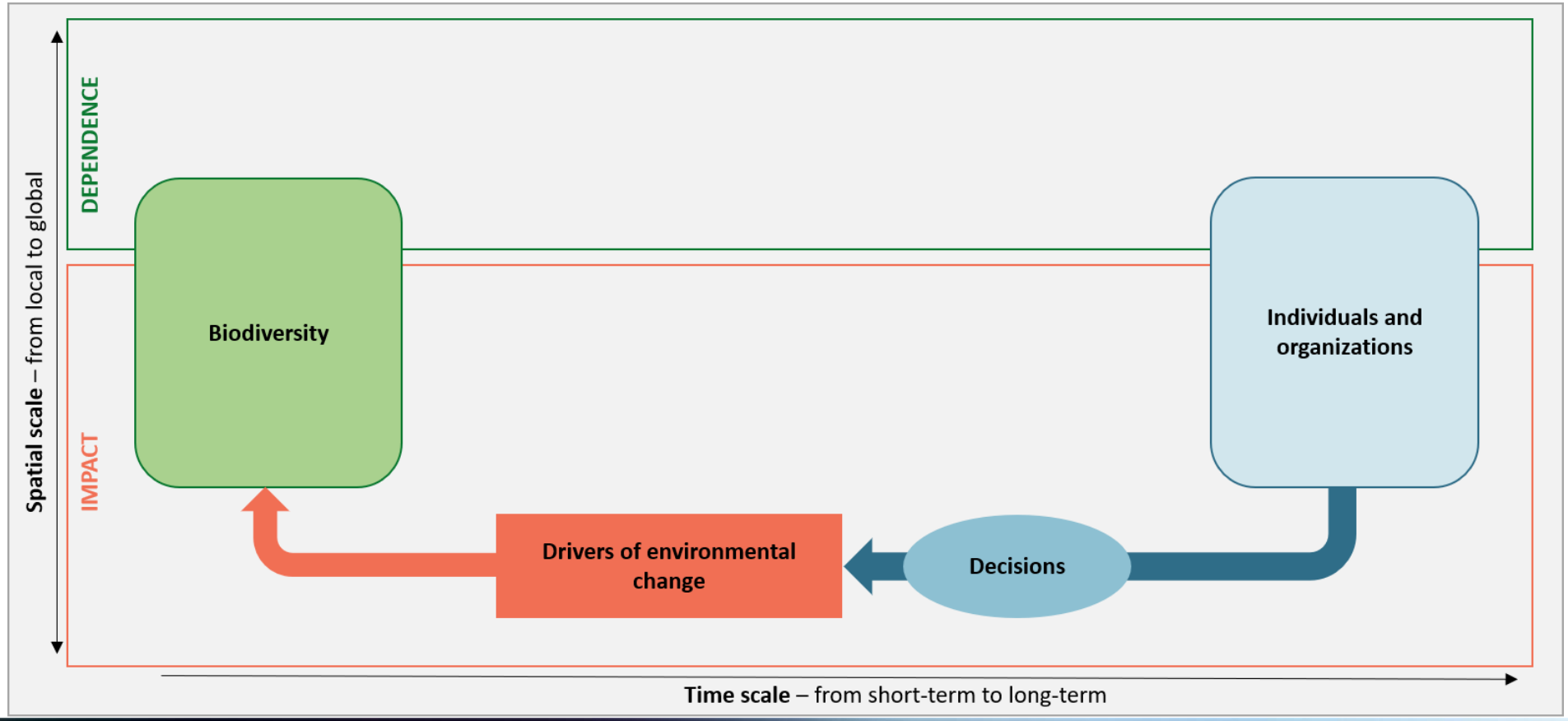
Conceptual framework of biodiversity-human interactions: dependence side



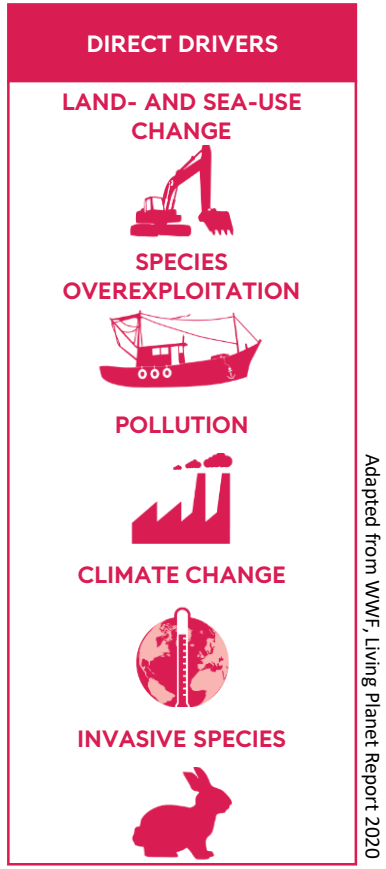
Human activities impact biodiversity

There is a scientific consensus on the human responsibility in the current biodiversity loss dynamic

Conceptual framework of biodiversity-human interactions: impact side



Main drivers of environmental change

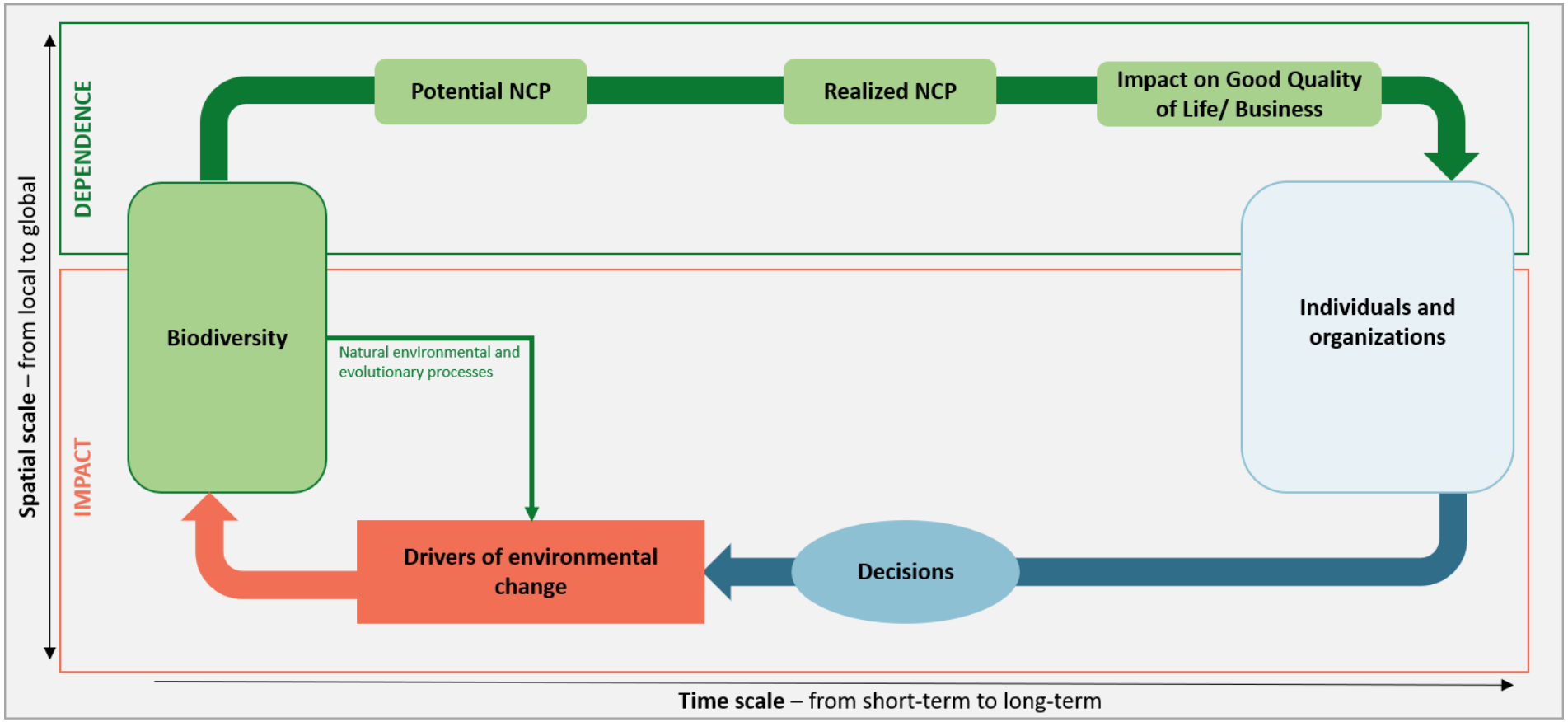


Adapted from WWF, Living Planet Report 2020

Humans are a core part of the ecosystem

Humans' impacts on biodiversity will have cascading and feedback effects

Conceptual framework of biodiversity-human interactions



Biodiversity loss poses emerging threats at all levels of human societies

The exposure and vulnerabilities are multiple

Level	Illustrations
Individuals	➢ Rise in noncommunicable diseases due to unhealthy diets and air pollution ➢ Food shortage, e.g. fish stocks, leading to conflicts and forced migration
Businesses	➢ Deforestation leading to a reduced availability of raw materials ➢ Damaged mangrove insufficiently protecting from coastal erosion and flooding
Financial institutions	➢ EUR 96 billion of global investments in, or loans to, companies involved in environmental controversies for the Dutch financial sector *(Source: DNB)*
Global economy	➢ Drop of 0.67% in annual global GDP by 2050 due to changes in ecosystem services under business-as-usual scenario *(Source: Global Futures project)*

Characterizing biodiversity-related risks: "green swans"

Environmental risks, among which biodiversity-related risks, are characterised by their high-risk, high-probability profile

Green swans

Black swans features

- *Deep* ***uncertainty***
- ***Non-linear*** *propagation*
- *Significant negative* ***externalities***

e.g. terrorist attacks, financial crises

+

Specific features

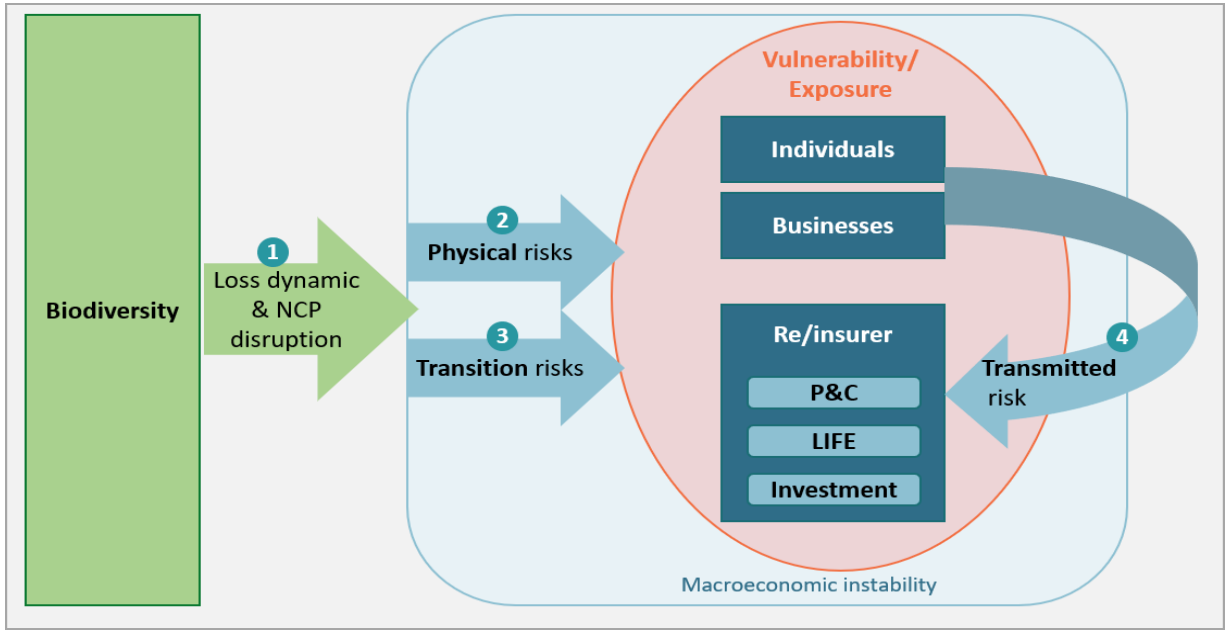
- *High degree of certitude of occurrence*
- *Extreme scope of impact*
- *Higher degree of complexity*
- *Potential irreversibility*

e.g. extinction of pollinators, lack of regeneration of soils

Re/insurers, too, will face increasing risks related to biodiversity loss

Despite having close to zero direct interactions with biodiversity, re/insurance activities are exposed in several ways

Risk transmission mechanism framework



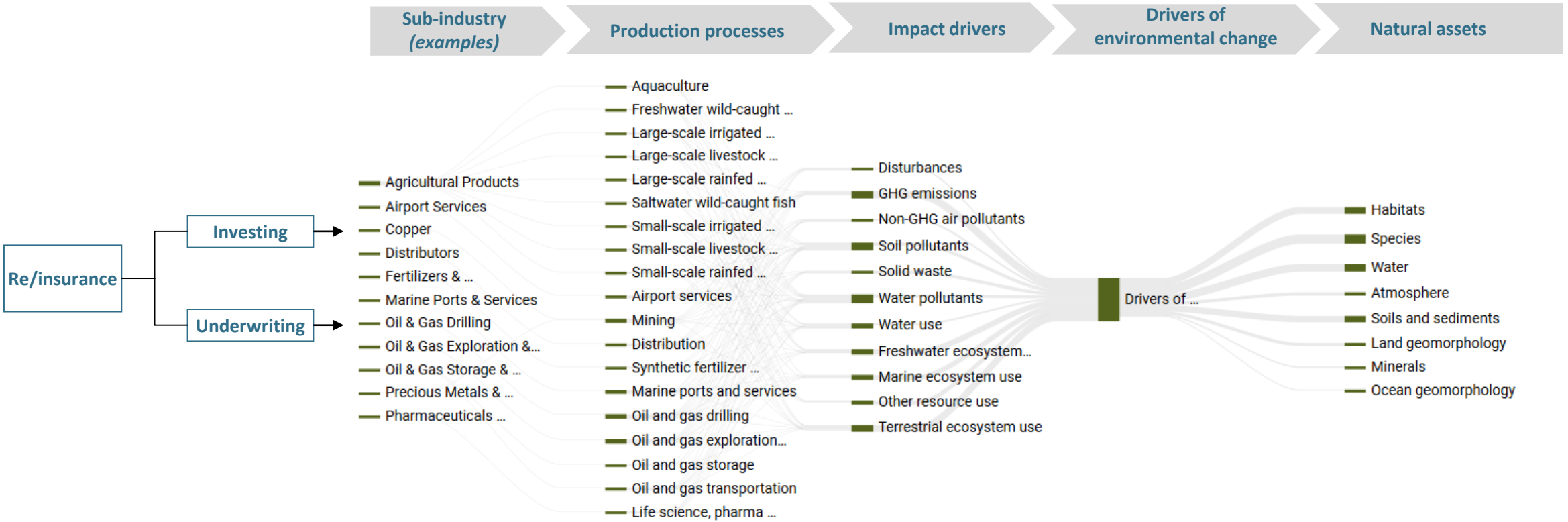
Typology of biodiversity-related risks for re/insurers

2 **Physical risks**	Re/insurers suffer from very few direct physical risks	
3 **Transition risks**	• Reputation risk • Regulatory risk	• Market risk • Financial risk
4 **Transmitted risks**	**Underwriting risks**	**Investing risks**
	Uninsurability of existing and emerging risks • Low pricing risk • High claims risk • Increasing liability risk	**Overexposure** to declining Nature's contributions to people • Credit risk • Market risk • Solvency risk • Liquidity risk

INCREASING UNCERTAINTY

As "enablers", re/insurers are involved in the causal chains of impacts

By engaging with different economic sectors, re/insurers do indirectly impact biodiversity



Sources: ENCORE, UNEP-WCMC

Addressing biodiversity loss offers opportunities for the re/insurance industry

A source of development of a sustainable societal organization with new business opportunities

Opportunities typology

- **Sustainable and responsible business**
- **Developing business opportunities**
  - Insurance schemes to deal with systemic risks
  - Environmental liability insurance
  - Insurance products for Nature
  - Innovative financial products
- **Reputation and leadership**

A Reef Insurance Primer

Insuring Nature to Ensure a Resilient Future

The Nature Conservancy

Concluding remarks

1. **Climate change** and **biodiversity are different** challenges that need to be tackled simultaneously in an **integrated approach**

2. Overcoming **knowledge gaps** will require **partnerships** between the **academic** and **business** communities

3. The **business case** for biodiversity protection is **still progressing**, but **action cannot wait**

THE WAY FORWARD IS THROUGH COLLECTIVE ACTION

Thank You

Questions ?