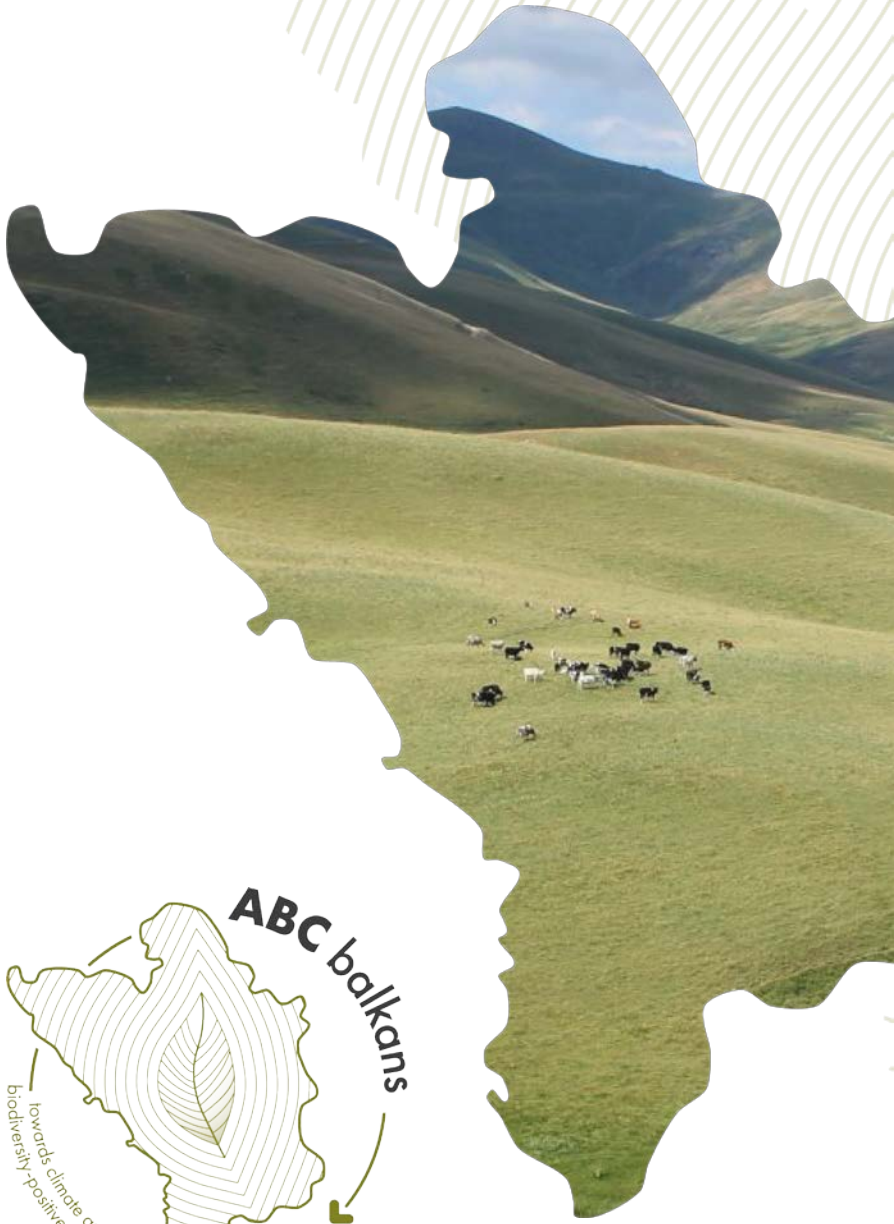
Building an Integrative Framing for the Food, Farming and Forestry sectors

A Nexus Approach



Claire Bernard-Mongin (Cirad)

Skopje Encounter

Skopje, North Macedonia – Dec. 12 & 13, 2023

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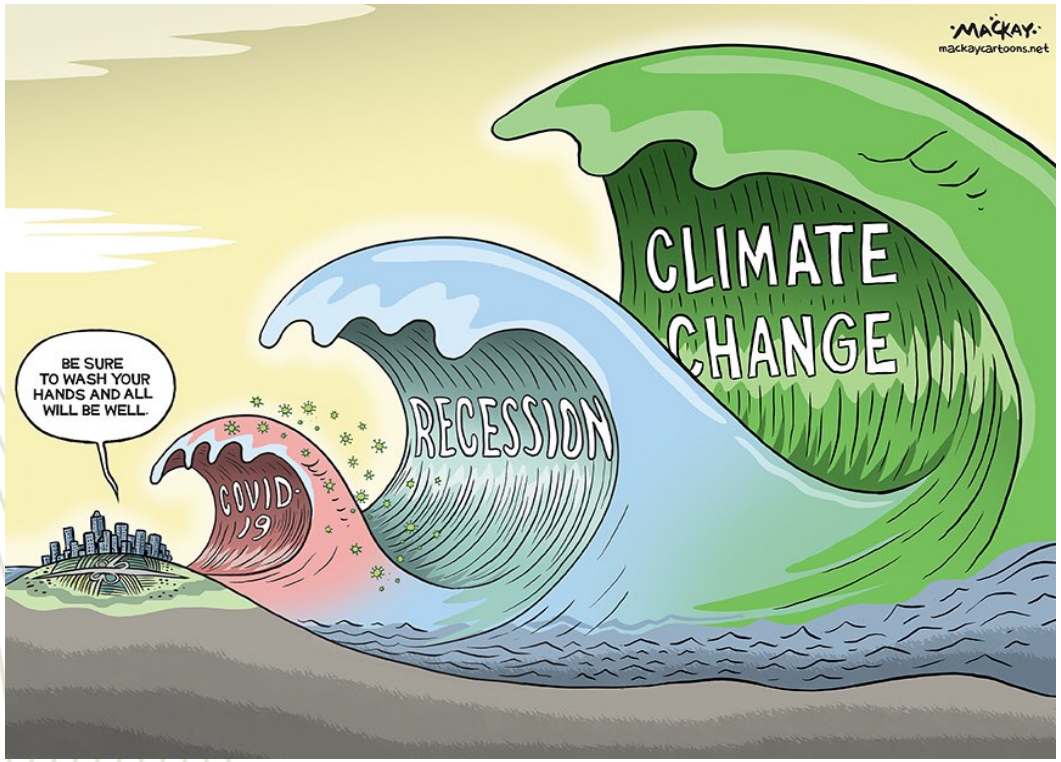
towards climate and biodiversity-positive territories

agriculture biodiversity & climate

The necessity of aligning high climate and biodiversity ambitions



Climate : An Architectonic Public Good

- Intense international coordination around climate change issues - Climate Regime **(Krasner, 1982)**

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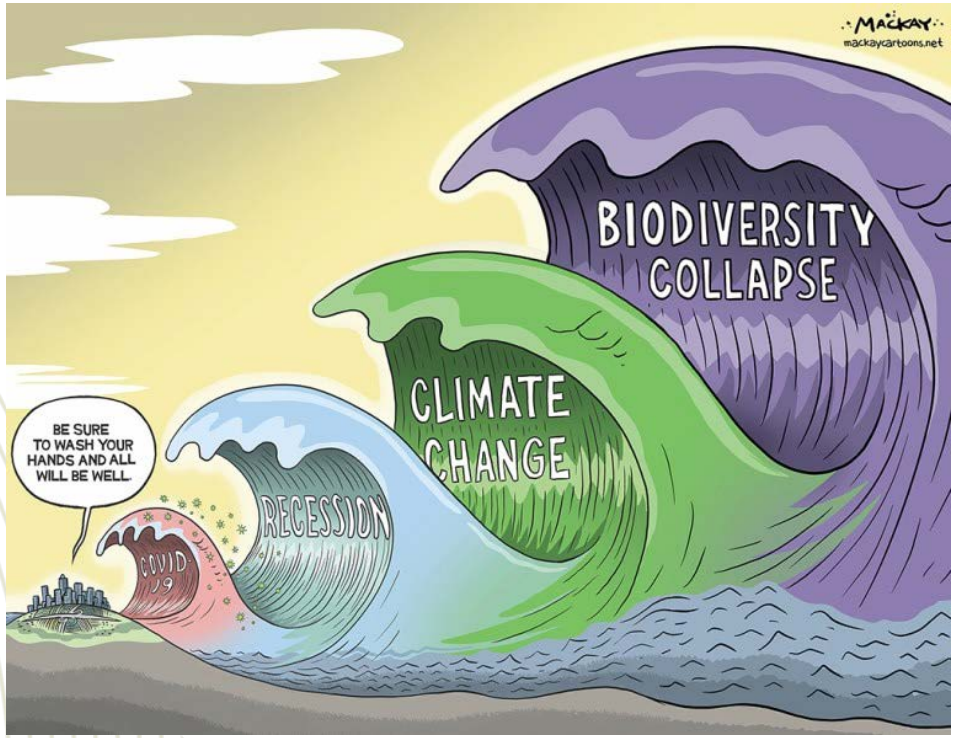

- Intense international coordination around climate change issues - Climate Regime
  (Krasner, 1982)
- Toward greater integration of the climate issue : interplays & complexity = interlinkages
- Particular attention on the **NEXUS** Climate/Biodiversity
  - ✓ **IPBES (2019), 'Nexus assessment'**
  - ✓ **IPCC (2019), "Climate Change and Land"**
  - ✓ **IPBES/IPCC, 2021, "Biodiversity and Climate Change"**

Climate : An Architectonic Public Good,

Dependant & Influing on the provision of other Public Goods

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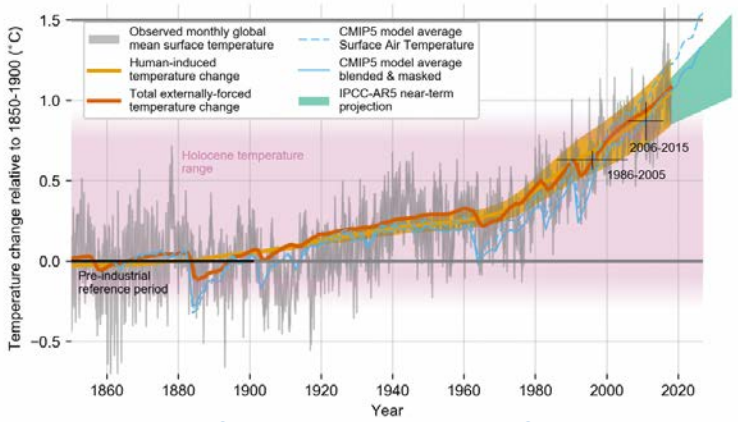
The risk of addressing climate change without considering biodiversity

Stress

- Climate Change
- Biodiversity

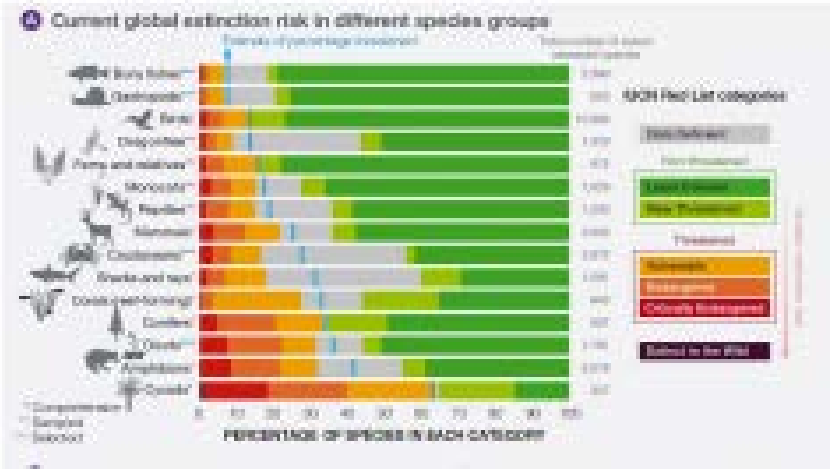


Evolution of global mean surface temperature (GMST) over the period of instrumental observations.

Allen et al. 2018: Framing and Context.

2/3 of our global ecosystems are degradated = one million species are threatened with extinction globally – a rate unprecedented in human history

(IPBES 2019)



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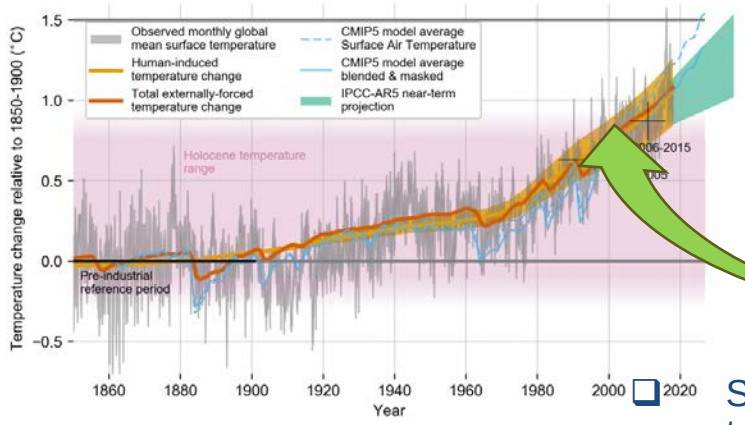

Allen et al. 2018: Framing and Context.

2/3 of our global ecosystems are degradated = one million species are threatened with extinction globally – a rate unprecedented in human history (IPBES 2019)

Regulate

Solutions based on Nature could contribute up to 30% of mitigation efforts needed to keep temperature rise below 2°C (Griscom B.W. et al., 2017) & (UICN-UNEP, 202)

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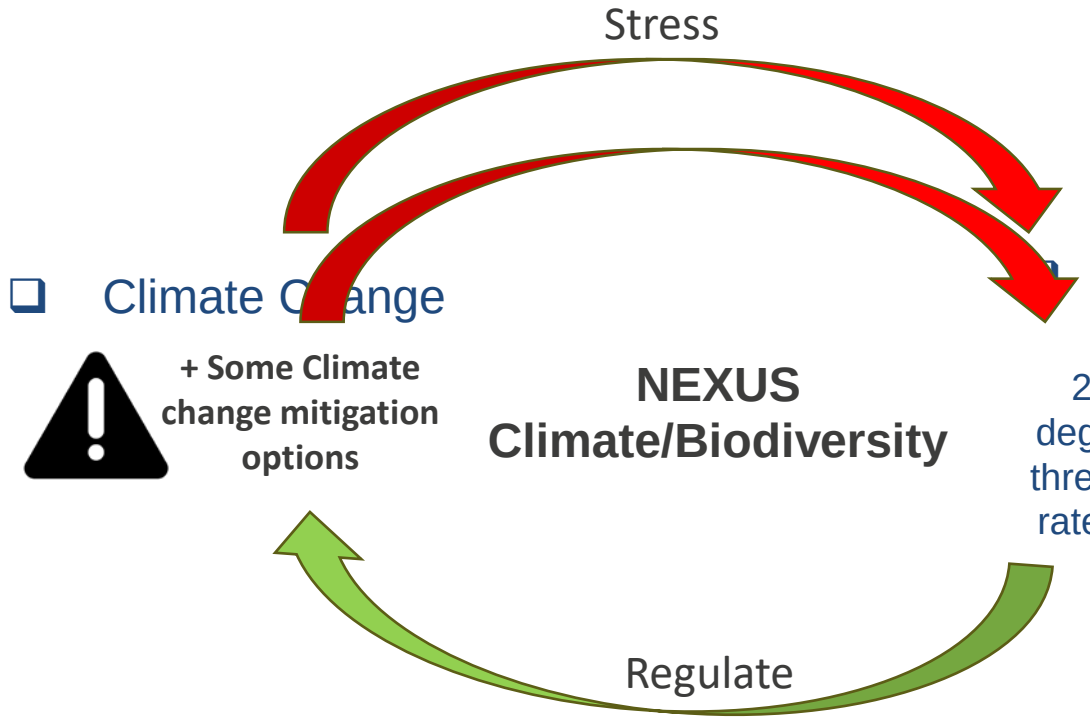
The risk of addressing climate change without considering biodiversity



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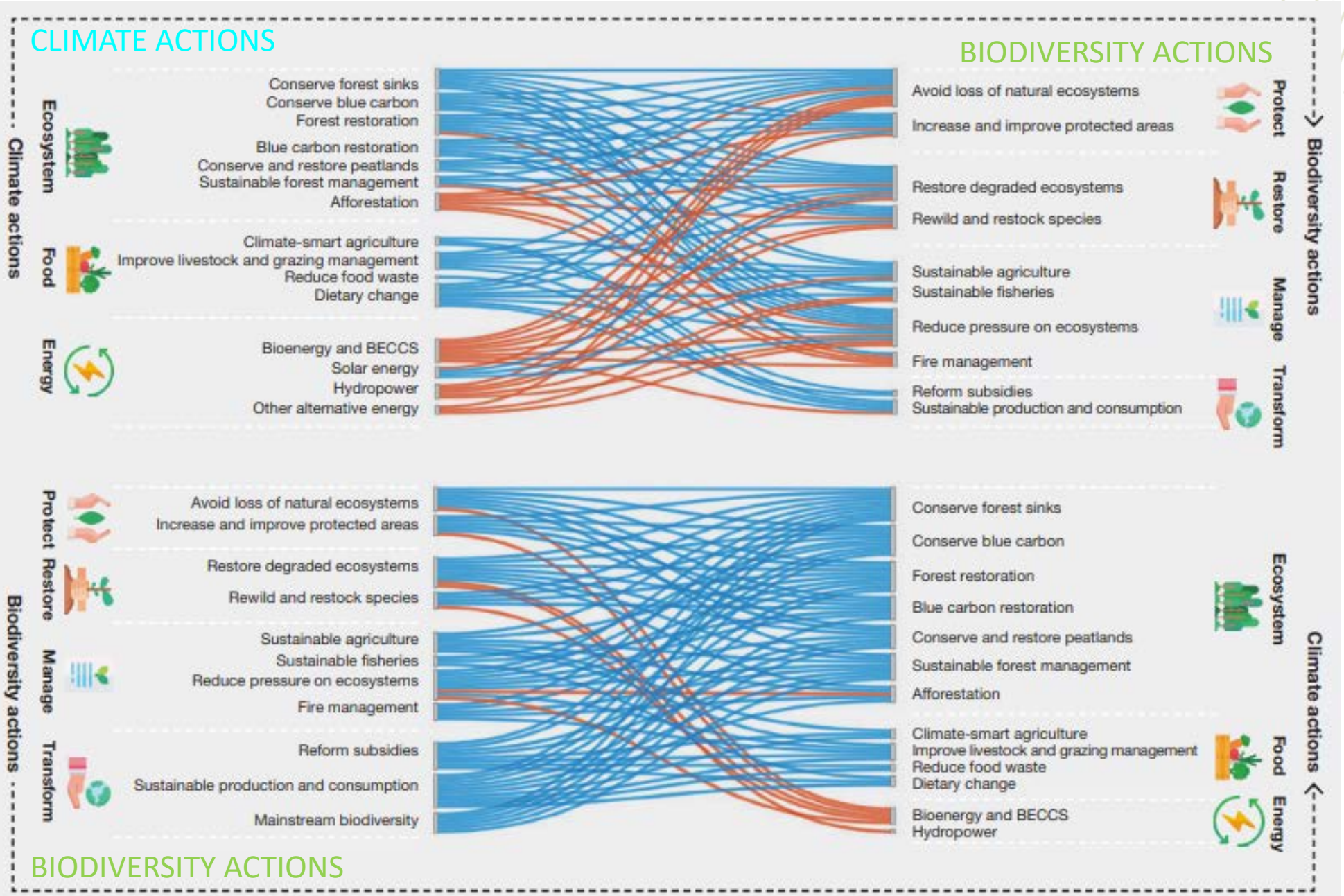
Importance of a global integrative framing



Sankey diagram mapping the effects (positive and negative) of actions to mitigate climate change on actions to mitigate biodiversity loss (top), and of actions to mitigate biodiversity loss on actions to mitigate climate change (bottom). IPCC/IPBES, 2021

Blue lines represent positive effects, while orange lines represent negative effects.

This network of interaction is evolving as many of the solutions are still in the ideation phase or have not yet been deployed at any sizable scale.

Likewise, the strength of interactions may shift over time as the scale of solutions moves beyond the threshold at which unforeseen interactions, positive or negative, may occur.

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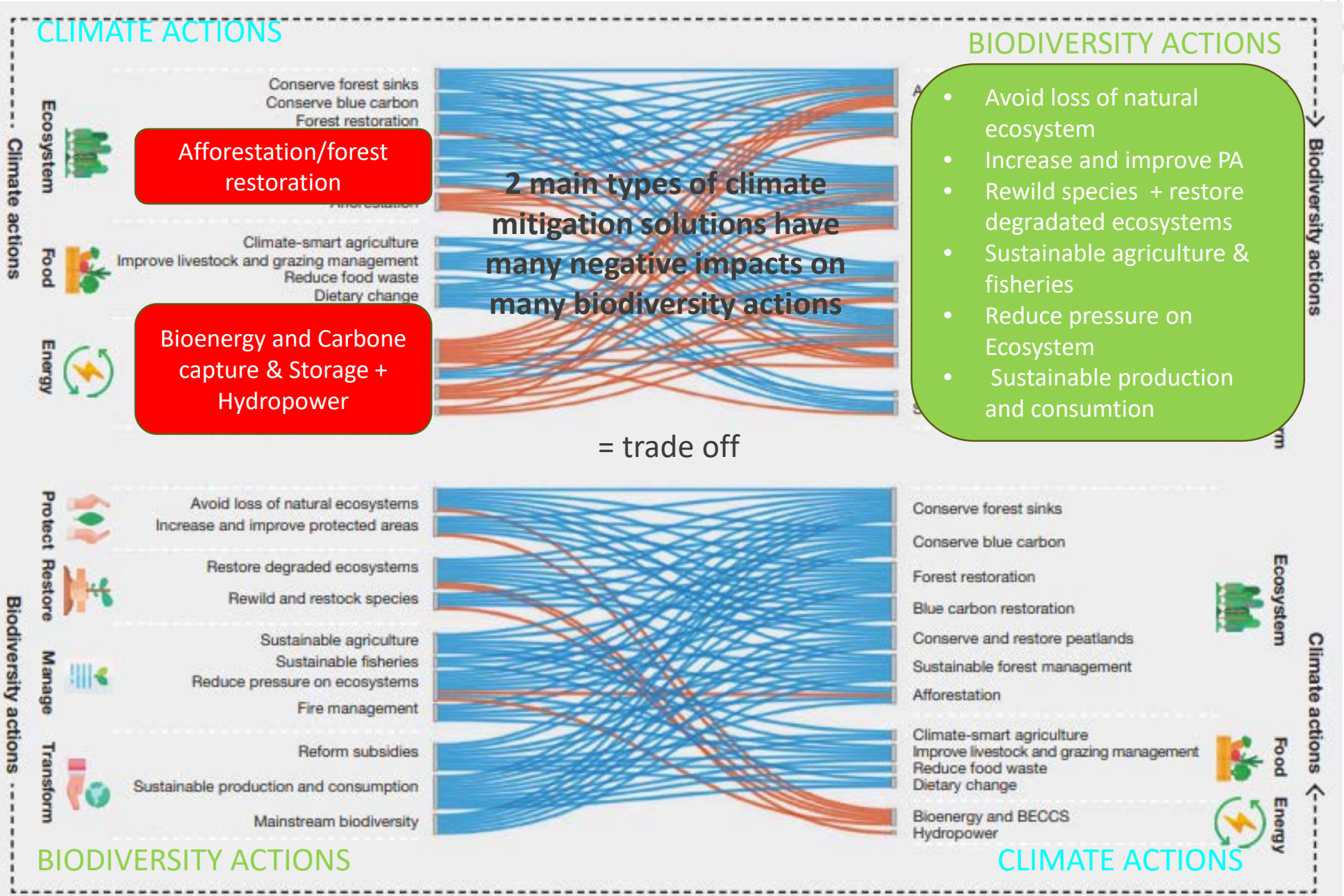

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Food Systems: a major elephant in the room

Food systems have an **ambiguous** role with regard to biodiversity and climate objectives

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Agricultural production and food consumption globally

- contribute both to **1/3 % of GHG global emissions** (Crippa et al, 2021)

Food Systems: a major elephant in the room

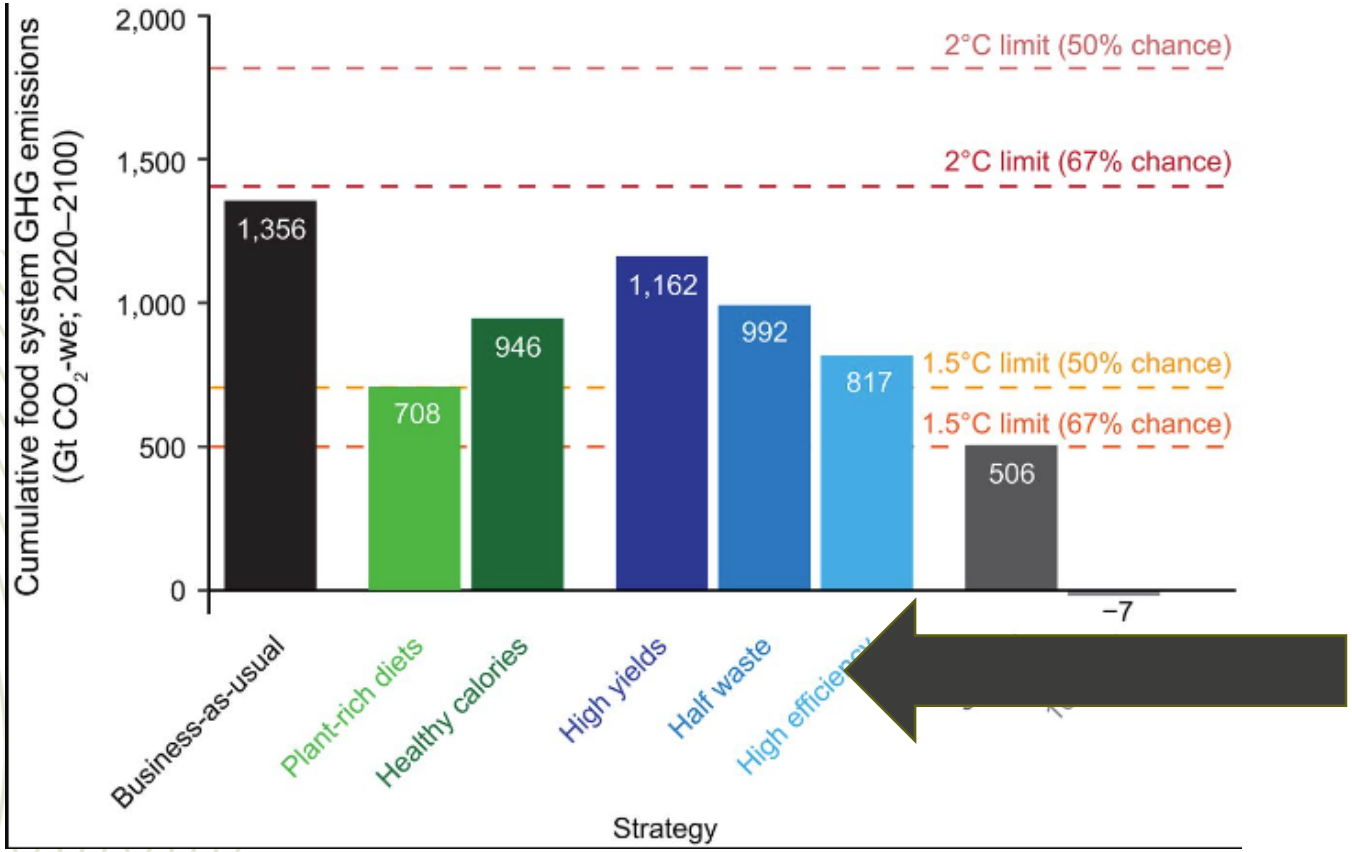

Fig. 1 Projected cumulative 2020 to 2100 GHG emissions solely from the global food system for business-as-usual emissions and for various food system changes that lead to emission reductions.

Food systems have an **ambiguous** role with regard to biodiversity and climate objectives

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On a Climate View Point

"Without fundamental action, it is more **likely that global emissions from food systems will prevent the Paris Agreement goal of limiting global temperature rise to 1.5 or 2°C above preindustrial levels**" (M.A. Clark, et al. 2020)

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Food Systems: a major elephant in the room

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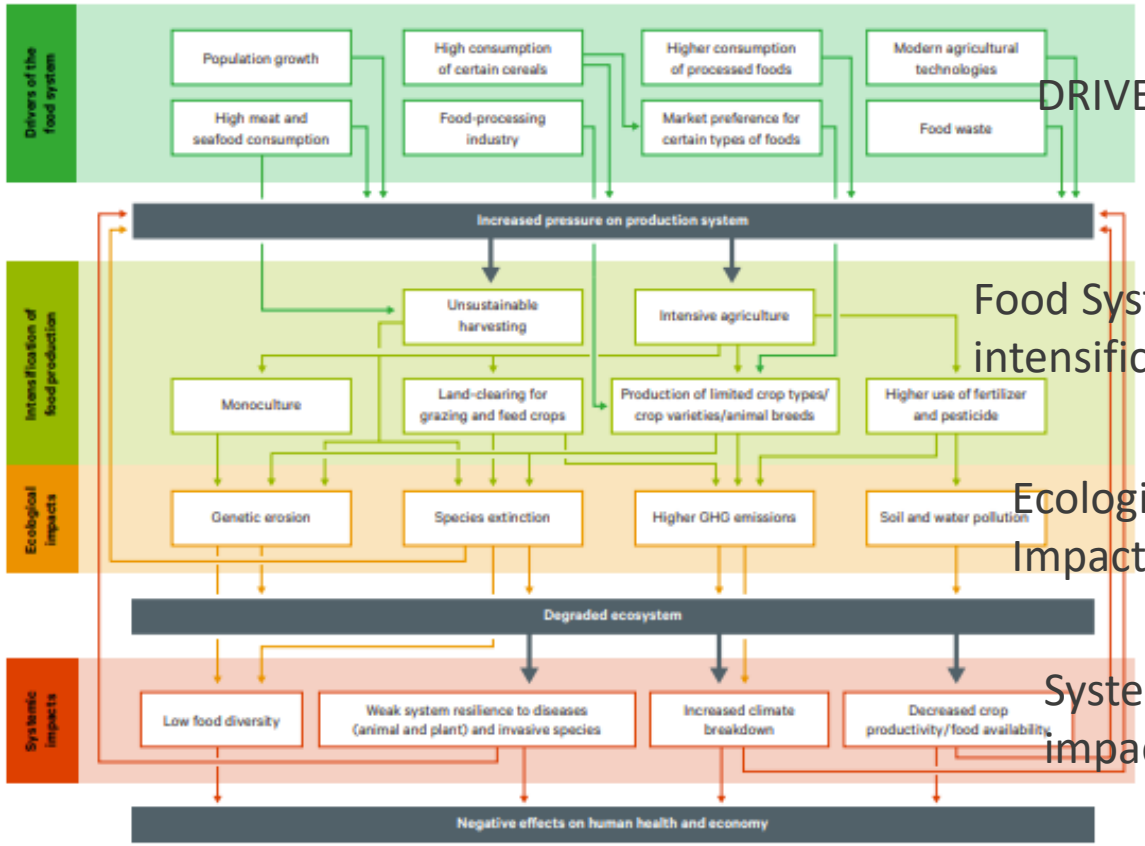
Agricultural production and food consumption globally

- Are responsible for **80% of biodiversity losses** (key driver of deforestation)
- Responsible for **soil degradation and water pollution** (Campbell et al, 2017)

Food Systems: a major elephant in the room

Food System and its impacts on biodiversity

Figure 4. The food system and its impacts on biodiversity



DRIVERS

Food System intensification

Ecological Impacts

Systemic impacts

Food systems have an **ambiguous** role with regard to biodiversity and climate objectives

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- Are responsible for **80% of biodiversity losses** (key driver of deforestation)
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Associated with current food system based on ***industrial agriculture***

= "cheaper food" paradigm

Benton et al, 2021

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Food Systems: a major elephant in the room

Reducing food-related emissions has received less attention

Two major fundamental characteristics of food systems can be considered to understand this relative inaction:

- no disruptive technological solution nor a single pathway on which to focus massive investments
- multiple sources of emissions (during pre and post-production processes as well as during farm gate production steps) + different GHG emissions : carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O)

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= unavoidable environmental cost of feeding humanity ?

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= unavoidable environmental cost of feeding humanity ?
= or work on our collective capacity to deal with complexity (nexus thinking) and increase our ambition toward system change (nexus action) ?

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From ‘nexus thinking’ …

Keep temperature rise below 1.5°C

Triple Challenge
=
Integrative Approach

Halt and reverse biodiversity loss

Nutritious food for all

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Adapted from Baldwin-Cantello et al., 2020 Triple challenge and tackling trade offs between climate, food and biodiversity goals

From ‘nexus thinking’ ...

Keep temperature rise below 1.5°C

Climate Change	Biodiversity	Food
Paris Agreement under the UNFCCC	Vision of the Strategic Plan 2011-2020, UN CBD	Sustainable Development Goals, target 2.1
...keep global temperature rise this century well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C.	By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people.	By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.

International Framework & objectives on the triple challenges

Halt and reverse biodiversity loss

Nutritious food for all

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Adapted from Baldwin-Cantello et al., 2020 Triple challenge and tackling trade offs between climate, food and biodiversity goals

From ‘nexus thinking’ …

Keep temperature rise below 1.5°C

WIN-WIN SOLUTIONS
actions that reduce competition within and deliver on all three goals of the triple challenge

- Adopting healthy and sustainable diets
- Reducing food loss and waste
- Sustainable agriculture
- Healthy environment

Halt and reverse biodiversity loss

Nutritious food for all

alone will not allow us to meet the triple challenge
Further measures will need to be adopted…

Adapted from Baldwin-Cantello et al., 2020 Triple challenge and tackling trade offs between climate, food and biodiversity goals

From ‘nexus thinking’ …

Keep temperature rise below 1.5°C

…and many imply trade-offs
depending on how and where they are deployed and will require conscious **policy choices** between possible response pathways.

TRADE-OFF SOLUTIONS

Halt and reverse biodiversity loss

Nutritious food for all

Adapted from Baldwin-Cantello et al., 2020 Triple challenge and tackling trade offs between climate, food and biodiversity goals

From ‘nexus thinking’ to ‘nexus action’
Theory of change

Keep temperature rise below 1.5°C

Three principles to better navigate trade-off

- ❑ **Hierarchy of Public Choices**
- ❑ **Better inform trade-off**
- ❑ **Experiment solutions**

Halt and reverse biodiversity loss

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From ‘nexus thinking’ to ‘nexus action’
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❑ **Hierarchy of Public Choices**

An integrative, strategic and coordinated approach

- ✓ Align high climate AND biodiversity objectives
- ✓ Harmonize existing framework and legislation
- ✓ Prioritize Win-Win Solutions

Adapted from Baldwin-Cantello et al., 2020 Triple challenge and tackling trade offs between climate, food and biodiversity goals

From ‘nexus thinking’ to ‘nexus action’
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- ✓ Inform public choices and integrated framing
- ✓ Create context-based knowledge (living labs, research-action)
- ✓ Harvest practionners / customary knowledge

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- ✓ Territories as a scale of trade-off integration
- ✓ Local democracy = agents of change
- ✓ Equity in transition

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From ‘nexus thinking’ to ‘nexus action’
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Builds on

- ❑ **Hierarchy of Public Choices**
- ❑ **Better inform trade-off**
- ❑ **Experiment solutions**

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- ❑ Territorial Mediators
- ❑ Knowledge Brokers/Researchers
- ❑ Avocacy/Campainers

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From ‘nexus thinking’ to ‘nexus action ’
Theory of change

Implicit assumptions:

- ❑ Good coordination of three types of roles and competences
- ❑ Scalar coordination - different levels from local to national/regional

From you own experience , could you provide

? Good examples of coordination ?
? Less successfull ? Some example that something was missing ?