

**“GLI ACCORDI ONU E UE
PER LA PROTEZIONE, L’USO
SOSTENIBILE E IL
RIPRISTINO DELLA NATURA
ENTRO IL 2030”**

**Lorenzo Ciccarese
ISPRA
NFP IPBES**

IMAGE LINE
NUTRIRE IL FUTURO

*Sfide e prospettive nella produzione
sostenibile di cibo*

forum-2023-locandina

35°
**Forum
di Medicina
Vegetale**

**Mercoledì
13 Dicembre
2023**

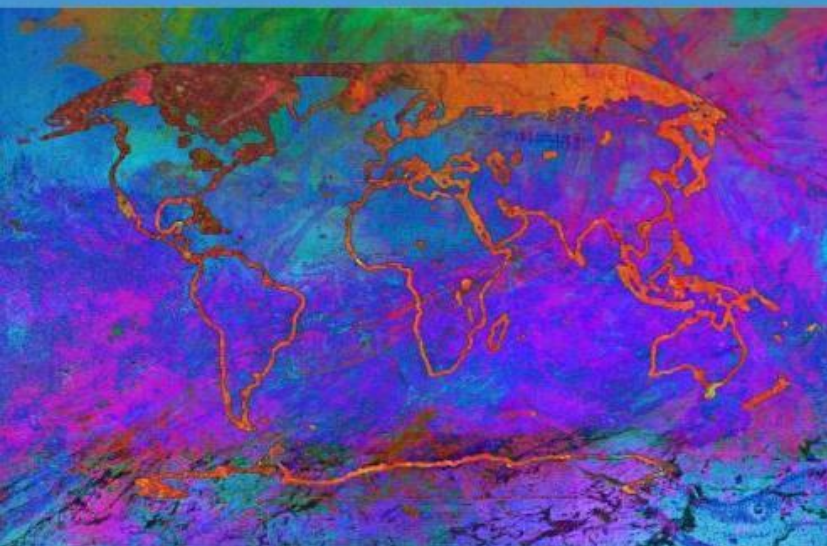
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BARI

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INTERGOVERNMENTAL PANEL ON climate change

Climate Change 2021

The Physical Science Basis



WGI

Working Group I contribution to the
Sixth Assessment Report of the
Intergovernmental Panel on Climate Change



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INTERGOVERNMENTAL PANEL ON climate change

Climate Change 2022

Impacts, Adaptation and Vulnerability

Summary for Policymakers



WGII

Working Group II contribution to the
Sixth Assessment Report of the
Intergovernmental Panel on Climate Change



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INTERGOVERNMENTAL PANEL ON climate change

Climate Change 2022

Mitigation of Climate Change



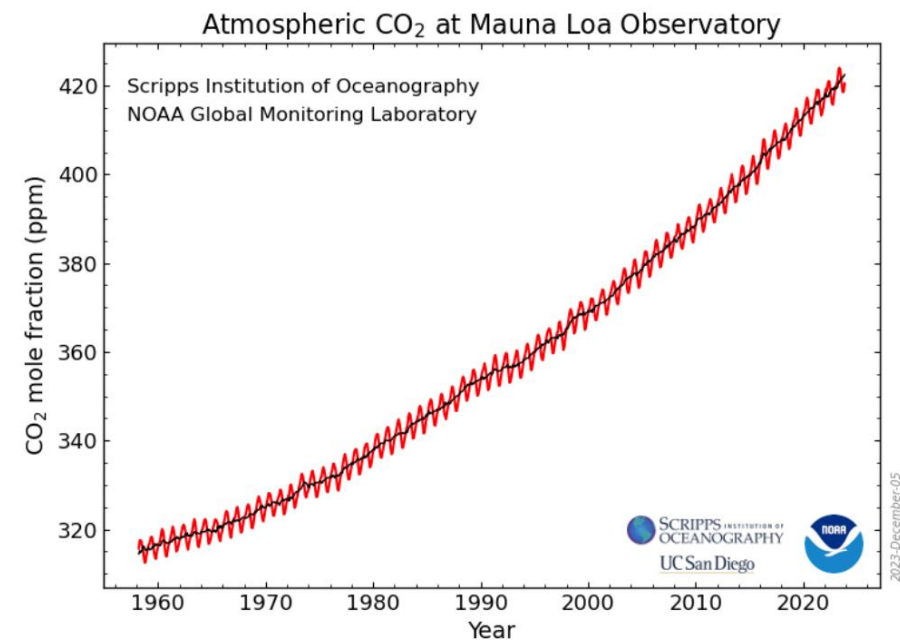
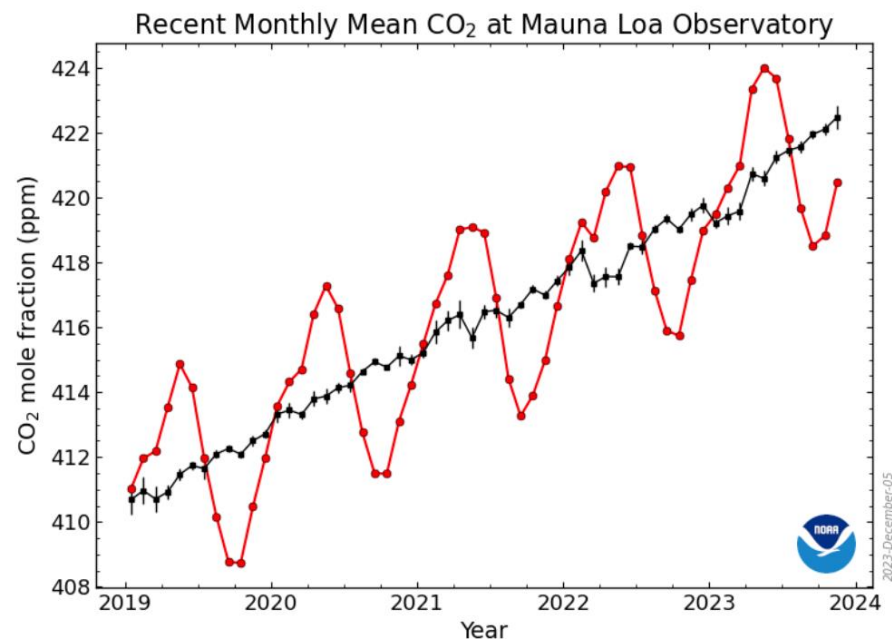
WGIII

Working Group III contribution to the
Sixth Assessment Report of the
Intergovernmental Panel on Climate Change

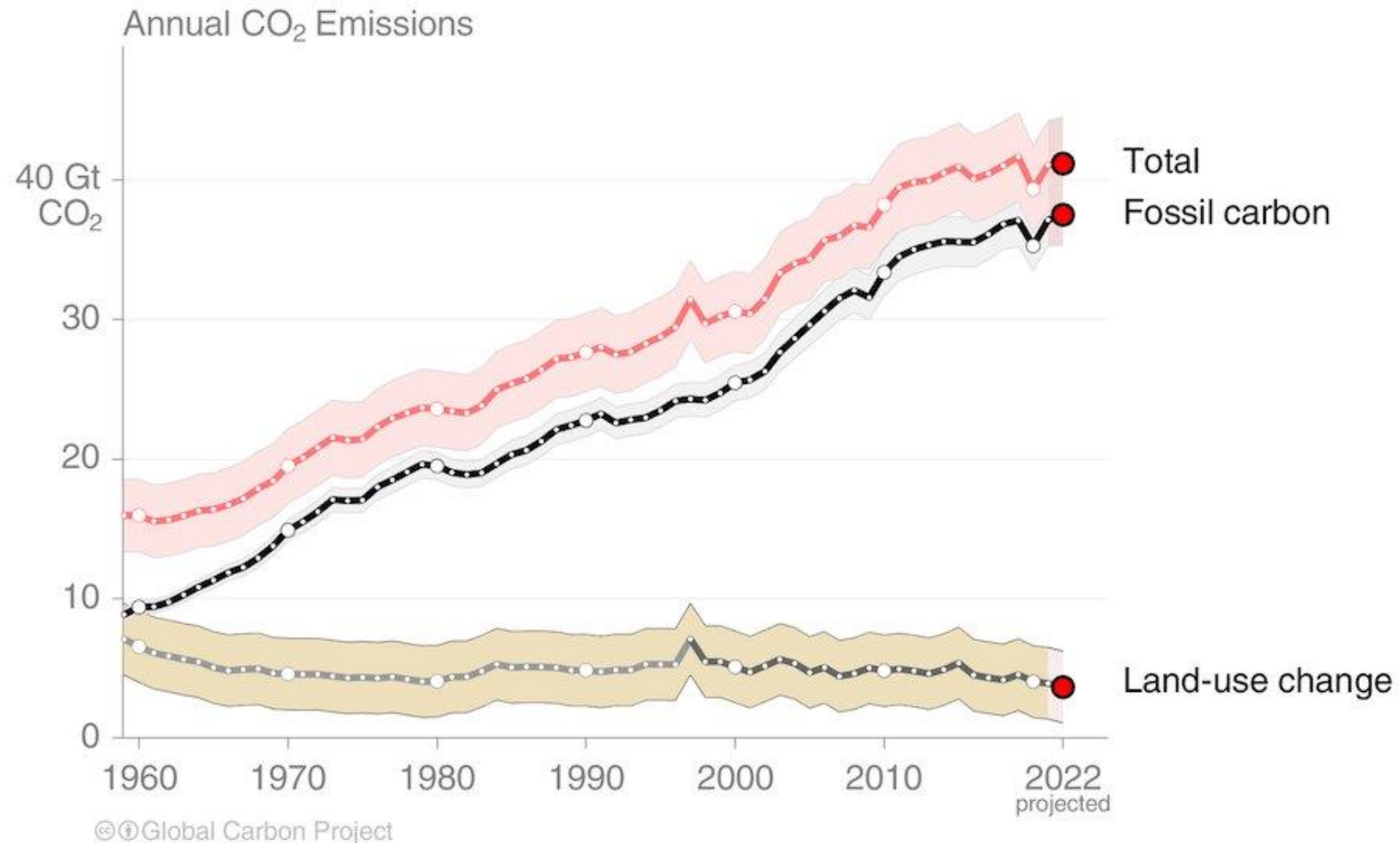




November 2023: 420.46 ppm
November 2022: 417.47 ppm
Last updated: Dec 05, 2023



Evoluzione delle emissioni globali di gas-serra: $43,0 \pm 3,3$ GtCO₂ nel 2022, 56% in più rispetto a quelle emesse nel 1990. Le emissioni di gas-serra dal settore Land-Use Change: 39% del totale dei gas-serra da fonti fossili nel 1960, 14% nel 2022 ($3,9 \pm 2.6$ GtCO₂, circa un decimo del totale delle emissioni legate alla combustione delle fonti fossili)





La deforestazione è uno dei principali fattori dell'accumulo di gas-serra in atmosfera e di declino della biodiversità

Negli ultimi 30 anni la superficie forestale mondiale è diminuita di 420 milioni di ettari

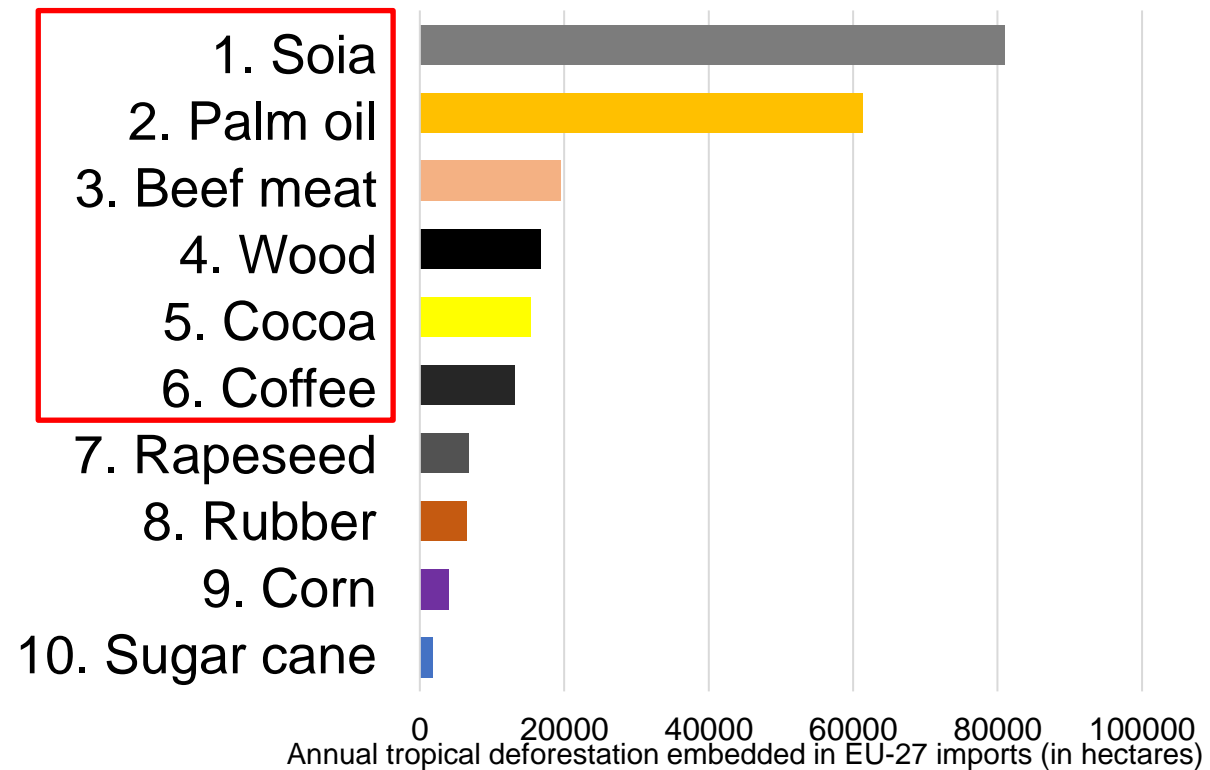
Di questi, almeno 80 milioni sono rappresentate da foreste primarie, naturali e finora indisturbate dall'uomo.

Nel decennio 2011-2020, la deforestazione associata al consumo nell'UE di carne, legname e altri prodotti è stata stimata in circa 2,3-2,6 Mha

L'impatto dei consumo nell'UE sulla deforestazione

New EU Regulation Zero deforestation and forest degradation (EUDR)

Il 90% della deforestazione causata dalle importazioni dell'EU-27 è dovuta alla produzione di 10 commodities



Our elaboration on the database provided by Pendrill et al.(2020)



Table 1. Food system emissions (Mt yr⁻¹) generated on agricultural land, defined as the sum of emissions within the farm gate (on-farm production) and from land use change processes linked to conversion to agriculture. Results for IPCC categories used in NGHGI are also provided, for years 1990 and 2018, single gases and CO₂eq, world-totals and by AI and NAI country grouping. Note that non-CO₂ emissions from net forest conversion were those associated to fires in humid tropical forests, and thus are present only within NAI country totals.

	1990				2018			
	CH ₄	N ₂ O	CO ₂	CO ₂ eq	CH ₄	N ₂ O	CO ₂	CO ₂ eq
Farm gate	2675	2066	1336	6077	2978	2560	1607	7145
On-farm energy use	16	42	701	759	23	38	885	946
Land use	0	118	635	753	0	129	722	852
Crop and Livestock	2659	1788	0	4447	2955	2264	0	5218
Land use change	109	57	4482	4648	80	51	3107	3238
Net forest conversion	54	57	4271	4382	38	51	2945	3034
Peat fires	54	0	211	265	42	0	162	204
Agricultural land	2784	2123	5818	10 725	3058	2611	4714	10 383
NGHGI reporting								
Agriculture	2659	1906	0	4565	2955	2393	0	5347
LULUCF	128	76	1668	1873	100	78	1193	1372
AFOLU	2787	1982	1668	6438	3055	2471	1193	6719

Tubiello F. et al., 2021, Greenhouse gas emissions from food systems: building the evidence base. Research Ecology Letters

[nature](#) > [nature food](#) > [articles](#) > article

Article | [Published: 08 March 2021](#)

Food systems are responsible for a third of global anthropogenic GHG emissions

[M. Crippa](#) , [E. Solazzo](#), [D. Guizzardi](#), [F. Monforti-Ferrario](#), [F. N. Tubiello](#) & [A. Leip](#) 

[Nature Food](#) 2, 198–209 (2021) | [Cite this article](#)

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INTERGOVERNMENTAL PANEL ON climate change

Climate Change and Land

An IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems

Summary for Policymakers



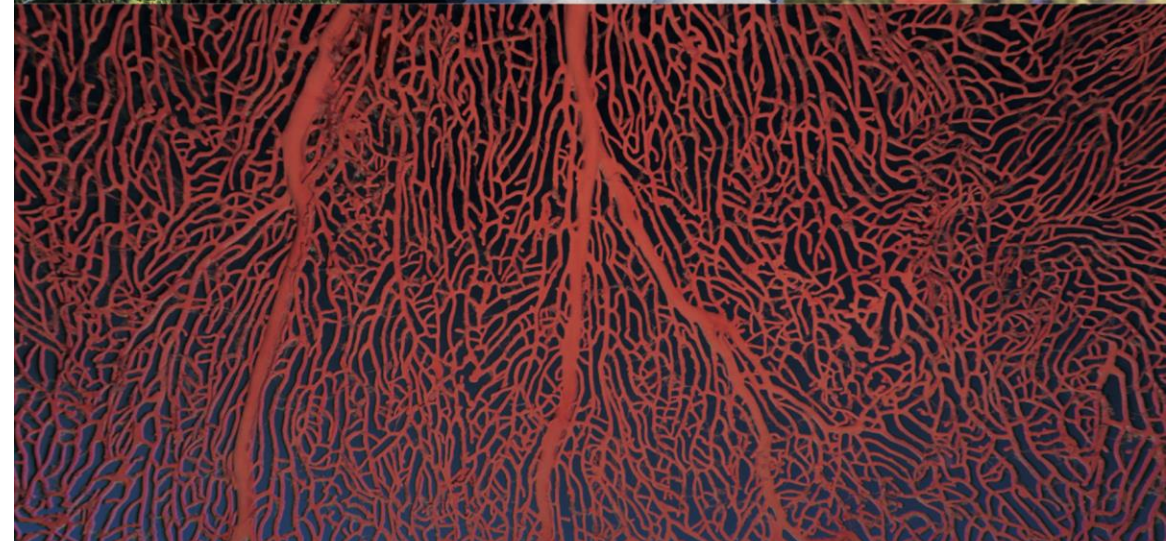
WG I WG II WG III

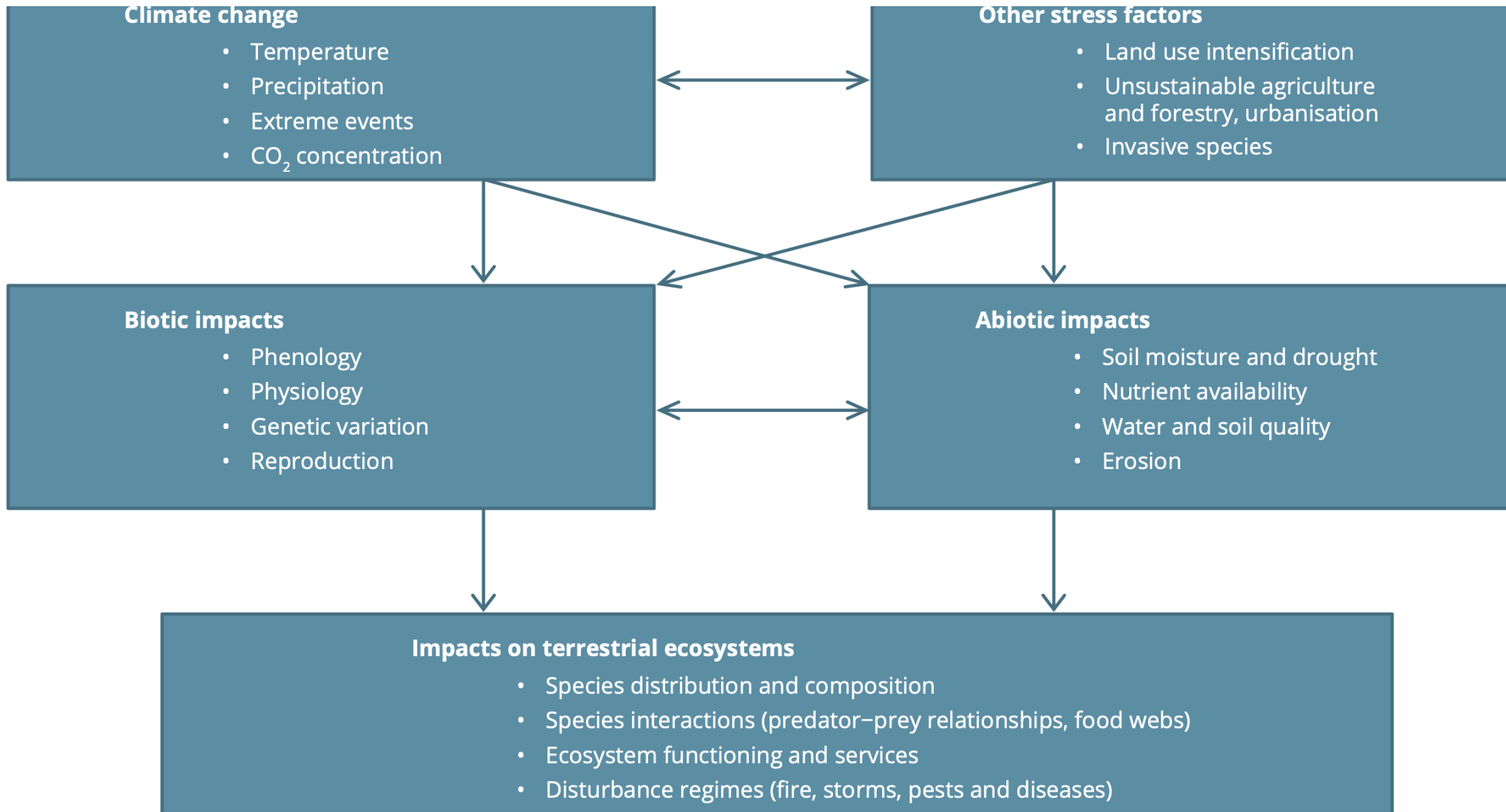


IPBES-IPCC CO-SPONSORED WORKSHOP

BIODIVERSITY AND CLIMATE CHANGE

Scientific outcome





nature climate change

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Article | Published: 01 April 2021

Anthropogenic climate change has slowed global agricultural productivity growth

Ariel Ortiz-Bobea [✉](#), Toby R. Ault, Carlos M. Carrillo, Robert G. Chambers & David B. Lobell

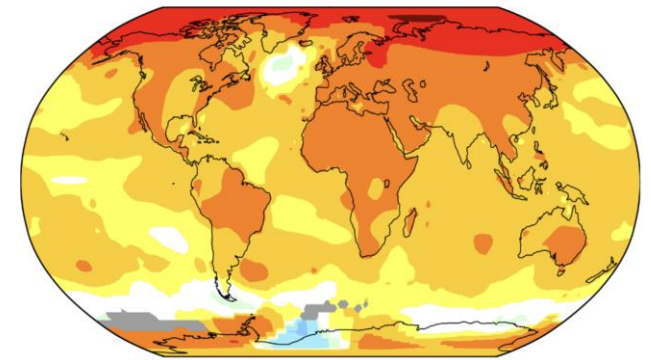
Nature Climate Change **11**, 306–312(2021) | [Cite this article](#)

4476 Accesses | **3** Citations | **1210** Altmetric | [Metrics](#)

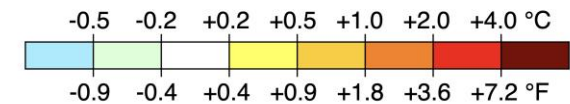
Abstract

Agricultural research has fostered productivity growth, but the historical influence of anthropogenic climate change (ACC) on that growth has not been quantified. We develop a robust econometric model of weather effects on global agricultural total factor productivity (TFP) and combine this model with counterfactual climate scenarios to evaluate impacts of past climate trends on TFP. Our baseline model indicates that ACC has reduced global agricultural TFP by about 21% since 1961, a slowdown that is equivalent to losing the last 7 years of productivity growth. The effect is substantially more severe (a reduction of ~26–34%) in warmer regions such as Africa and Latin America and the Caribbean. We also find that global agriculture has grown more vulnerable to ongoing climate change.

Temperature change in the last 50 years



2011–2020 average vs 1951–1980 baseline



Incendi forestali in Italia (2006-2023)

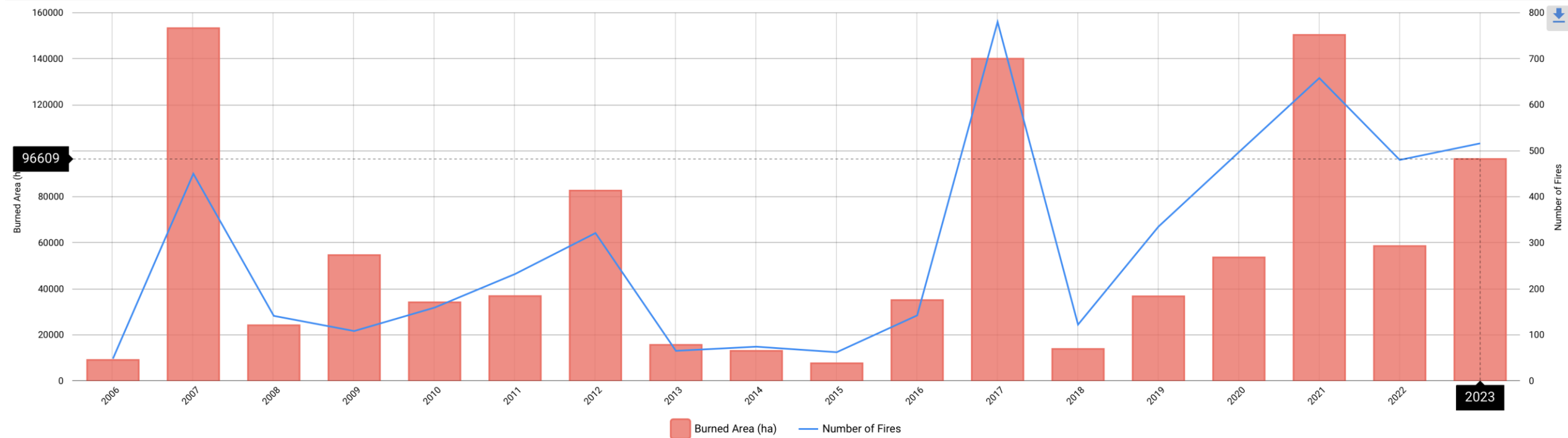
EFFIS Annual Statistics for Italy

Statistics in the charts up 2022 show full year statistics. 2023 is updated up to current date.

Fires mapped in EFFIS of approx. 30 ha or larger.

Country Profile

Copy URL



SELECT VISUALIZATION

 MAP REGIONS COMBINATIONS

HEAT AND COLD

- Mean surface temperature
- Extreme heat
- Cold spell
- Frost

WET AND DRY

- Mean precipitation
- River flood
- Heavy precipitation and pluvial flood
- Landslide
- Aridity
- Hydrological drought
- Agricultural and ecological drought
- Fire weather

WIND

- Mean wind speed
- Severe wind storm
- Tropical cyclone
- Sand and dust storm

SNOW AND ICE

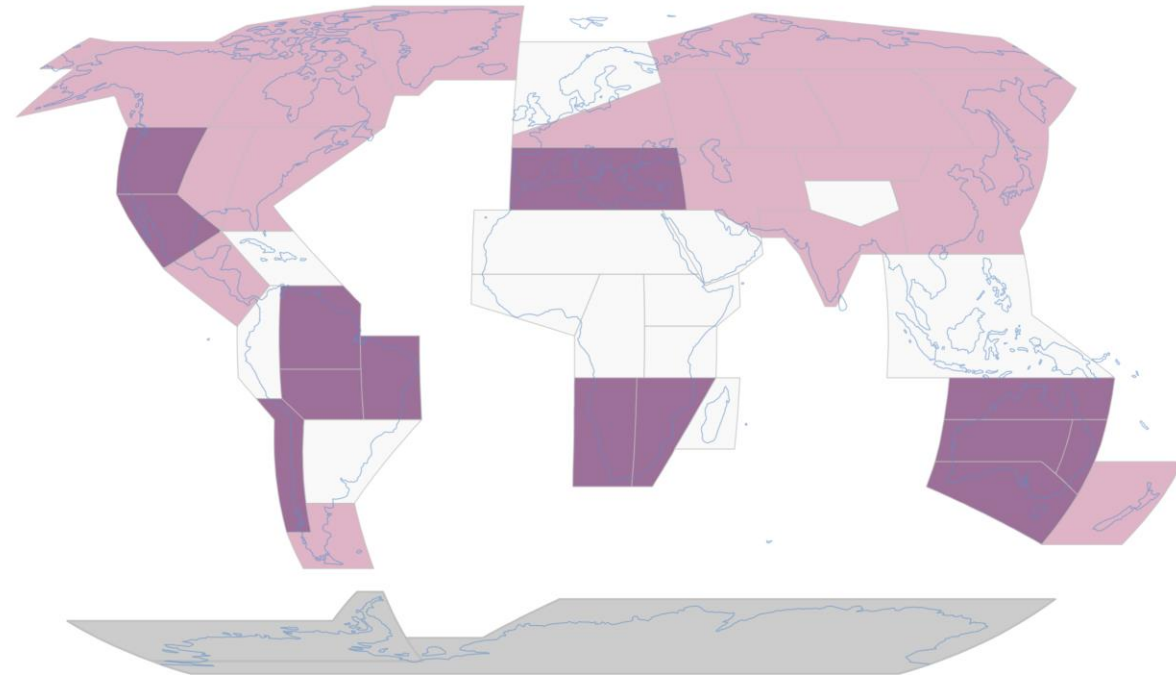
- Snow, glacier and ice sheet
- Permafrost
- Lake, river and sea ice
- Heavy snowfall and ice storm
- Hail
- Snow avalanche

COASTAL

- Relative sea level
- Coastal flood
- Coastal erosion
- Marine heatwave
- Ocean acidity

OTHERS

- Air pollution weather
- Atmospheric CO₂ at surface
- Radiation at surface



SELECT MAGNITUDE

 PROJECTIONS PAST TRENDS

Table 1 – Summary of LULUCF activities in the first Commitment Period of the Kyoto Protocol

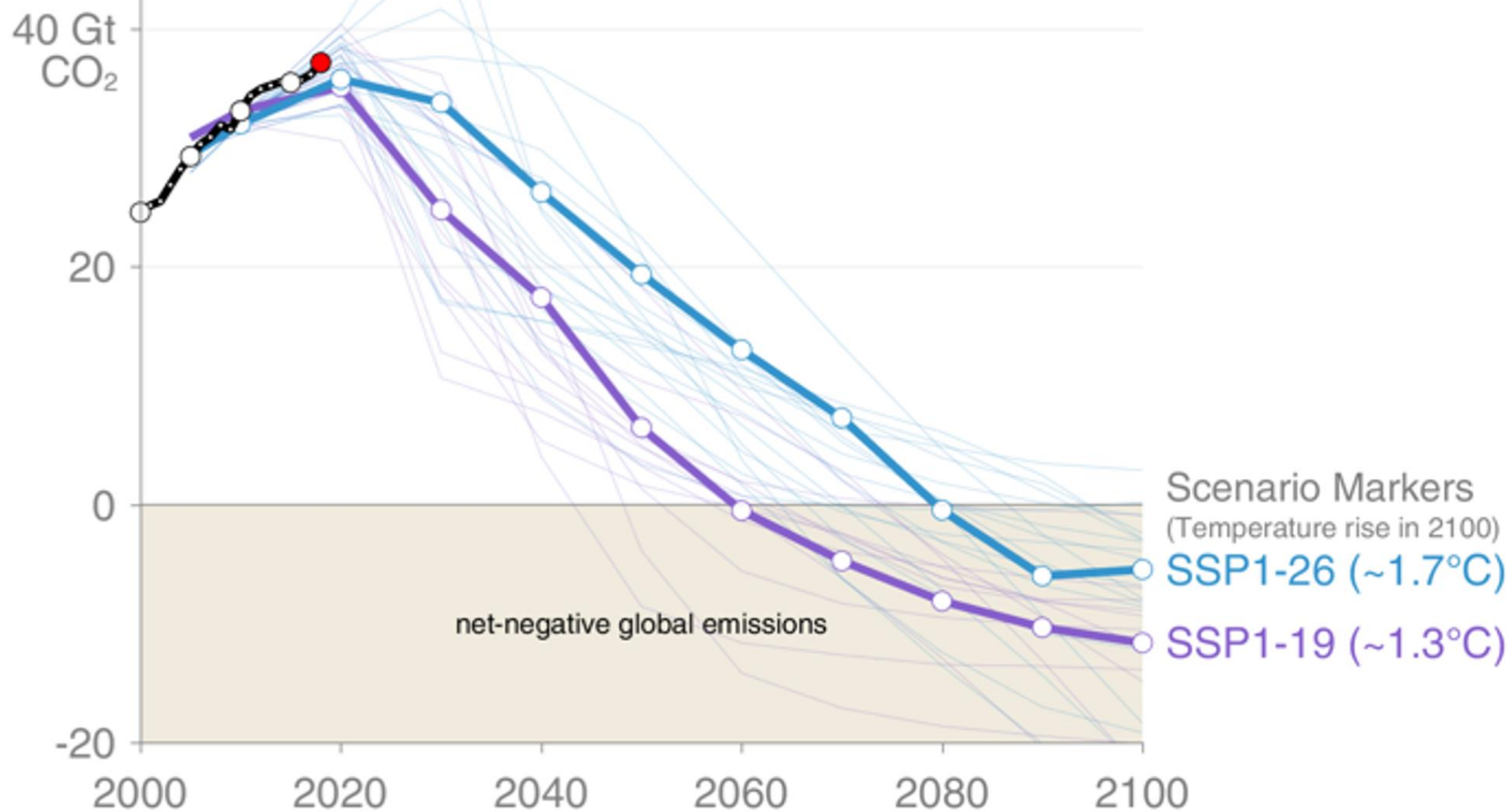
Initial land use	Final land use		
	Forest	Cropland	Grazing land
Forest	FM	D	D
Cropland	AR	CM	GM
Grazing land	AR	CM	GM

The activities shown in italics in the table are also eligible as CDM projects, undertaken in developing countries. For reasons discussed below, the most significant omission in the CDM is the ineligibility of a reduction in deforestation, which could be quantitatively more important than the activities that are eligible.

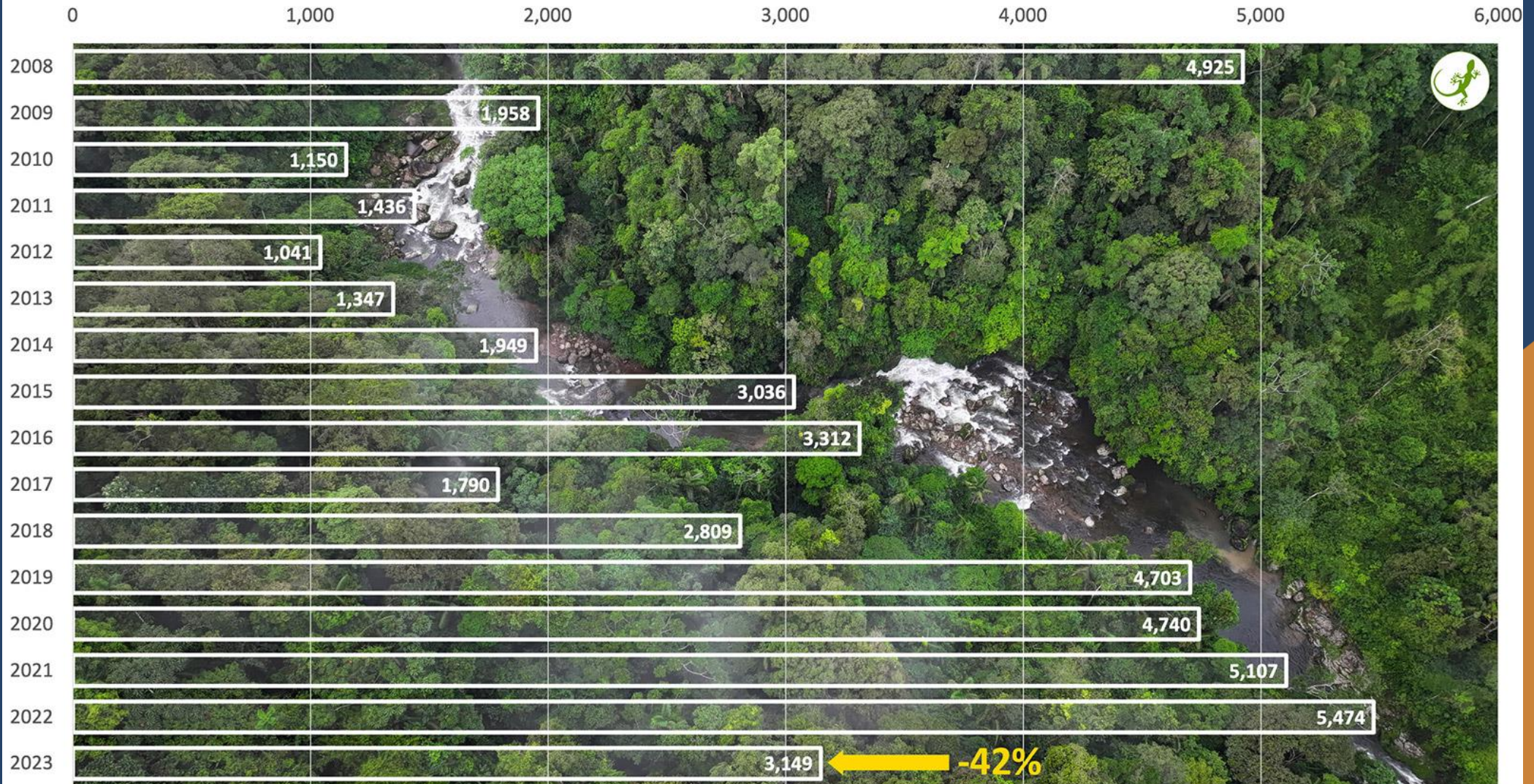
Source: Schlamadinger et al., 2007

Global CO₂ emissions

CO₂ emissions include fossil CO₂ and bioenergy with CCS



Area of deforestation detected by DETER, Jan 1-Jul 31 since 2008 (sq km)



Annual CO₂ emissions

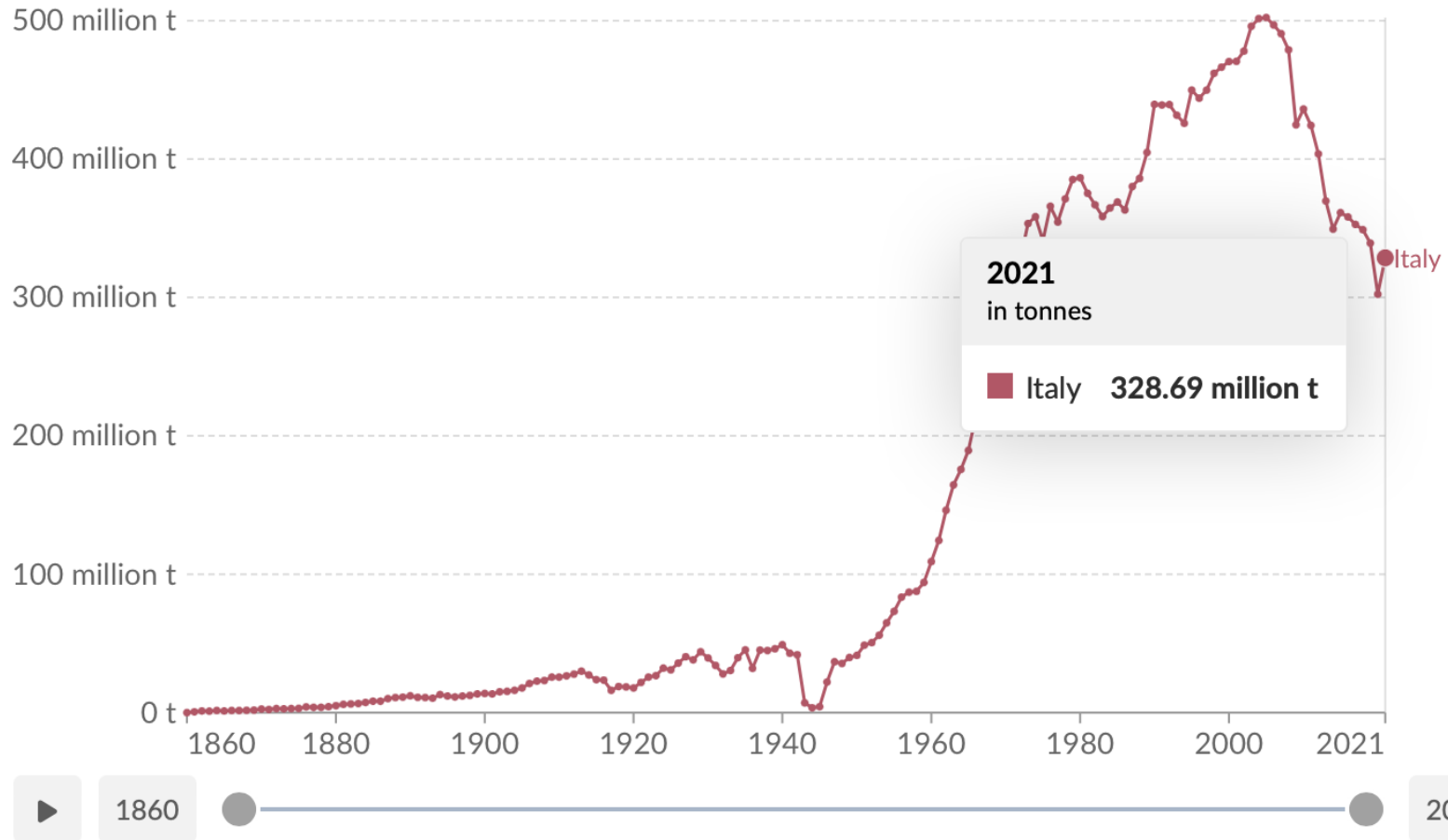
Our World
in Data

Carbon dioxide (CO₂) emissions from fossil fuels and industry. Land use change is not included.

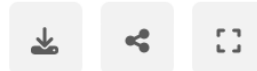
Table | Map | Chart

Edit countries and regions

Settings



Data source: Global Carbon Budget (2022) - [Learn more about this data](#)
OurWorldInData.org/co2-and-greenhouse-gas-emissions | CC BY



Related: [CO₂ data: sources, methods and FAQs](#)

Tabella 3.5 - Emissioni di gas serra delle categorie del settore Agricoltura (Mt CO₂ eq.)

	1990	1995	2000	2005	2010	2015	2017	2018	2019	2020	2021
<i>Mt CO₂ equivalente</i>											
Fermentazione enterica	17.1	16.7	16.5	14.5	14.1	14.3	14.7	14.6	14.6	14.8	14.7
Gestione delle deiezioni	7.9	7.6	7.5	7.4	7.2	6.9	6.8	6.7	6.7	6.7	6.6
Coltivazione di riso	2.1	2.2	1.9	2.0	2.0	1.9	1.8	1.8	1.8	1.8	1.8
Suoli agricoli	10.0	11.0	10.8	10.2	8.5	8.6	8.7	8.7	8.7	9.6	9.2
Combustione dei residui agricoli, emissioni di CO ₂ da applicazione di urea e carbonati	0.5	0.6	0.6	0.6	0.4	0.5	0.5	0.5	0.4	0.5	0.5
Totale settore Agricoltura	37.7	38.1	37.2	34.6	32.2	32.1	32.6	32.3	32.2	33.4	32.7

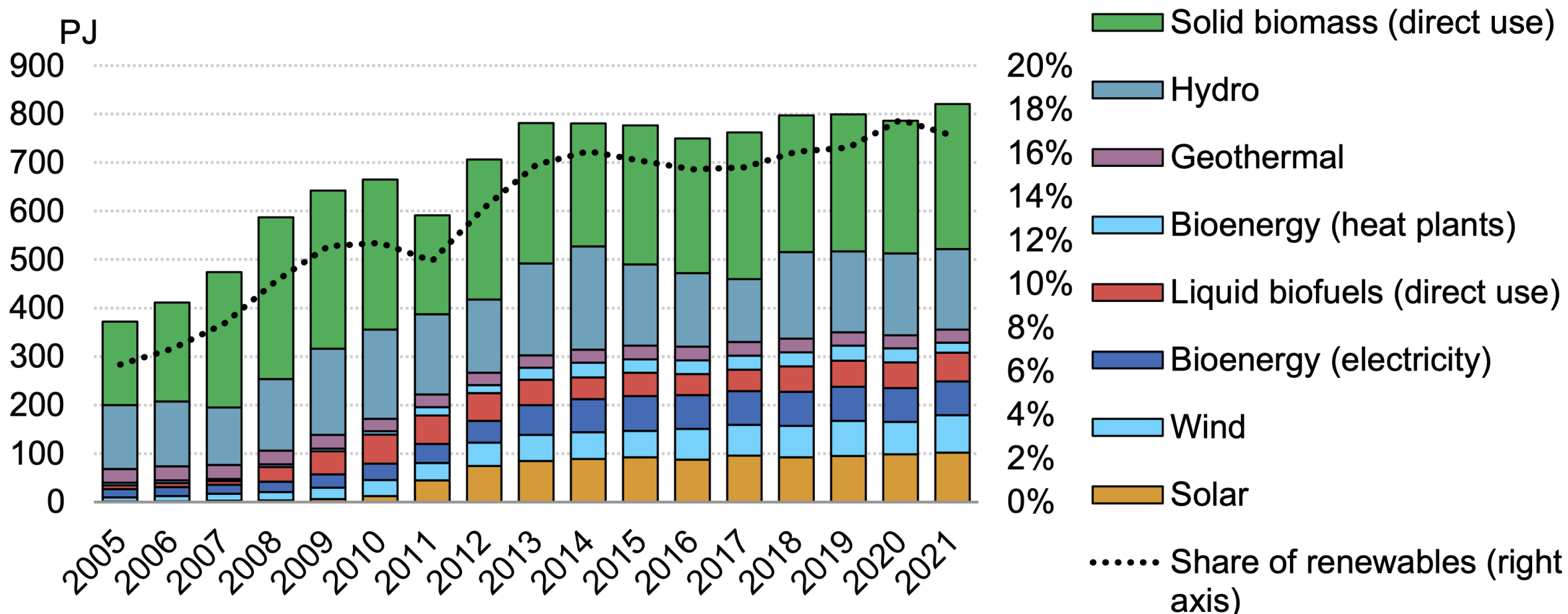
33 Mt CO₂ contribuiscono per circa il 7,8% alle emissioni totali nazionali (2021)

Tabella 3.6 - Assorbimenti ed emissioni di gas serra delle categorie del settore LULUCF (Mt CO₂ eq.)

	1990	1995	2000	2005	2010	2015	2017	2018	2019	2020	2021
<i>Mt CO₂ equivalente</i>											
Foreste	-17.2	-31.0	-26.2	-34.9	-36.4	-40.2	-23.0	-40.6	-35.4	-29.8	-27.8
Terre agricole	1.8	0.8	-0.5	-1.8	-0.8	0.7	-0.9	-0.5	-0.5	1.1	1.1
Prati e pascoli, altre terre boscate	5.2	-1.9	-1.4	-6.1	-9.2	-9.3	-4.0	-8.9	-8.1	-7.3	-3.6
Zone umide	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	NO,NE
Insedimenti urbani	7.1	8.9	6.9	7.7	4.7	4.7	5.5	5.5	5.5	5.5	4.7
Prodotti legnosi (HWP)	-0.4	-0.7	-0.5	-0.5	-0.1	0.1	-1.0	-0.8	-3.5	-2.2	-2.0
Totale settore LULUCF	-3.5	-23.9	-21.6	-35.6	-41.7	-44.0	-23.3	-45.2	-41.8	-32.5	-27.5

Nel 2021 foreste, prati, pascoli ed altre terre boscate hanno generato un C sink di circa 28 Mt di di CO₂

Energia rinnovabile sul consumo totale di energia in Italia e ripartizione tra le diverse fonti, 2005-2021 (IEA, 2023)



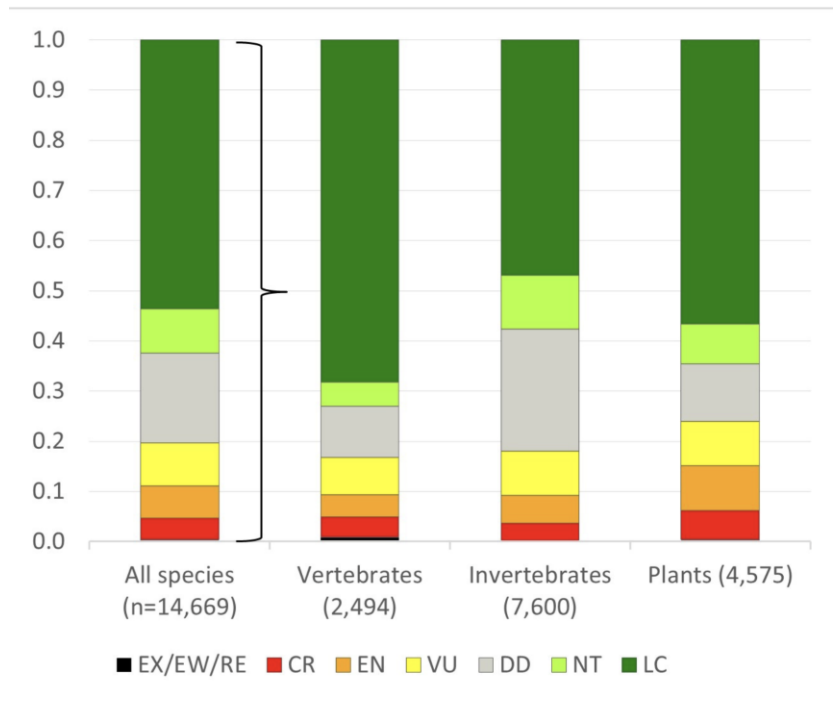
ipbes



The global
assessment report on
**BIODIVERSITY
AND ECOSYSTEM
SERVICES**

status of 14,669 European species.

EX: Extinct, EW: Extinct in the Wild, RE: Regionally Extinct, CR: Critically Endangered, EN: Endangered, VU: Vulnerable, DD: Data Deficient, NT: Near Threatened, LC: Least Concern.



org/10.1371/journal.pone.0293083.g001

PLOS ONE

OPEN ACCESS PEER-REVIEWED

RESEARCH ARTICLE

A multi-taxon analysis of European Red Lists reveals major threats to biodiversity

Axel Hochkirch, Melanie Bilz, Catarina C. Ferreira, Anja Danielczak, David Allen, Ana Nieto, Carlo Rondinini, Kate Harrington, Craig Hilton-Taylor, Caroline M. Pollock, Mary Seddon, Jean-Christophe Vié, Keith N.A. Alexander, [...], Thomas Zuna-Kraus [view all]

Published: November 8, 2023 • <https://doi.org/10.1371/journal.pone.0293083>

Article	Authors	Metrics	Comments	Media Coverage
▼				

Abstract

- Introduction
- Discussion
- Materials and methods
- Supporting information
- Acknowledgments
- References

Reader Comments

Figures

Abstract

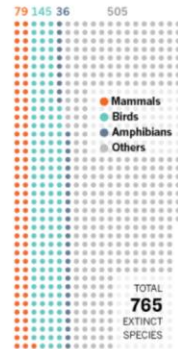
Biodiversity loss is a major global challenge and minimizing extinction rates is the goal of several multilateral environmental agreements. Policy decisions require comprehensive, spatially explicit information on species' distributions and threats. We present an analysis of the conservation status of 14,669 European terrestrial, freshwater and marine species (ca. 10% of the continental fauna and flora), including all vertebrates and selected groups of invertebrates and plants. Our results reveal that 19% of European species are threatened with extinction with higher extinction risks for plants (27%) and invertebrates (24%) compared to vertebrates (18%). These numbers exceed recent IPBES (Intergovernmental Platform on Biodiversity and Ecosystem Services) assumptions of extinction risk. Changes in agricultural practices associated with habitat loss, overharvesting, pollution and development are major threats to biodiversity. Maintaining and restoring sustainable land and water use practices is crucial to minimize future biodiversity declines.

Life under threat

Thousands of species are currently deemed to be threatened, but the true number of species at risk of extinction may be much higher. Estimates suggest that between 500 and 36,000 species might be disappearing each year. The best data are for well-studied groups — mammals, birds and amphibians. Much less is known about threats to other groups, such as insects and fish.

ALREADY EXTINCT

TOTAL DOCUMENTED SINCE 1500



March towards mass extinction

Mass extinctions — loss of 75% of existing species — have happened 5 times in the planet's history. If there are 5 million animal species and they are disappearing at rate of 0.226 per year (the upper end of estimates), a sixth mass extinction could happen by the year 2200. At the low end of the estimated range, a mass extinction would not happen for thousands of years.

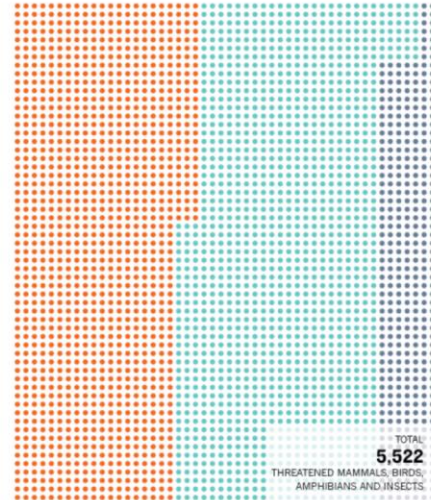
BY RICHARD MONASTERSKY | GRAPHIC BY SW INFOGRAPHIC

Mammals
1,199
THREATENED SPECIES
26% of described species

CURRENTLY THREATENED



Birds
1,373
THREATENED SPECIES
13% of described species



Amphibians
1,957
THREATENED SPECIES
41% of described species

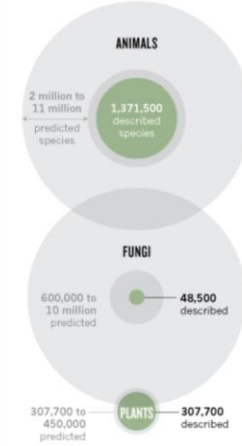


Insects
993
THREATENED SPECIES
(Only 0.5% of roughly 1 million described have been evaluated. Number of living species may exceed 5 million)



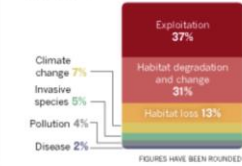
How many species are there?

Estimates of the number of species of animals, fungi and plants vary significantly. That uncertainty clouds understanding of how many species are threatened and how many are going extinct.



Main threats

Hunting, fishing and other forms of exploitation are a major factor in declines in animal populations, according to the Living Planet Index. Habitat degradation and loss are also dominant threats. Climate change is expected to become a bigger factor over time.



EXTINCTIONS PER WEEK



PHOTO CREDITS: @ jesus and @ americanas; Joel Sartore/National Geographic Creative; S. denonius; Life on white/Nature; R. Sumner; Joel Sartore/National Geographic Creative/Gaety

SOURCES: Already Extinct, Currently Threatened; IUCN Red List; How many species are there? S. L. Pimm et al. Science 344, 1247-1252 (2014); B. R. Scheffers et al. Trends Ecol. Evol. 27, 501-510 (2012); IUCN Red List; March towards mass extinction; Pimm et al. C. Mors et al. Science 341, 237 (2013); Main threats; WWF Living Planet Report 2014

More than 40,000 species
are threatened with extinction
That is still 28% of all assessed species.

AMPHIBIANS

41%



MAMMALS

26%



CONIFERS

34%



BIRDS

13%



SHARKS & RAYS

37%



REEF CORALS

33%



SELECTED CRUSTACEANS

28%



REPTILES

21%



CYCADS

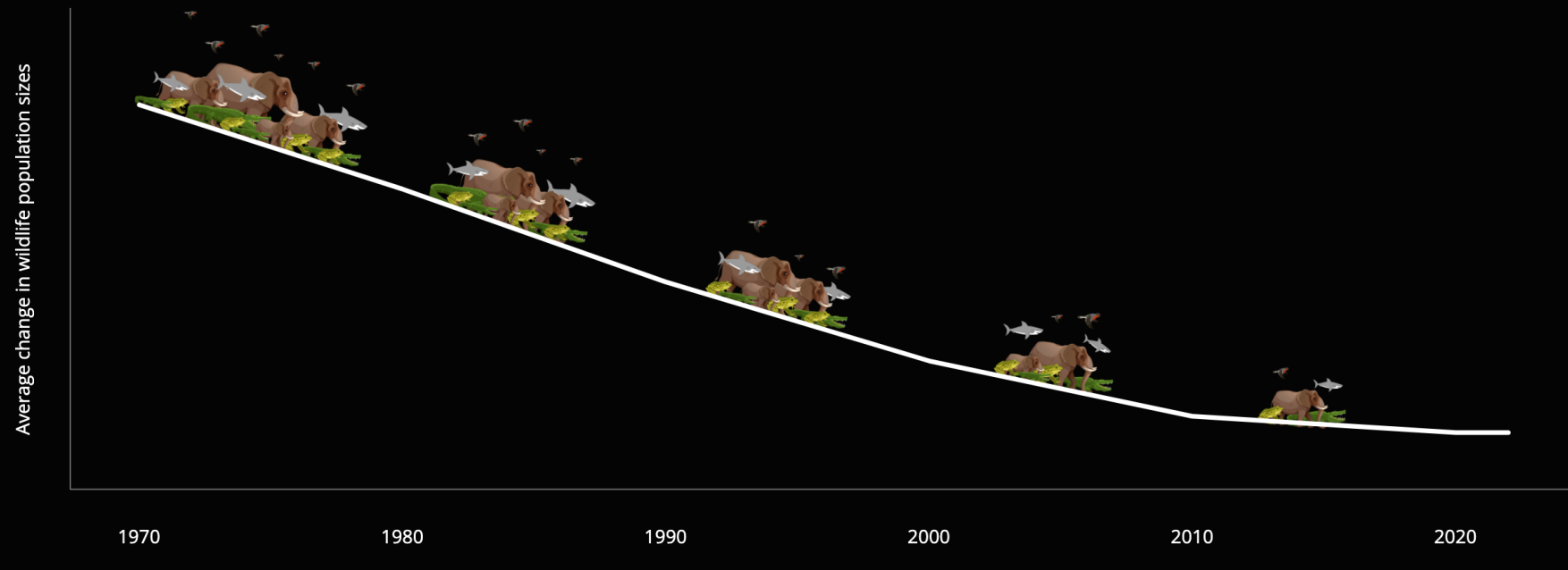
63%

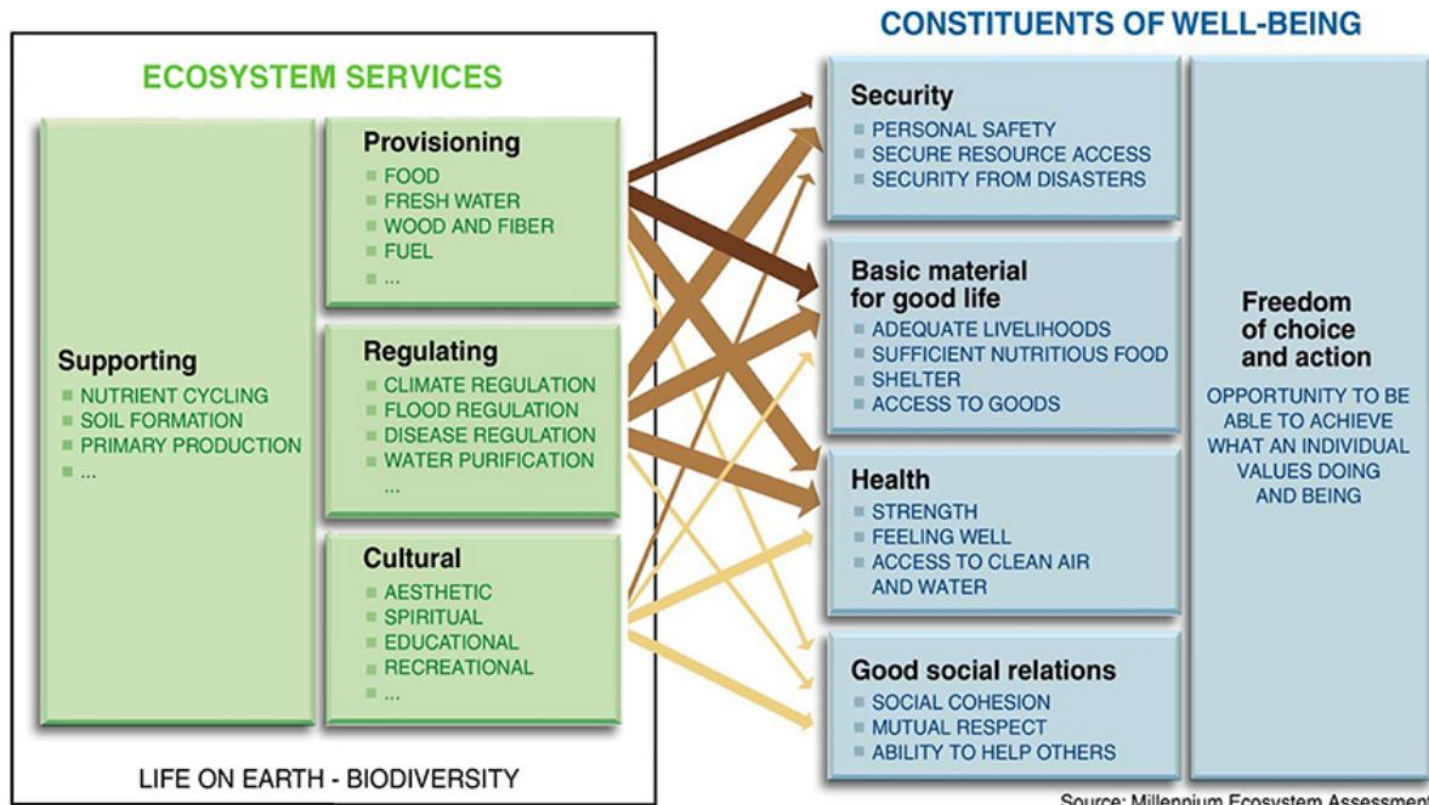


Living Planet Index

TRACKING THE HEALTH OF NATURE OVER 50 YEARS

The Living Planet Index (LPI) - which tracks populations of mammals, birds, fish, reptiles and amphibians - reveals an average 69% decrease in monitored wildlife populations since 1970. The 2022 LPI analysed almost 32,000 species populations. It provides the most comprehensive measure of how they are responding to pressures in their environment.





ARROW'S COLOR
Potential for mediation by socioeconomic factors

Low Medium High

ARROW'S WIDTH
Intensity of linkages between ecosystem services and human well-being

Weak Medium Strong

The methodological assessment report on
THE DIVERSE VALUES AND VALUATION OF NATURE
 SUMMARY FOR POLICYMAKERS

	Nature's contribution to people	50-year global trend	Directional trend across regions	Selected indicator
REGULATION OF ENVIRONMENTAL PROCESSES	1 Habitat creation and maintenance	↓	○	• Extent of suitable habitat • Biodiversity intactness
	2 Pollination and dispersal of seeds and other propagules	↓	○	• Pollinator diversity • Extent of natural habitat in agricultural areas
	3 Regulation of air quality	↘	↕	• Retention and prevented emissions of air pollutants by ecosystems
	4 Regulation of climate	↘	↕	• Prevented emissions and uptake of greenhouse gases by ecosystems
	5 Regulation of ocean acidification	→	↕	• Capacity to sequester carbon by marine and terrestrial environments
	6 Regulation of freshwater quantity, location and timing	↘	↕	• Ecosystem impact on air-surface-ground water partitioning
	7 Regulation of freshwater and coastal water quality	↘	○	• Extent of ecosystems that filter or add constituent components to water
	8 Formation, protection and decontamination of soils and sediments	↘	↕	• Soil organic carbon
	9 Regulation of hazards and extreme events	↘	↕	• Ability of ecosystems to absorb and buffer hazards
	10 Regulation of detrimental organisms and biological processes	↓	○	• Extent of natural habitat in agricultural areas • Diversity of competent hosts of vector-borne diseases
NON-MATERIAL MATERIALS AND ASSISTANCE	11 Energy	↘	↗	• Extent of agricultural land—potential land for bioenergy production • Extent of forested land
	12 Food and feed	↓	↗	• Extent of agricultural land—potential land for food and feed • Abundance of marine fish stocks
	13 Materials and assistance	↘	↗	• Extent of agricultural land—potential land for material production • Extent of forested land
	14 Medicinal, biochemical and genetic resources	↓	○	• Fraction of species locally known and used medicinally • Phylogenetic diversity
	15 Learning and inspiration	↓	○	• Number of people in close proximity to nature • Diversity of life from which to learn
	16 Physical and psychological experiences	↘	○	• Area of natural and traditional landscapes and seascapes
	17 Supporting identities	↘	○	• Stability of land use and land cover
	18 Maintenance of options	↓	○	• Species' survival probability • Phylogenetic diversity

Decrease ← → Increase

DIRECTIONAL TREND

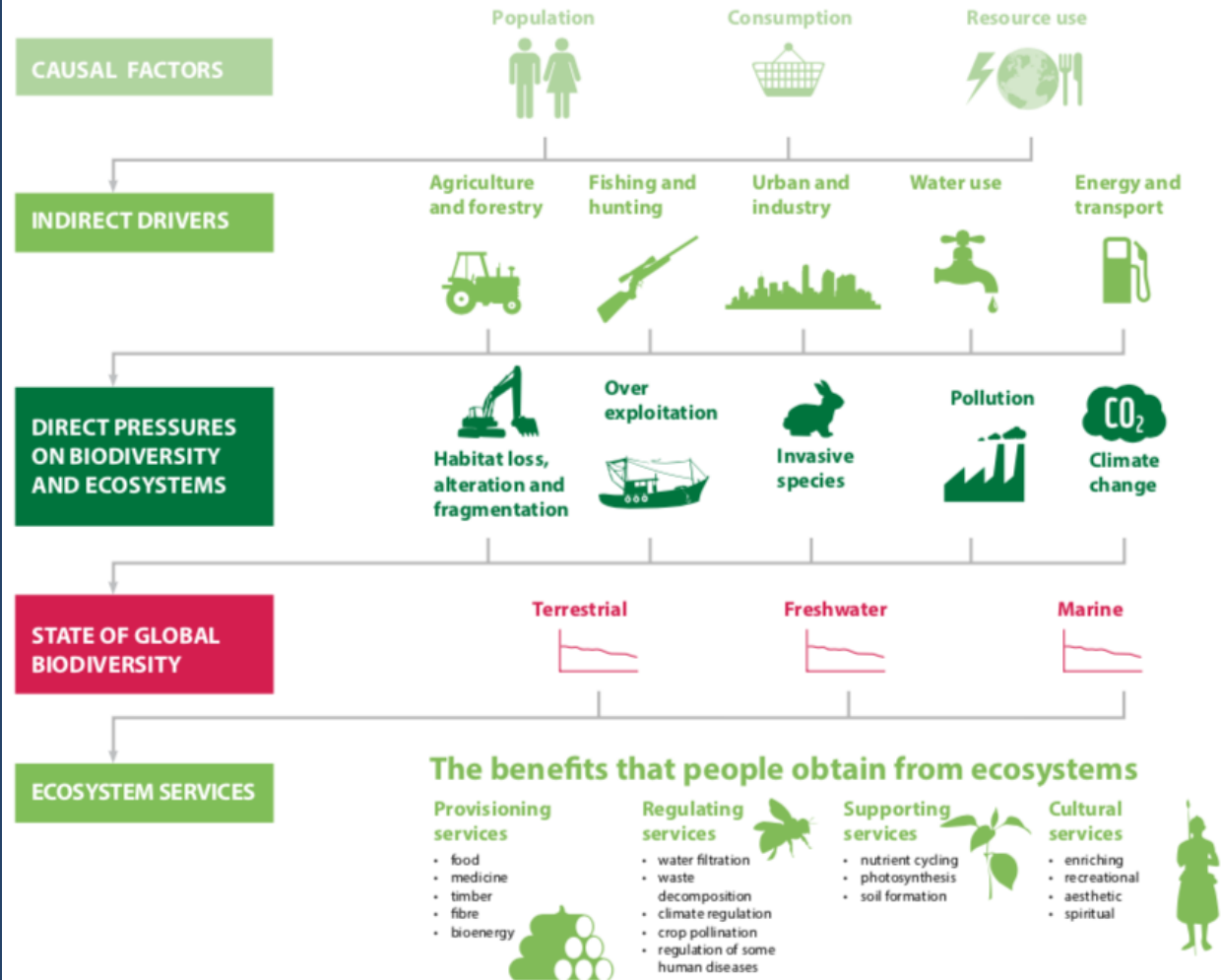
Global trends: ↓ ↘ → ↗ ↑

Across regions: ○ Consistent ↕ Variable

LEVELS OF CERTAINTY

- Well established
- Established but incomplete
- Unresolved

Figure 6.2: Interconnections between people, biodiversity, ecosystem health and provision of ecosystem services showing drivers and pressures



Global Biodiversity Outlook 5

SUMMARY FOR POLICYMAKERS



A scala globale, nessuno dei 20 Aichi Biodiversity Targets è stato pienamente raggiunto.

Dei 60 elementi specifici in cui si articolavano i 20 ABT:

- 7 sono stati parzialmente raggiunti, tra cui il target sulle aree protette terrestri
- 38 hanno mostrato qualche progresso
- 13 non hanno mostrato alcun progresso verso il target
- 2, non vi sono informazioni.

44 trilioni di dollari di generazione di valore economico - oltre la metà del PIL totale mondiale - sono potenzialmente a rischio a causa della dipendenza delle imprese dalla natura e dai relativi servizi.

Fonte: WEF, 2021

La perdita di biodiversità e il collasso degli ecosistemi sono stati classificati come una delle cinque principali minacce che l'umanità dovrà affrontare nei prossimi 10 anni nel Global Risks
Fonte: WEF, 2021

WORLD
ECONOMIC
FORUM

COMMITTED TO
IMPROVING THE STATE
OF THE WORLD

New Nature Economy Report II

The Future Of Nature And Business

In collaboration with AlphaBeta

Il fallimento del piano per la natura delle Nazioni Unite per il periodo 2011-2020 (Aichi Targets)

EDITORIAL | 18 February 2020

The United Nations must get its new biodiversity targets right

Global goals to reduce biodiversity loss will be revised this year. All eyes are on China, which must ensure the new targets are measurable and meaningful.



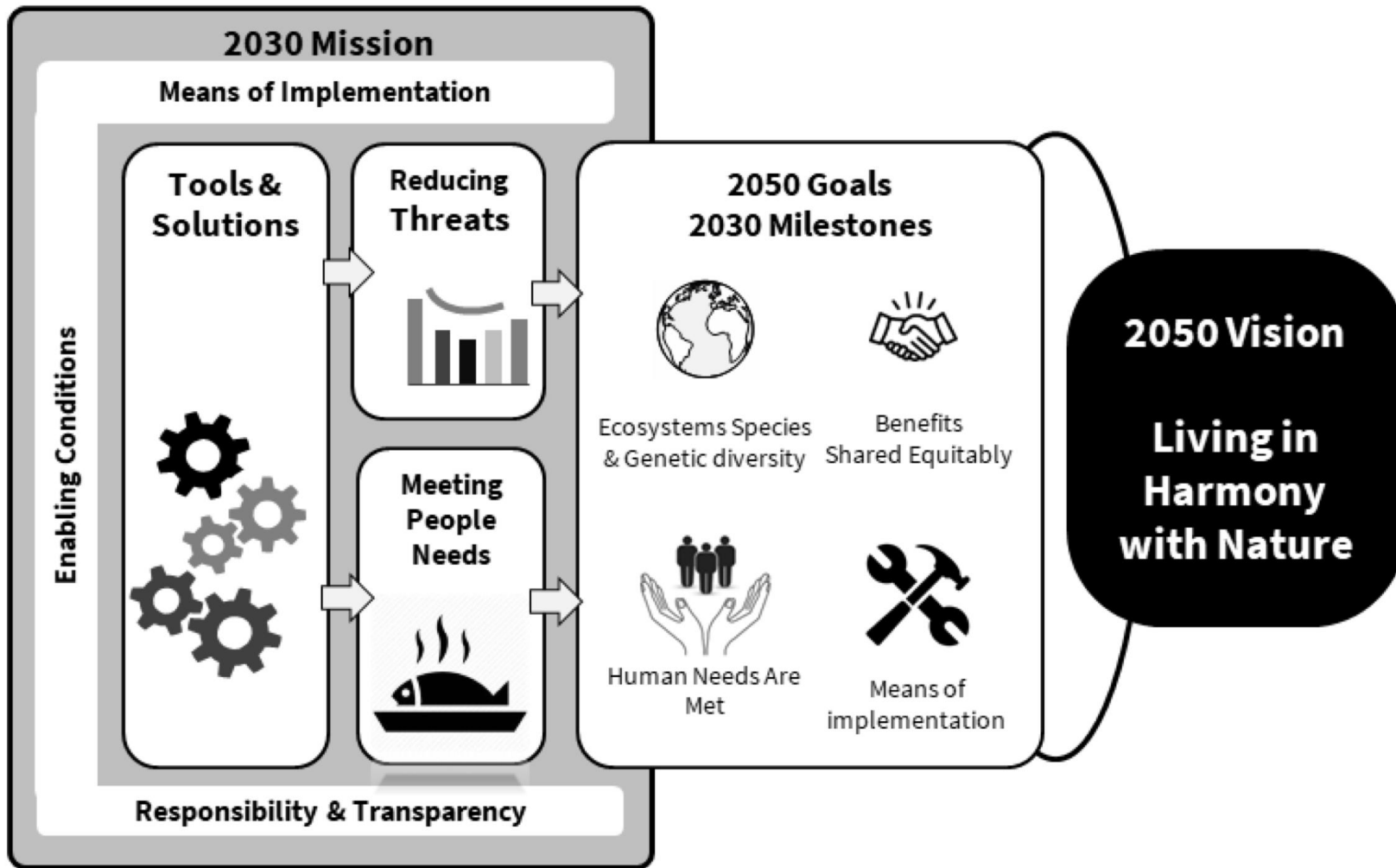
Gli obiettivi di Aichi sono falliti, in parte, poiché:

- non hanno stabilito cosa era necessario e sufficiente per prevenire il continuo declino della biodiversità;
- il loro formato ha reso i progressi difficili da misurare;
- la mancanza (i) di un framework per un monitoraggio regolare e (ii) di revisione degli impegni.
- Obiettivi ambigui, insufficienti, non quantificabili, complessi e ridondanti, mancanza di linee di base e indicatori;
- Le strategie nazionali per raggiungere questi obiettivi si sono rivelate inefficienti nell'allocazione delle risorse (limitate).

Per arrestare e invertire il declino della biodiversità entro il 2030 » colmare un *funding gap* per la protezione e il restauro della natura di 824 miliardi di US\$ l'anno, da una spesa attuale di 124-134 miliardi attuali a 722-824 US\$ (eliminare i sussidi *'harmful'* e aumentare politiche fiscali, green finance, investimenti in infrastrutture verdi come *Nature-based Solutions*, ...)

Fonte: *The Nature Conservancy*, 2020





Drama, dismay, triumph: nailbiting climax to the world's biodiversity deal

Long years of complex negotiations led up to one critical moment for the planet at Cop15 in Montreal this week. For a time, it seemed all was lost. Here's what happened next...



📷 Sealing the deal: an all-important handshake between Cop15 president Huang Runqiu and the DRC's Ève Bazaiba in Montreal on Monday. Photograph: Lars Hagberg/AFP/Getty Images

Sezione H. 23 Target for 2030, Kunming Montreal Global Biodiversity Framework to the UN Convention on Biological Diversity, <https://www.cbd.int/gbf/targets>

- 1. Ridurre le minacce alla biodiversità (1-8)**
- 2. Far fronte alle necessità delle persone attraverso l'uso sostenibile e una giusta condivisione dei benefici (9-13)**
- 3. Strumenti e soluzioni per l'attuazione e il mainstreaming (14-23)**

Reduce to near

ZERO

the loss of areas of high
biodiversity importance,
including ecosystems of high
ecological integrity

Image credits: Unsplash



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'Crucial' Cop15 deal includes target to protect 30% of nature on Earth by 2030

Environmental groups and ministers have praised the ambition of the agreement, which also places emphasis on Indigenous rights



TARGET 2

Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and coastal and marine ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.

TARGET 3

Ensure and enable that by 2030 at least 30 per cent of terrestrial and inland water, and of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories, where applicable, and integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognizing and respecting the rights of indigenous peoples and local communities, including over their traditional territories



Target 6



#COP15

Prevent the introduction of priority invasive alien species, and reduce by at least

HALF

the introduction and establishment of other known or potential invasive alien species, and eradicate or control invasive alien species on islands and other priority sites



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Target 7




#COP15

Reduce by

HALF

both excess nutrients and the overall risk posed by pesticides and highly hazardous chemicals

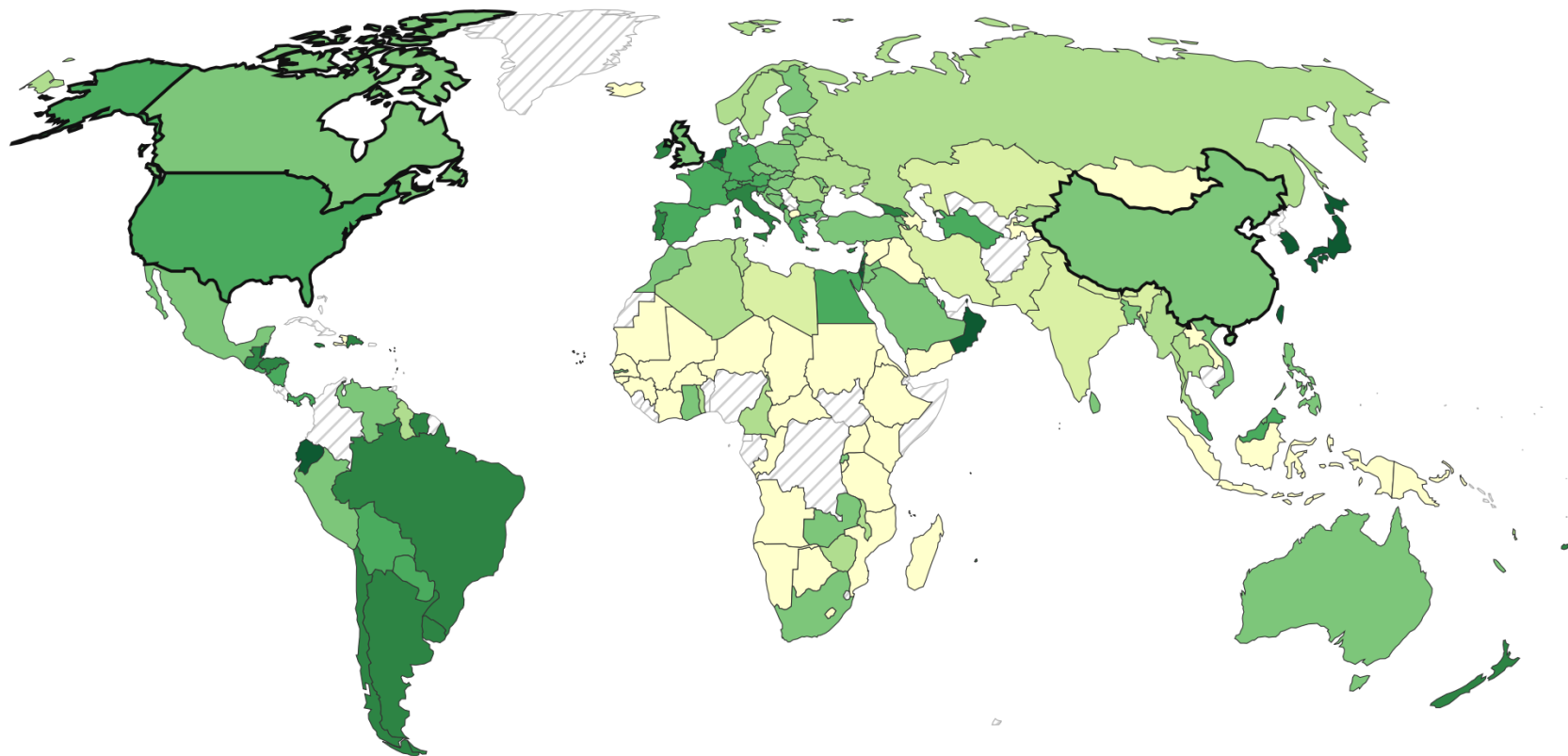


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Target 7

Ridurre i rischi di inquinamento e l'impatto negativo dell'inquinamento da tutte le fonti, a livelli che non siano dannosi per la biodiversità e i servizi ecosistemici, considerando gli effetti cumulativi, tra cui: **dimezzare i nutrienti** in eccesso persi nell'ambiente, anche attraverso misure più efficienti per il ciclo e l'uso dei nutrienti; **dimezzare il rischio complessivo derivante dai pesticidi** e dalle sostanze chimiche altamente pericolose, anche attraverso la gestione integrata dei parassiti, basata sulla scienza, tenendo conto della sicurezza alimentare e dei mezzi di sussistenza; e anche prevenire, ridurre e lavorare per eliminare l'inquinamento causato dalla plastica.



Sostenibilità dell'agricoltura italiana in cifre

Emissioni di gas serra

32,7 Mt CO₂



Emissioni N equivalente

22,2 Mt eq



Precursori ozono troposferico

0,2 Mt TOPP



Uso energia in agricoltura

2,9 Mtep



Consumo fertilizzanti

1,7 Mt



Consumo prodotti fitosanitari

0,120 (0,057) Mt



Superficie irrigata

2,5 Mha



Prati permanenti e pascoli

3,2 Mha



Superficie Agricola Utilizzata

12,5 Mha



VA a prezzi di base

29.314 Meur



Aziende agrituristiche

25.390



Superficie biologica

2,3 Mha



Target 8

Ridurre al minimo l'impatto dei CC [...] su biodiversità e aumentarne la resilienza attraverso azioni di mitigazione, adattamento e riduzione del rischio di catastrofi, anche attraverso **soluzioni basate sulla natura** e/o approcci basati sugli ecosistemi, riducendo al minimo gli impatti negativi e promuovendo gli impatti positivi dell'azione per il clima sulla biodiversità.

Nature-based solutions can help cool the planet – if we act now

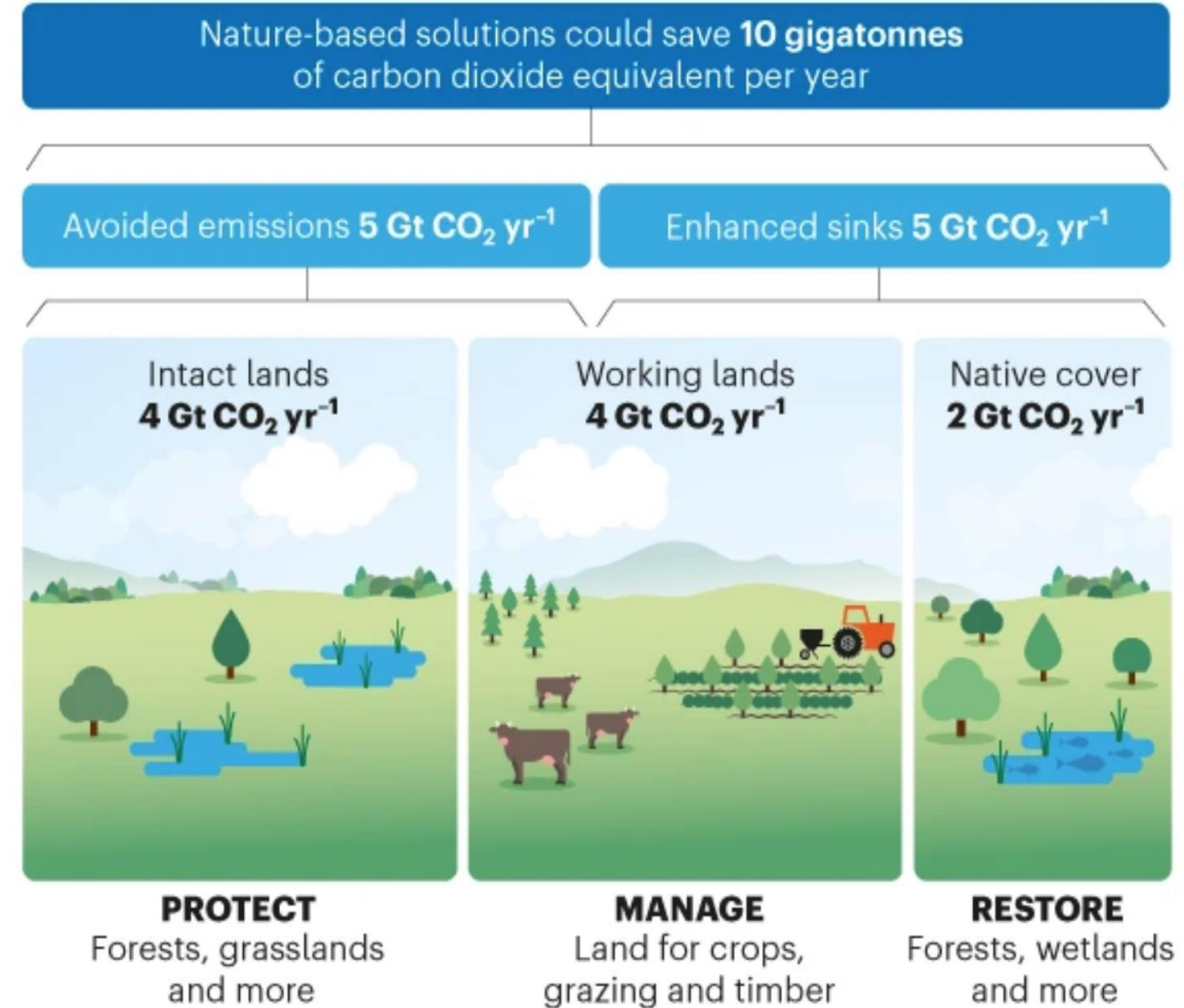
Analysis suggests that to limit global temperature rise, we must slash emissions and invest now to protect, manage and restore ecosystems and land for the future.

By [Cécile A. J. Girardin](#), [Stuart Jenkins](#), [Nathalie Seddon](#), [Myles Allen](#), [Simon L. Lewis](#), [Charlotte E. Wheeler](#), [Bronson W. Griscom](#) & [Yadvinder Malhi](#)



THREE STEPS TO NATURAL COOLING

Protect intact ecosystems, manage working lands and restore native cover to avoid emissions and enhance carbon sinks.



Target 12

Aumentare l'area, la qualità e la connettività e migliorare l'accesso e i benefici degli **spazi verdi e blu nelle aree urbane**: (i) integrare conservazione e uso sostenibile della biodiversità; (ii) garantire una pianificazione urbana che includa la biodiversità; (iii) migliorare la connettività e l'integrità ecologica, migliorando così la salute e il benessere umani e la connessione con la natura, contribuendo a un'urbanizzazione inclusiva e sostenibile e alla fornitura di funzioni e servizi ecosistemici.

Definizione di Nature-based Solutions, secondo una risoluzione dell'Assemblea per l'Ambiente dell'ONU del 2022

- Le NbS includono quelle azioni per proteggere, conservare, ripristinare, usare in maniera sostenibile and gestire gli ecosistemi terrestri, delle acque interne, costieri e marini, naturali o modificati, che affrontano le sfide sociali, economiche e ambientali, in maniera efficace e adattiva, assicurando allo stesso tempo benessere umano, servizi ecosistemici, resilienza e benefici associati alla biodiversità.

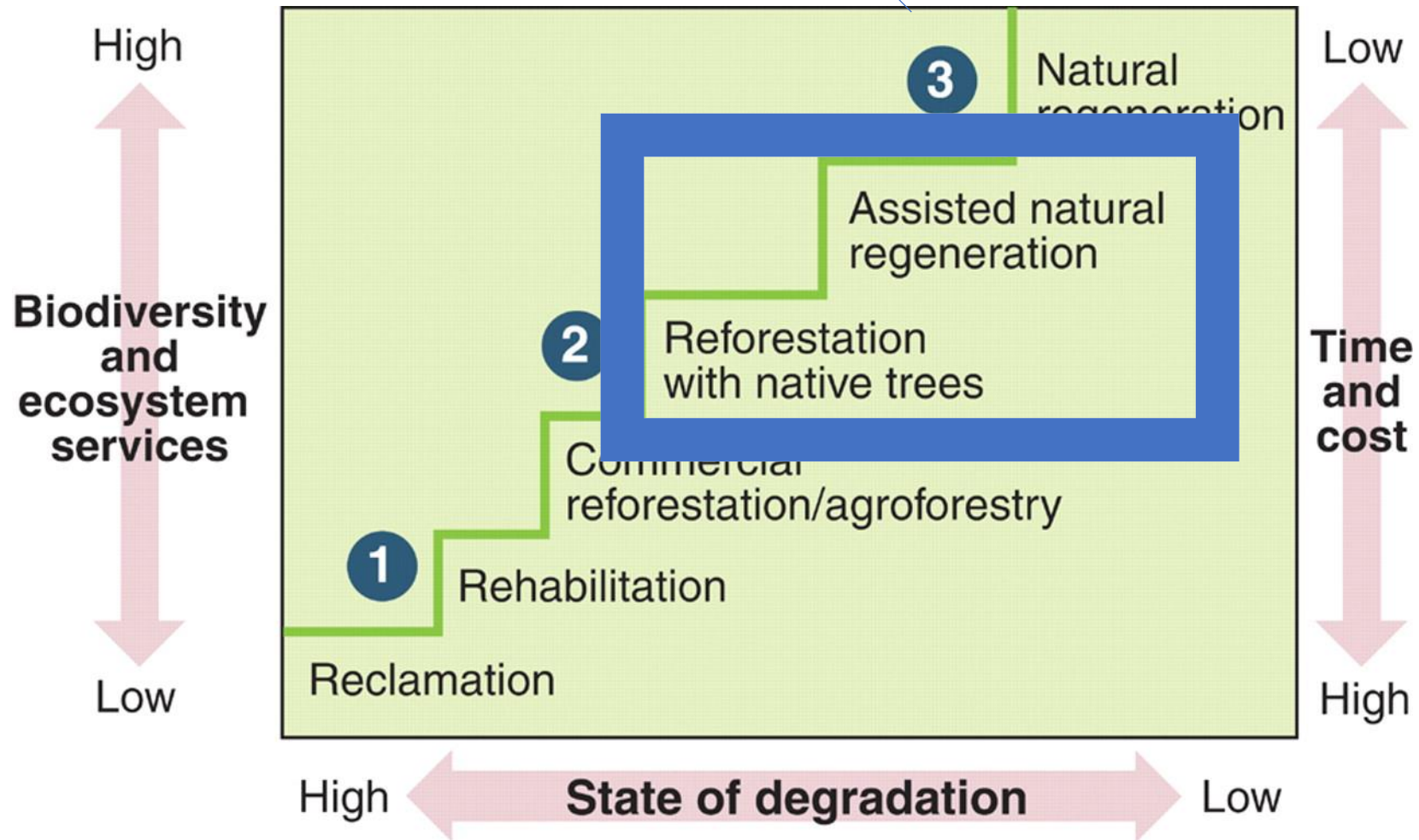


Progetto PNRR Next Generation EU, per creare foreste urbane e peri-urbane nelle 14 città metropolitane, attraverso la piantagione di 6,6 milioni di piante (alberi e arbusti) forestali, nel rispetto della direttiva sul materiale



Inquadramento territoriale delle 14 Città Metropolitane a livello di Divisioni e Province eco-regionali

La scala del restauro degli ecosistemi



R L Chazdon 2008, Science 320:1458-60



Target 15



#COP15

Require large and transnational companies and financial institutions to monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity through their

Operations, supply & value chains & portfolios

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Target 16



#COP15

Cut global food waste in

HALF

and significantly reduce overconsumption and waste generation

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Target 18



#COP15

Progressively phase out
or reform by 2030
subsidies that harm
biodiversity by at least
\$500 billion
per year

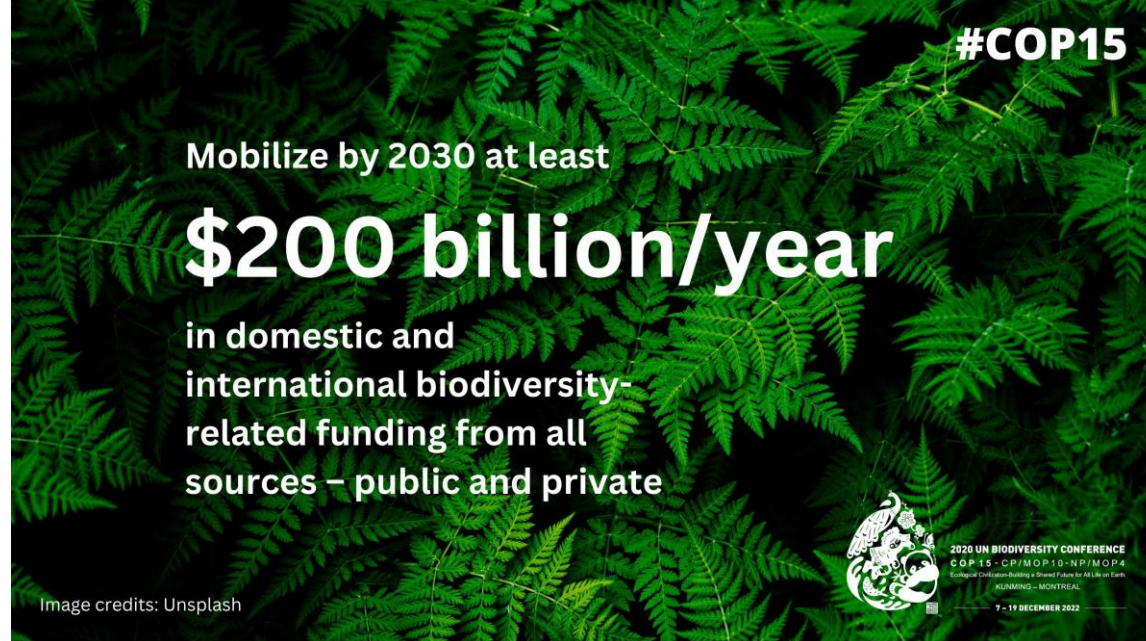
while scaling up positive
incentives for biodiversity's
conservation and
sustainable use

Image credits: Unsplash



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Target 19a



#COP15

Mobilize by 2030 at least

\$200 billion/year

in domestic and international biodiversity-related funding from all sources – public and private

Image credits: Unsplash

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High Level Panel of Experts (HLPE) to the Working Group II
KUNMING - MONTREAL
7 - 19 DECEMBER 2022

Target 19b



#COP15

Raise international financial flows from developed to developing countries, in particular least developed countries, small island developing States, and countries with economies in transition, to at least

US \$20 billion per year by 2025

& to at least

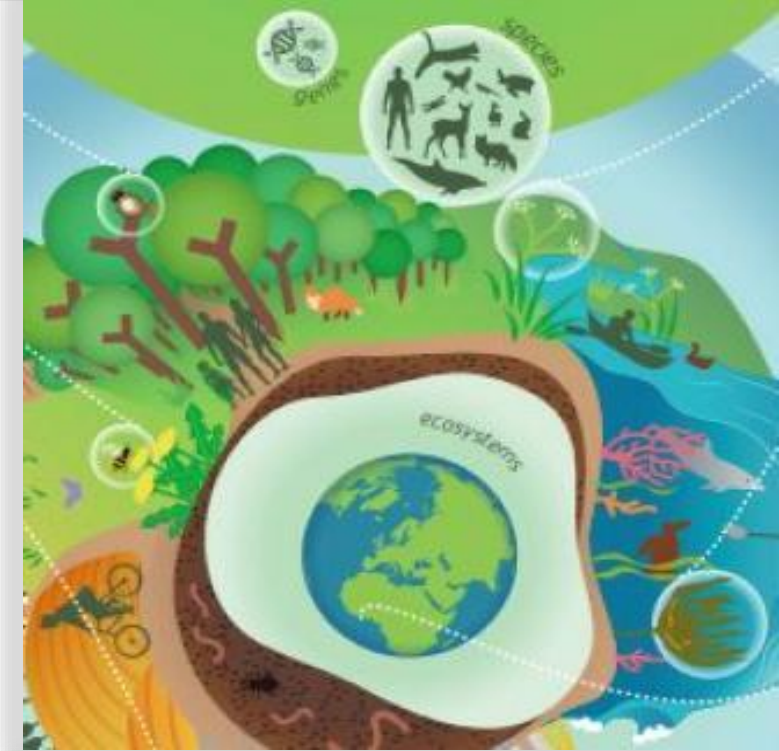
US \$30 billion per year by 2030

Image credits: Unsplash

EU Biodiversity Strategy 2030

Bruxelles, 20.5.2020 COM(2020) 380 final

- **Strategia in ambito Green Deal europeo (COM (2019) 640 final)** proteggere la natura e invertire il degrado degli ecosistemi
- **Obiettivi entro 2030:** azioni e impegni specifici a beneficio delle persone, del clima e del pianeta:
 - **creare 30% aree marine e 30% di aree terrestri protette, di cui il 10% «strictly protected»**
 - **ripristinare il 30% degli ecosistemi degradati**
 - **proteggere le aree boschive**
 - **Aumentare l'estensione dell'agricoltura sostenibile (25% di agricoltura biologica)**
 - **arrestare il declino degli impollinatori**
 - **ripristinare 25 000 km libero scorrimento dei fiumi**
 - **ridurre del 50% l'uso e il rischio associato all'uso di pesticidi**
 - **piantare 3 miliardi di alberi**





Nature Restoration Law

For people, climate, and planet

22 June 2022
#EUGreenDeal

THE NATURE RESTORATION LAW WILL:

Restore at least 20% of EU land and sea by 2030, and all ecosystems in need of restoration by 2050

Require Member States to develop **National Restoration Plans** taking account of national circumstances

Build on EU nature laws, focusing on all natural habitats, and not just those protected under **Birds and Habitats Directives or Natura 2000**

Demonstrate EU **leadership in protecting and restoring nature** and set the bar for global action ahead of the Biodiversity COP15

SHARE



REVIEW

Food Security: The Challenge of Feeding 9 Billion People

H. Charles J. Godfray^{1,*}, John R. Beddington², Ian R. Crute³, Lawrence Haddad⁴, David Lawrence⁵, James F. Muir⁶, Jules Pr...

+ See all authors and affiliations

Science 12 Feb 2010:
Vol. 327, Issue 5967, pp. 812-818
DOI: 10.1126/science.1185383

Article

Figures & Data

Info & Metrics

eLetters

PDF

Abstract

Continuing population and consumption growth will mean that the global demand for food will increase for at least another 40 years. Growing competition for land, water, and energy, in addition to the overexploitation of fisheries, will affect our ability to produce food, as will the urgent requirement to reduce the impact of the food system on the environment. The effects of climate change are a further threat. But the world can produce more food and can ensure that it is used more efficiently and equitably. A multifaceted and linked global strategy is needed to ensure sustainable and equitable food security, different components of which are explored here.

The past half-century has seen marked growth in food production, allowing for a dramatic decrease in the proportion of the world's people that are hungry, despite a doubling of the total population (**Fig. 1**) (**1, 2**). Nevertheless, more than one in seven people today still do not have access to sufficient protein and energy from their diet, and even more suffer from some form of micronutrient malnourishment (**3**). The world is now facing a new set of intersecting challenges (**4**). The global population will continue to grow, yet it is likely to plateau at some 9 billion people by roughly the middle of this century. A major correlate of this deceleration in population growth is increased wealth, and with higher purchasing power comes higher consumption and a greater demand for processed food, meat, dairy, and fish, all of which add pressure to the food supply system. At the same time, food producers are experiencing greater competition for land, water, and energy, and the need to curb the many negative effects of food production on the environment



Science

Vol 327, Issue 5967
12 February 2010

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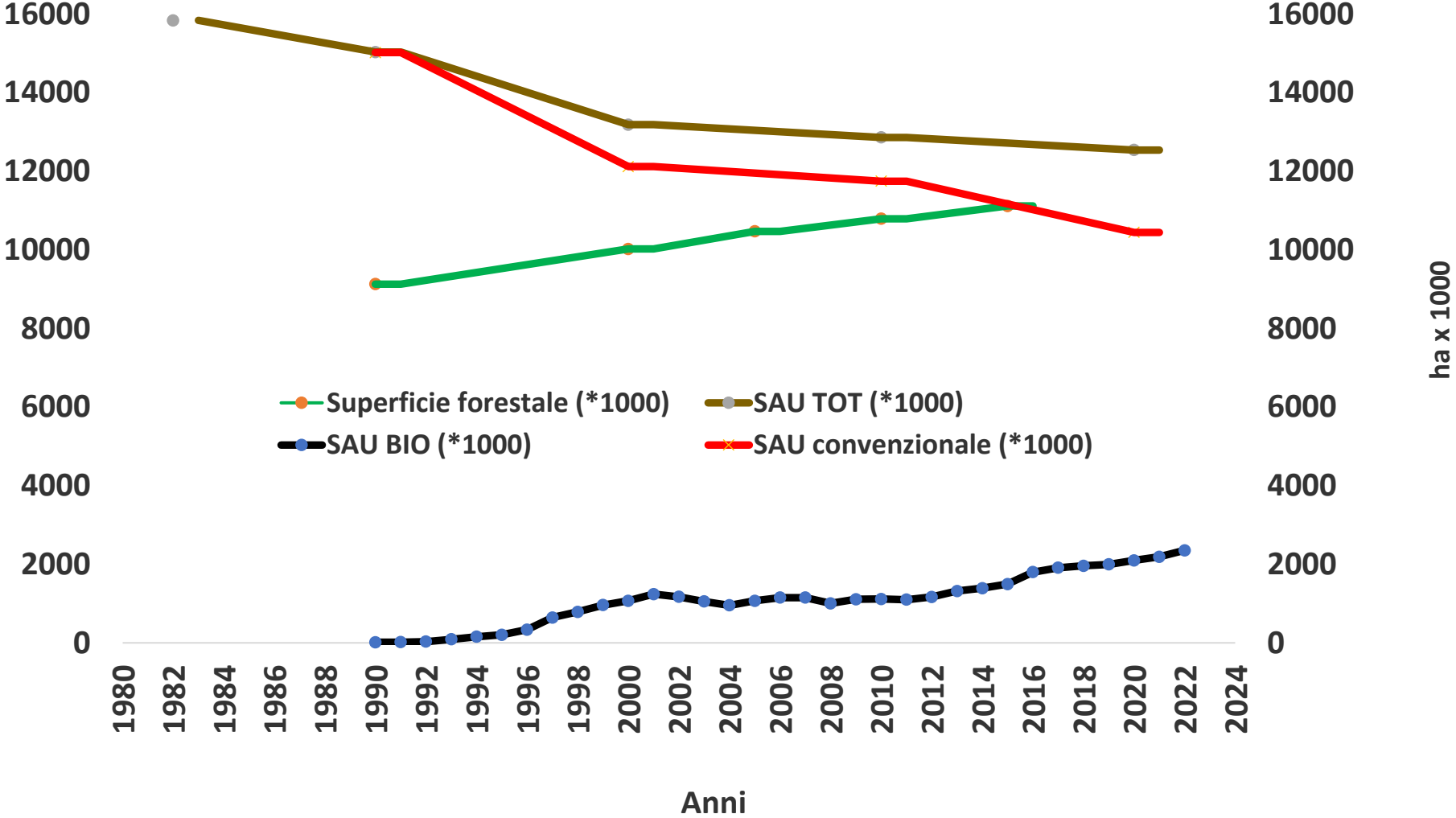
- ▶ New Technologies
- ▶ Latest Breakthroughs
- ▶ Cutting-Edge Research



RA



Evoluzione della superficie forestale e della superficie agricola utilizzata (convenzionale e biologica) in Italia

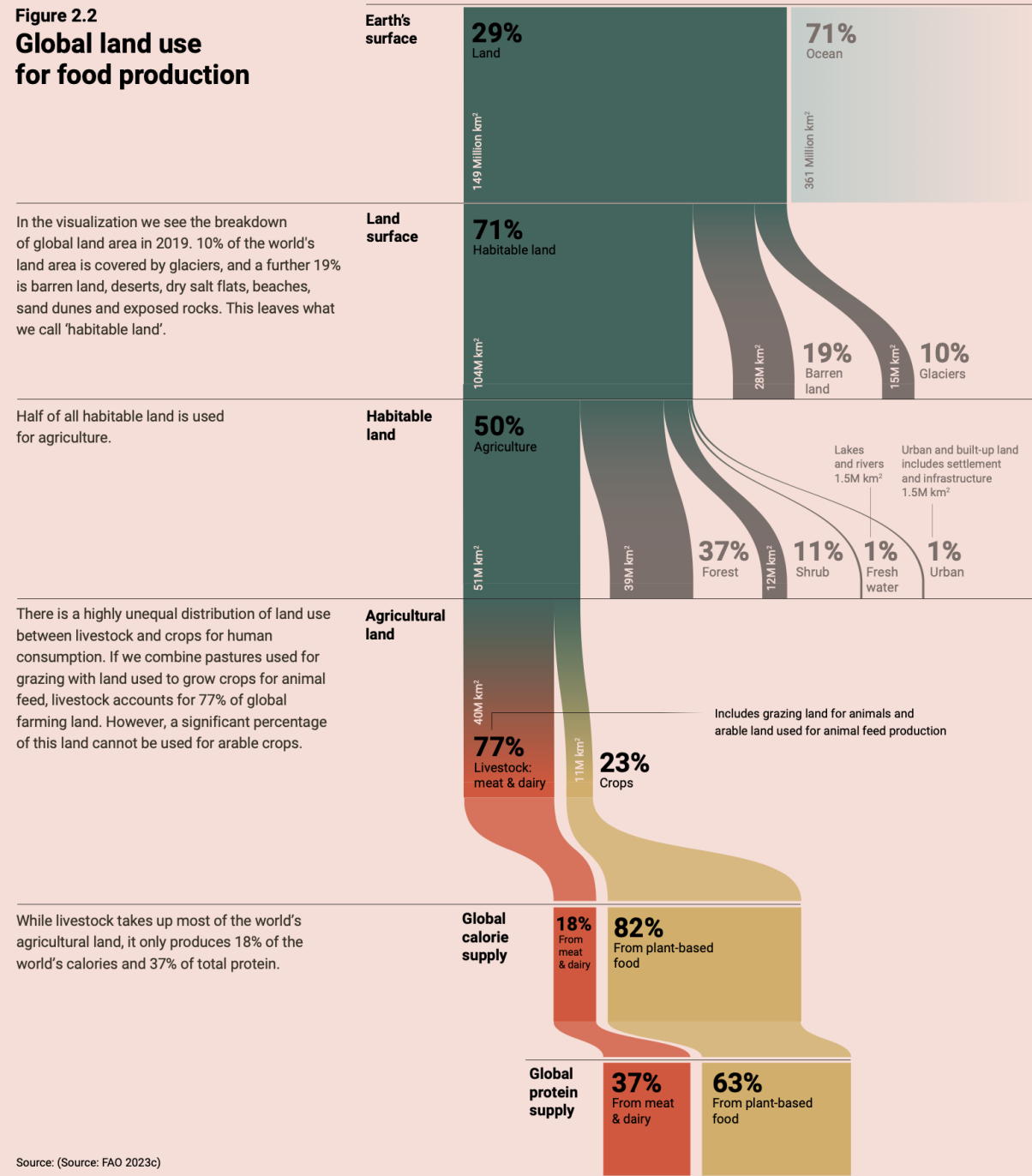


Consumo di carne *per capita* (kg anno⁻¹)

Region	OECD-FAO Outlook
World	34.7
North America	95.3
Oceania	70.7
Europe	64.8
Latin America and Caribbean	59.6
Asia	27.0
Africa	12.7

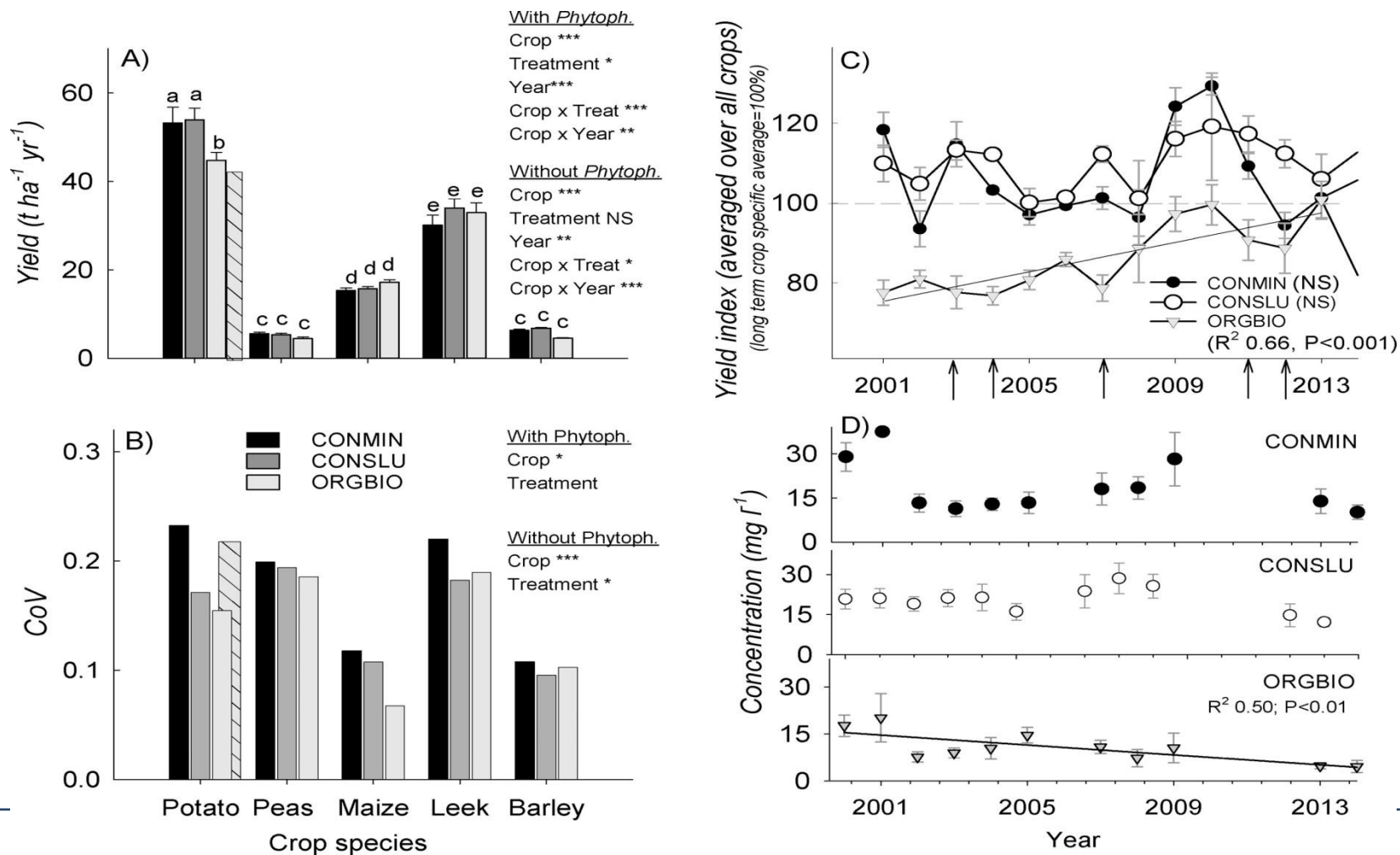
Source: (OECD and FAO 2022; FAO 2023a; FAO 2023b; UNDESA 2023).

Figure 2.2
Global land use
for food production



Source: (Source: FAO 2023c)

Fig. 1. A: Long-term crop-independent [yield](#) indexes (mean \pm SE) over period 2001–2013; striped light grey bar for [potato](#) indicates yield when [Phytophthora](#) years were included. B: Temporal coefficient of variation in yield (CoV) between 2001 and 2013. C: Changes in the relative yield index (2001–2013). *Phytophthora* years are indicated by arrows along x-axis. D: [Nitrate](#) concentrations in [groundwater](#) (mean \pm SE) between 2000 and 2014 (including *Phytophthora*-outbreak years). symbols are similar to those in panel C. Different letters indicate statistically significant differences at $\alpha < 0.05$.



Food losses and waste by numbers

Food losses and waste worldwide

33,3 percent

Hectares of land used, about 28 per cent of the world's agricultural land area

1,4 billion

Tons of global fertilizer consumed, about 23 per cent of the total

28 millions

Total freshwater resource use

24 percent

Food wastage at the agricultural production stage produced in areas where soils are facing medium to strong land degradation

99 percent

People suffer from diseases of energy surplus

1 billion

Total food loss and food waste occurs in developed countries

56 percent

Total food loss and food waste occurs in developing countries

44 percent

Largest emitting country in the world if food wastage were a country

3rd

• This article is more than 1 year old

EU wastes 153m tonnes of food a year – much more than it imports, says report

Bloc must halve its food waste by 2030 to tackle climate crisis and improve food security, say campaigners



📷 Wheat wasted in the EU is roughly half the amount exported by Ukraine. Photograph: Stéphane Mahé/Reuters

The EU wastes more food than it imports and could puncture food price inflation by simply curbing on-farm waste, according to a [report](#).

NO TIME TO WASTE

Why the EU needs to adopt ambitious legally binding food waste reduction targets

approaches will make achieving the 50% target realistic and how this should inform impact assessment modelling.

THE EU FOOD WASTE REDUCTION TARGET MUST LEGALLY REQUIRE A 50% REDUCTION BY 2030

In 2015, the EU agreed to reduce food waste by 50% by 2030 when it agreed to SDG 12.3. A legally binding target will formalise this commitment into law and accelerate Member States' action to meet it. It will also allow the EU to meet its domestic and international climate commitments; support food security; align with gender equality goals; promote climate justice; and save money for governments, businesses, and households.

THE EU FOOD WASTE REDUCTION TARGET MUST BE FARM TO FORK

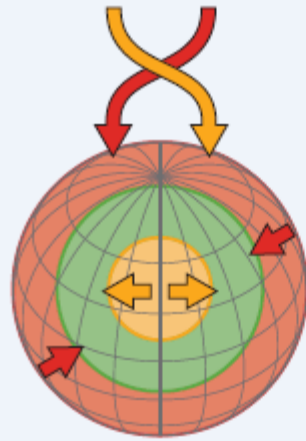
Food loss and waste in the primary production, processing, and food service sectors is substantial. If primary production and processing were to be excluded from a food waste target, this would exclude up to 33% of total food loss and waste in the EU². Excluding food service as well would mean that the target would exclude at least 48% of total food loss and waste.³ For

A 50% BY 2030, FARM-TO-FORK FOOD WASTE REDUCTION TARGET CAN BE ACHIEVED THROUGH TARGETED, AMBITIOUS ACTION

- Regulation to reduce food waste has been on the EU's agenda for over a decade, but delays in measurement and reduction targets have slowed the pace of action. Member States are now well-equipped with baseline figures from mandatory food waste measurement. Once a target is set, Member States will be able to achieve progress towards it much more quickly than we have seen in the past, particularly if the EU provides additional support. Evidence from industry frontrunners show the necessary rate of food waste reduction is possible.
- Until now, action against food waste has largely relied on voluntary agreements, which have seen some successes but have serious limits. Evidence from other sectors shows that regulation can yield far faster progress than voluntary measures. It is vital that the EU consider the impact of introducing regulation when modelling the feasibility of achieving a 50% by 2030 reduction target.

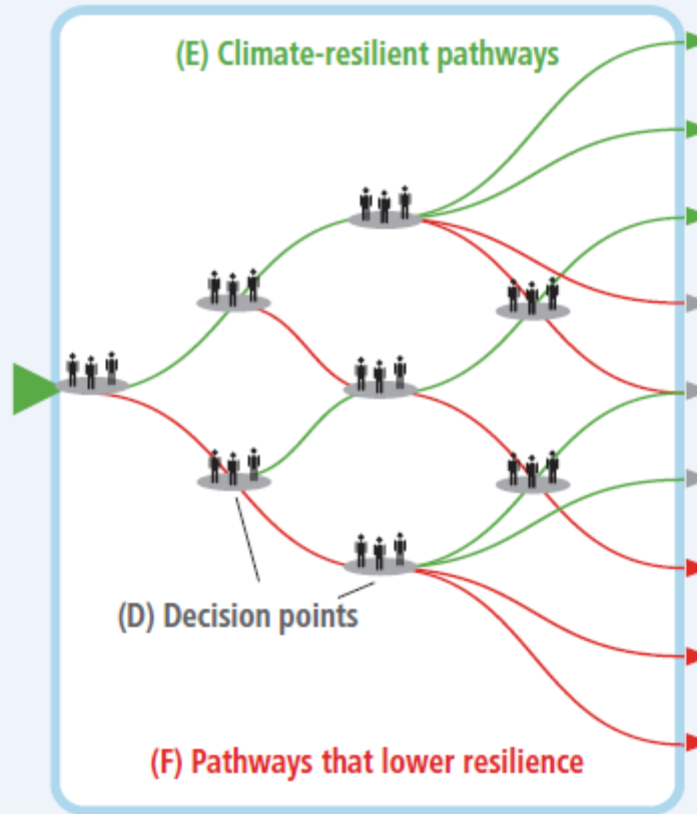
(A) Our world

Multiple stressors including climate change

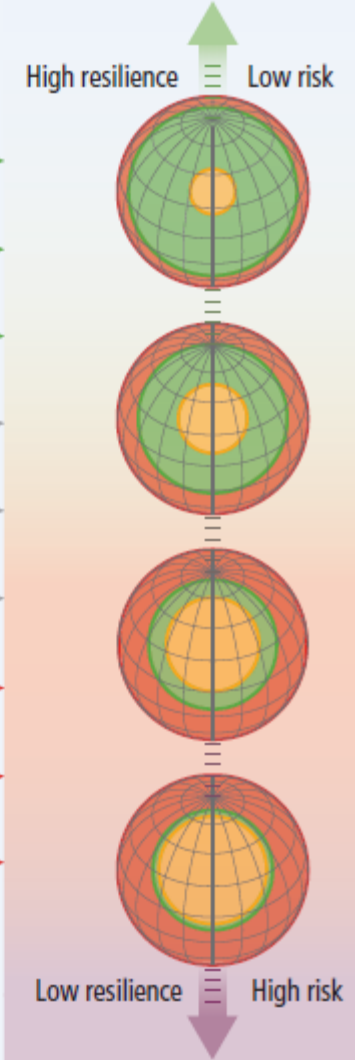


- Biophysical stressors
- Resilience space
- Social stressors

(B) Opportunity space



(C) Possible futures



"It's not a journey where we are backing into the caves. It's a journey of high technology, good health, of better democracy, and huge, multiple benefits that go well beyond saving the planet."

"Non è un viaggio di ritorno nelle caverne. È un viaggio ad alta tecnologia, di benessere psico-fisico, di democrazia più ampia e diffusa, e di enormi, molteplici benefici che vanno ben oltre il fatto di salvare pianeta. "

Johan Rockström, 2018