

生物多样性保护的新趋势

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变革的理论 Theory of change

- The framework's theory of change assumes that **transformative actions** are taken to deploy solutions to **reduce threats to biodiversity**. Actions should ensure that biodiversity is used sustainably in order to meet people's needs.
- It aims to ensure progress is monitored in a transparent and accountable manner with adequate stocktaking exercises to ensure that, by 2030, **the world is on a path to reach the 2050 Vision for Biodiversity**.
- The theory of change is complementary to and supportive of the **2030 Agenda for Sustainable Development**. It also takes into account the long-term strategies and targets of other multilateral environment agreements, including **the biodiversity-related Rio Conventions**, to ensure synergistic delivery of benefits from all the agreements for the planet and people.

昆明宣言 Kunming Declaration

Declaration from the High-Level Segment of the UN Biodiversity Conference 2020 (Part 1) under the theme:
“Ecological Civilization: Building a Shared Future for All Life on Earth”

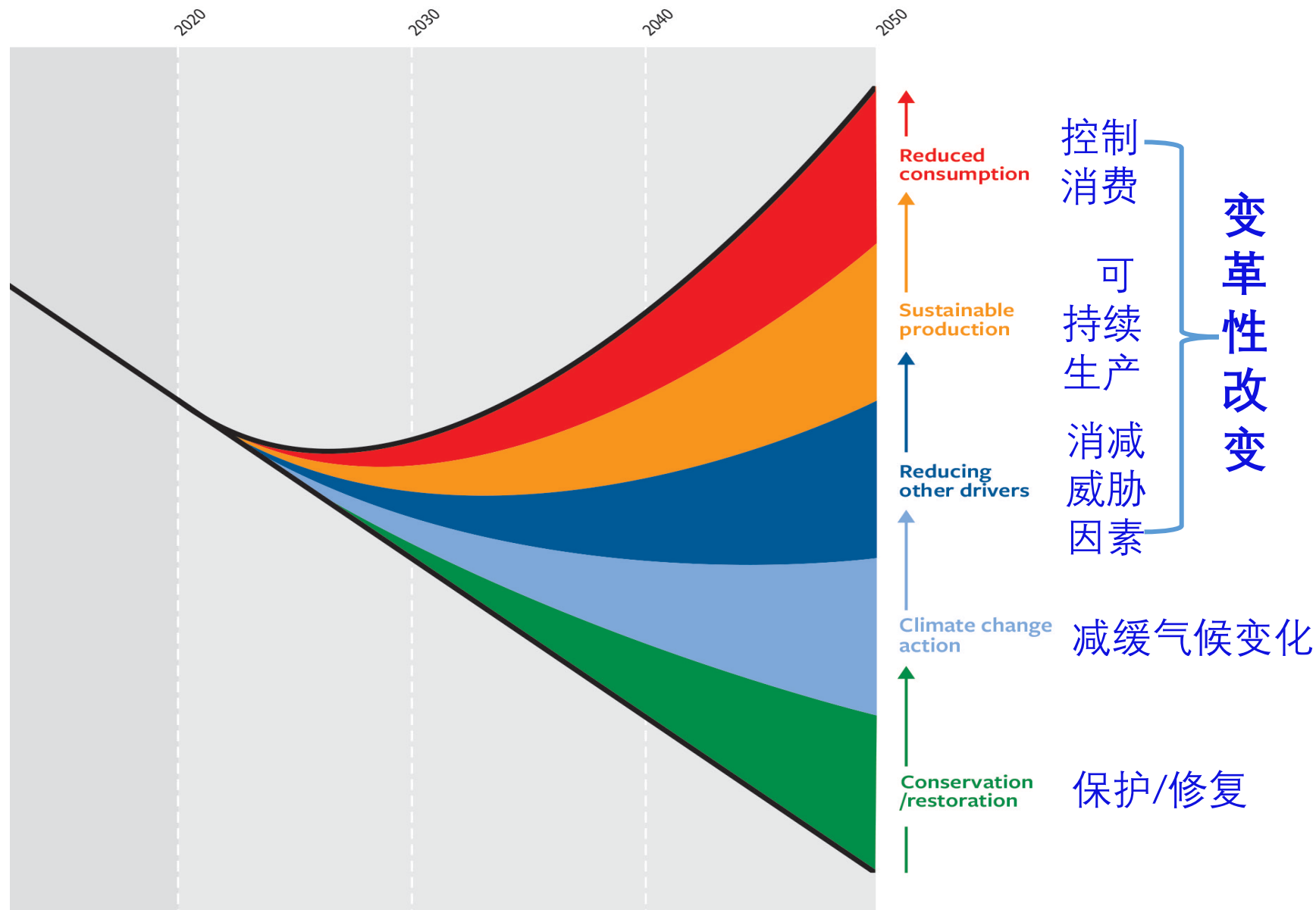
Noting that a combination of measures is needed to halt and reverse the loss of biodiversity, including actions to address land and sea use change, enhance the conservation and restoration of ecosystems, mitigate climate change, reduce pollution, control invasive alien species and prevent overexploitation, as well as actions to transform economic and financial systems and to ensure sustainable production and consumption, and reduce waste, recognizing that none of these measures alone, nor in partial combinations, is sufficient and that the effectiveness of each measure is enhanced by the other,↵



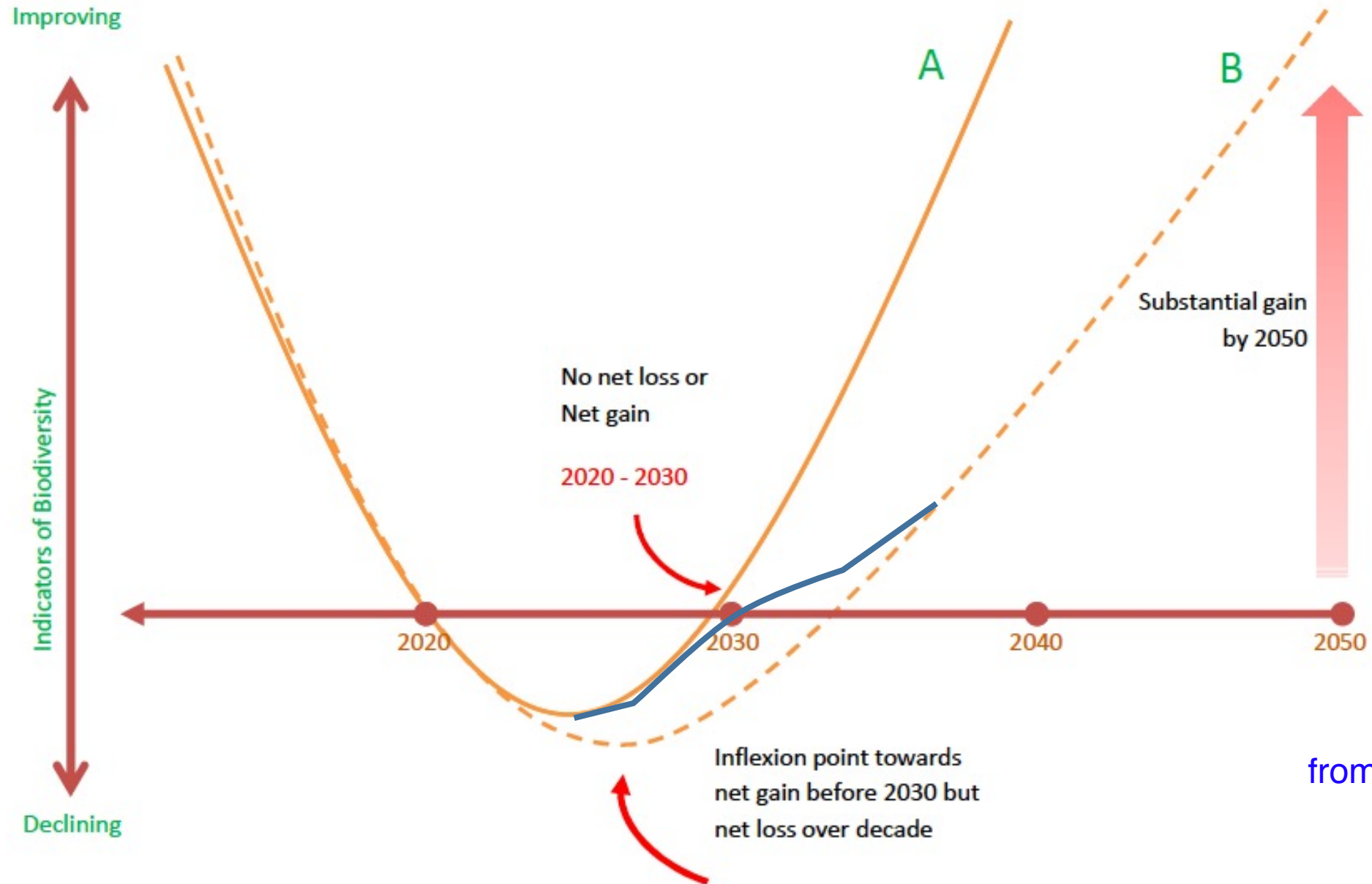
2020年后生物多样性保护的新趋势

Putting nature on a path to recovery, towards the 2050 Vision requires transformative change through a portfolio of actions

Nature positive actions



GLOBAL TREND OF BIODIVERSITY PROJECTION

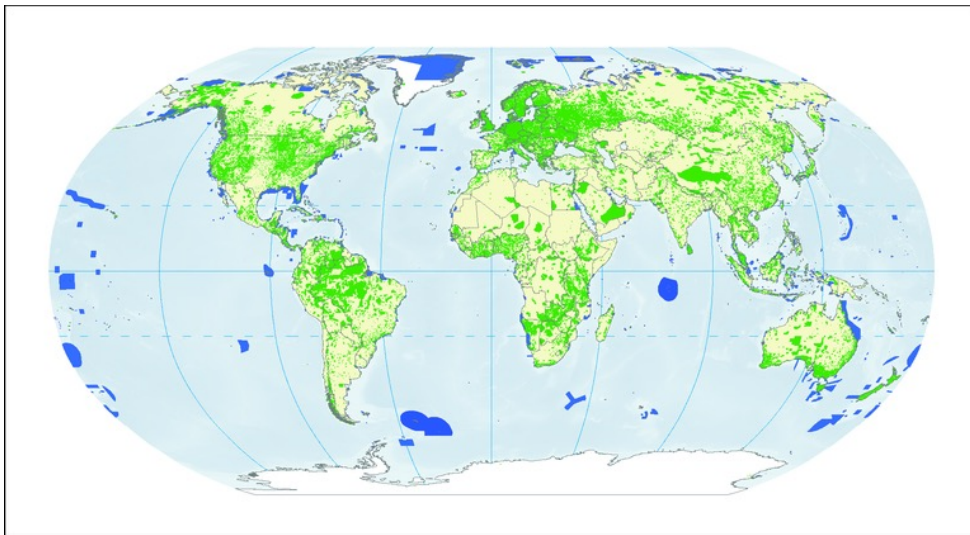


from Francis Ogwal

生物多样性保护的三种主要方式

就地保护

保护地
生态保护红线
OECMs



保护受威胁的物种和生态系统，以及珍贵的种质资源。

迁地保护

离体保存



联合国生态系统修复十年



**Resolution adopted by the General Assembly
on 1 March 2019**

双重规划
山水林田湖草过程

[without reference to a Main Committee (A/73/L.76 and A/73/L.76/Add.1)]

73/284. United Nations Decade on Ecosystem Restoration (2021–2030)

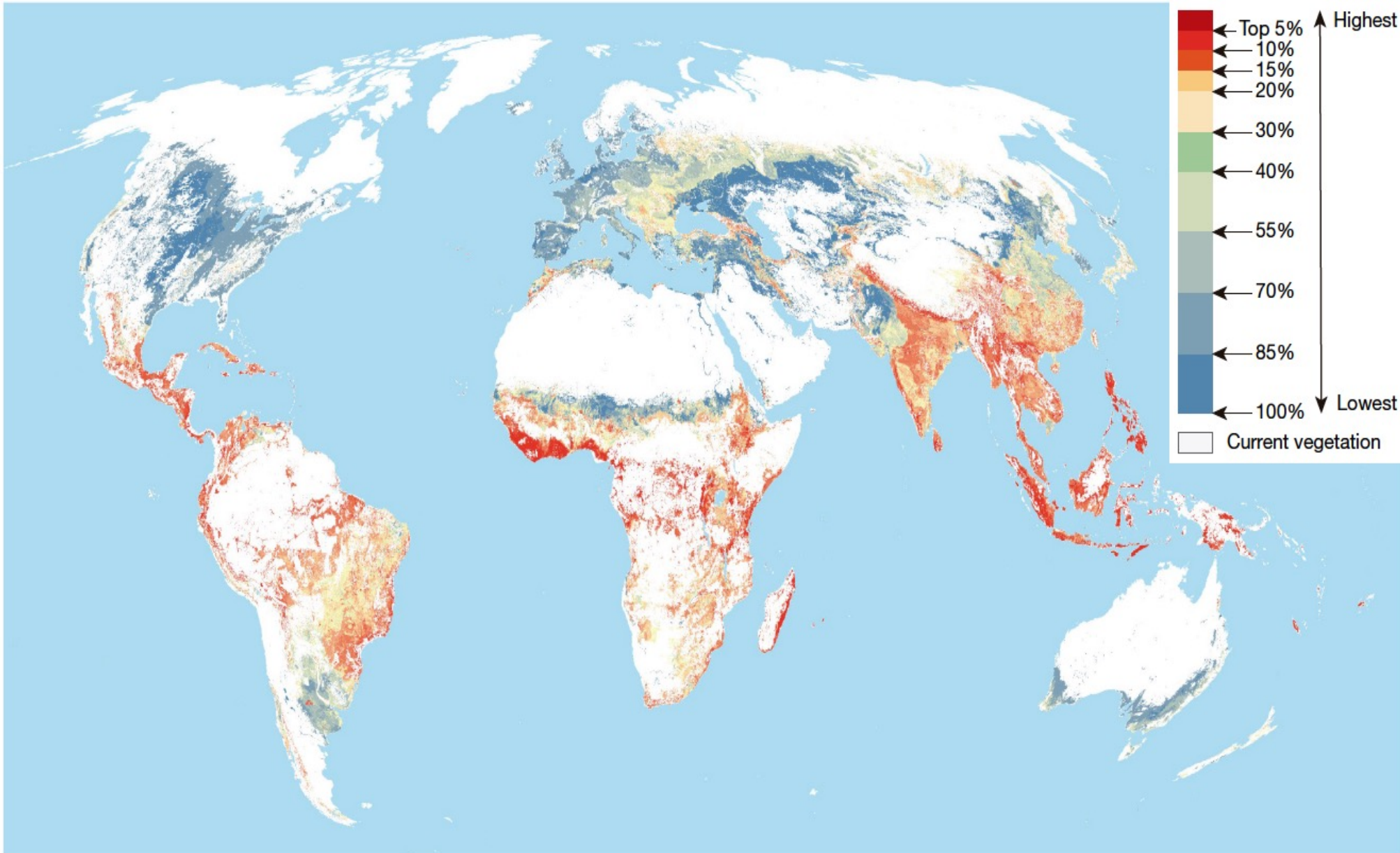
**PREVENTING, HALTING AND REVERSING
THE DEGRADATION OF ECOSYSTEMS
WORLDWIDE.**

The UN Decade on Ecosystem Restoration is a global rallying cry to heal our planet. What
will you restore?

<https://www.decadeonrestoration.org>

全球生态系统恢复的优先区

Global priority areas for ecosystem restoration



Strassburg *et al* 2020

the crucial role forests play in stabilizing our climate, protecting biodiversity and providing economic opportunity --At COP26 in Glasgow

WORLD
ECONOMIC
FORUM



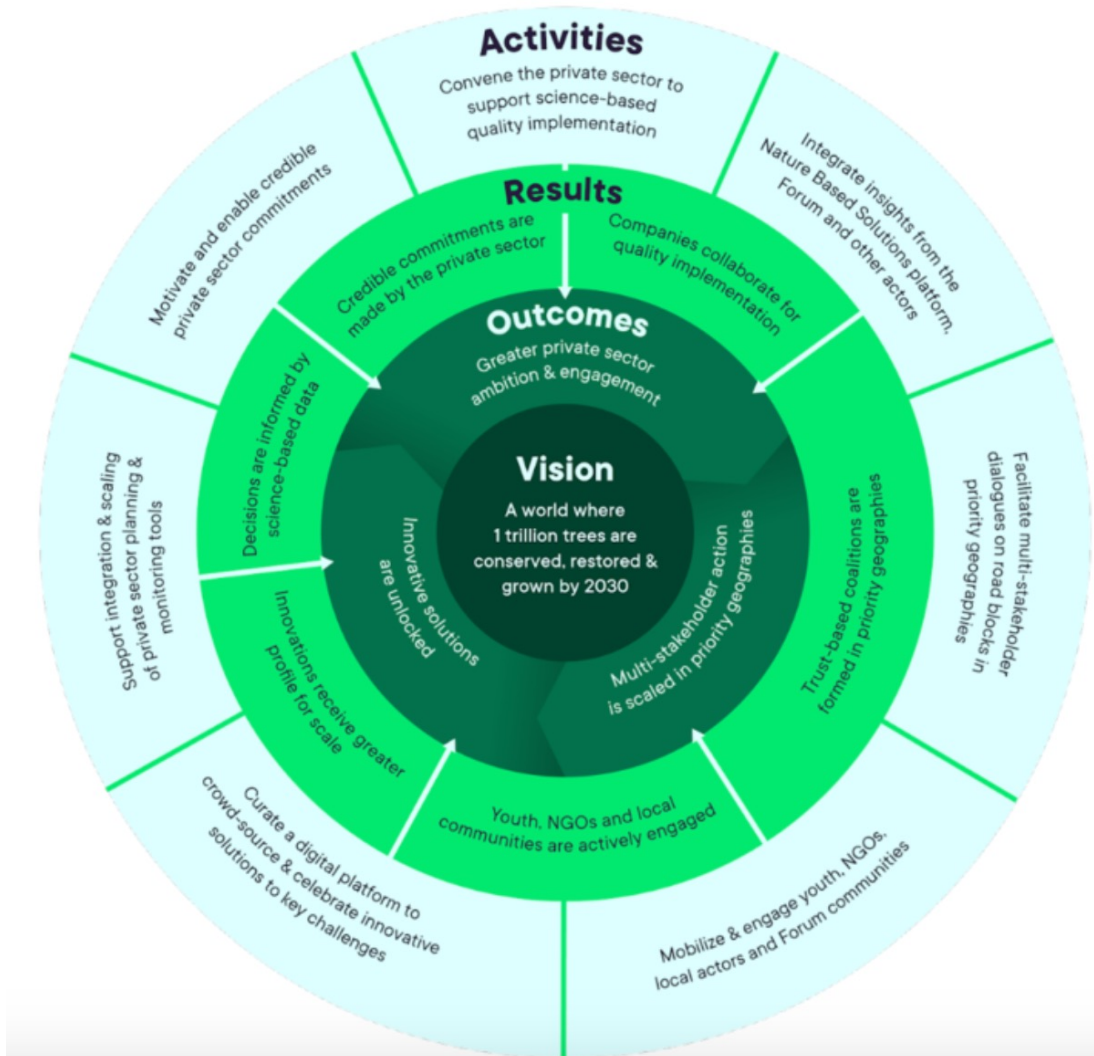
1t.org is an initiative of the World Economic Forum, in support of the:



UNITED NATIONS DECADE ON
**ECOSYSTEM
RESTORATION**
2021-2030

Conserving, restoring and growing 1 trillion trees by 2030

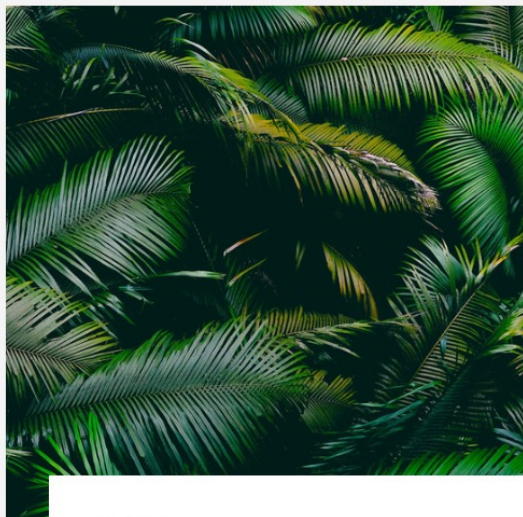
保护、恢复和栽植一万亿棵树





SAHEL AND GREAT GREEN WALL

It.org supports Africa's Great Green Wall Initiative, a bold vision to restore 100 million hectares of degraded land across the continent...



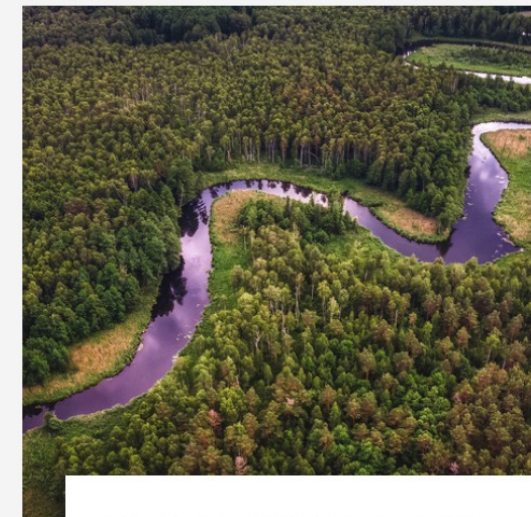
INDIA

India has made bold commitments to restore 21 million hectares of deforested and degraded land and sequester 2.5 to 3 billion tons of CO2 equivalent through additional forest and tree cover...



CHINA

China will aim to plant and conserve 70 billion trees by 2030 as part of the global tree movement...



THE AMAZON BASIN

As the single largest tropical rainforest on the planet, home to 10% of the world's species and 30 million people, establishing a sustainable bioeconomy in the Amazon...

中国承诺未来十年700亿棵树如何落实

- 按照相关技术规程，平均种植密度按人工造林每亩110株、飞播造林每亩100株，平均保护和恢复株树按封山育林每亩130株、退化林修复每亩60株、森林抚育估计每亩50株。未来十年内，中国将种植、保护、恢复653亿棵树。其中，种植188亿株，保护和恢复465亿株。
- 义务植树、部门绿化和社会造林年均至少种植5亿棵树，2021年至2030年累计将种植50亿棵树。
- 为此，中国将力争10年内种植、保护和恢复700亿棵树。其中，种植235亿棵树，保护和恢复465亿棵树。

中国拥有世界上最大面积的人工林，但动物变多了吗？

林草局造林司吴秀丽

Cite as: F. Hua *et al.*, *Science*
10.1126/science.abl4649 (2022).

The biodiversity and ecosystem service contributions and trade-offs of forest restoration approaches

Fangyuan Hua^{1,2*}, L. Adrian Bruijnzeel^{3,4*}, Paula Meli^{5,6}, Phillip A. Martin², Jun Zhang^{4,7}, Shinichi Nakagawa⁸, Xinran Miao¹, Weiyi Wang¹, Christopher McEvoy², Jorge Luis Peña-Arancibia⁹, Pedro H. S. Brancalion⁵, Pete Smith¹⁰, David P. Edwards¹¹, Andrew Balmford²

¹Institute of Ecology, and Key Laboratory for Earth Surface Processes of the Ministry of Education, College of Urban and Environmental Sciences, Peking University, Beijing, 100871, P. R. China. ²Conservation Science Group, Department of Zoology, University of Cambridge, Cambridge, CB2 3EJ, U.K. ³Department of Geography, King's College London, Bush House, London WC2B 4BG, U.K. ⁴Institute of International Rivers and Eco-Security, Yunnan University, Kunming, 650091, Yunnan, P. R. China. ⁵Department of Forest Sciences, Luiz de Queiroz College of Agriculture, University of São Paulo, Piracicaba, SP, 13.418-900, Brazil. ⁶Departamento de Ciencias Forestales, Universidad de La Frontera, Av. Francisco Salazar 01145, Temuco, Chile. ⁷Environmental Modelling, Sensing & Analysis, TNO, 1755 LE Petten, Netherlands. ⁸Evolution & Ecology Research Centre and School of Biological, Earth and Environmental Sciences, University of New South Wales, Sydney, NSW 2052, Australia. ⁹CSIRO Land and Water, Canberra ACT 2601, Australia. ¹⁰Institute of Biological & Environmental Sciences, University of Aberdeen, Aberdeen, AB24 3UU, U.K. ¹¹Ecology and Evolutionary Biology, School of Biosciences, University of Sheffield, Sheffield, S10 2TN, U.K.

*Corresponding author. Email: fhua@pku.edu.cn (F.H.); sampurno.bruijnzeel@kcl.ac.uk (L.A.B.)

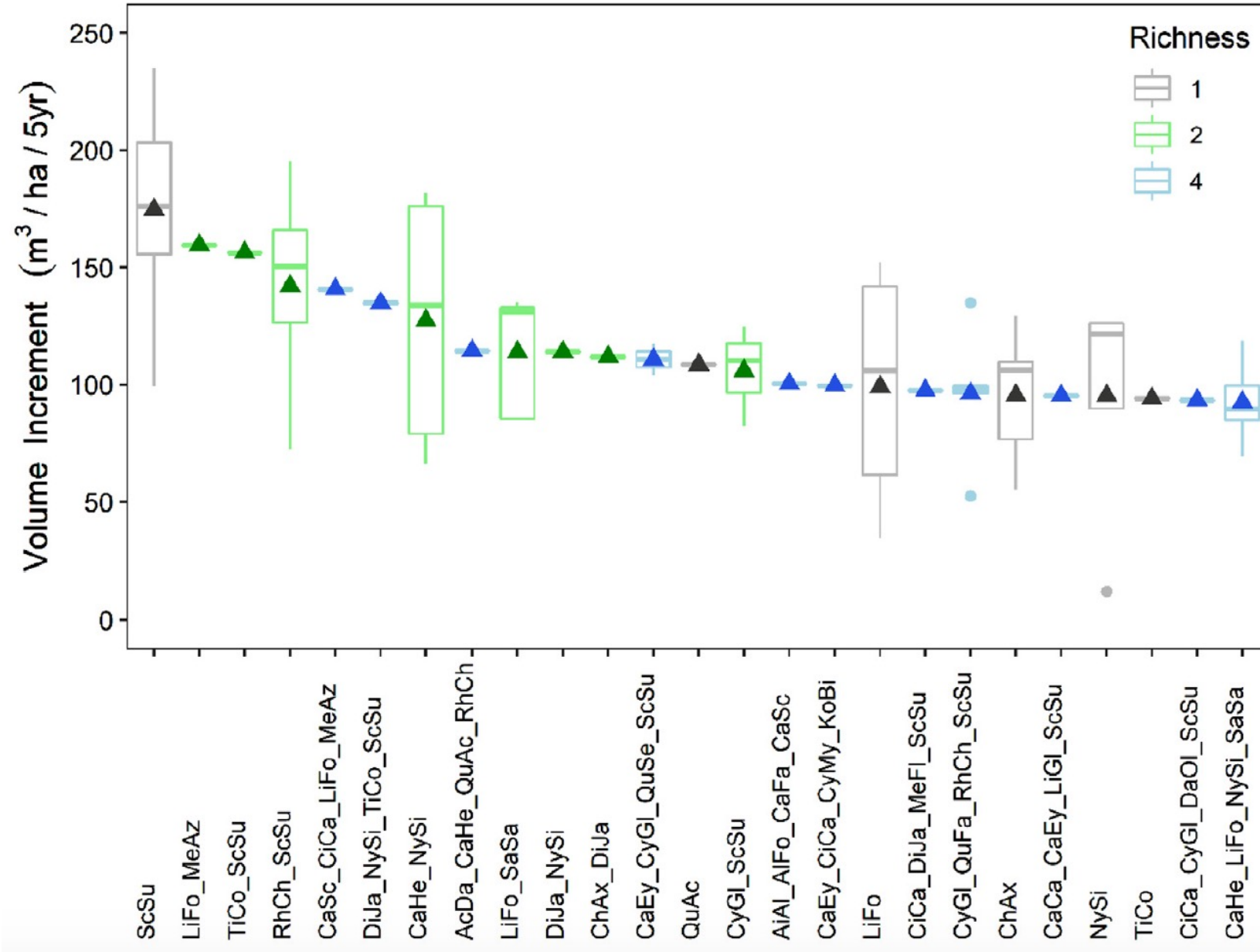
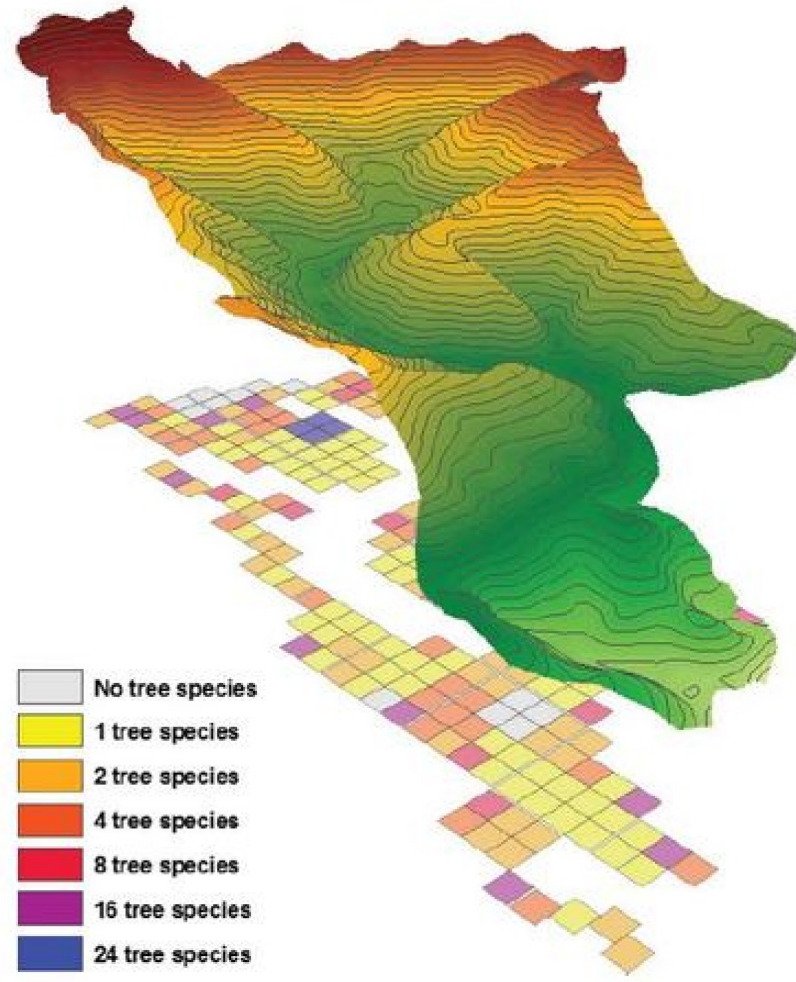
Forest restoration is being scaled-up globally to deliver critical ecosystem services and biodiversity benefits, yet we lack rigorous comparison of co-benefit delivery across different restoration approaches. In a global synthesis, we use 25,950 matched data pairs from 264 studies in 53 countries to assess how delivery of climate, soil, water, and wood production services as well as biodiversity compares across a range of tree plantations and native forests. Carbon storage, water provisioning, and especially soil erosion control and biodiversity benefits are all delivered better by native forests, with compositionally simpler, younger plantations in drier regions performing particularly poorly. However, plantations exhibit an advantage in wood production. These results underscore important trade-offs among environmental and production goals that policymakers must navigate in meeting forest restoration commitments.

不同森林恢
复方式的生
物多样性和
生态系统服
务贡献及其
权衡关系

Species identity and composition effects on community productivity in a subtropical forest

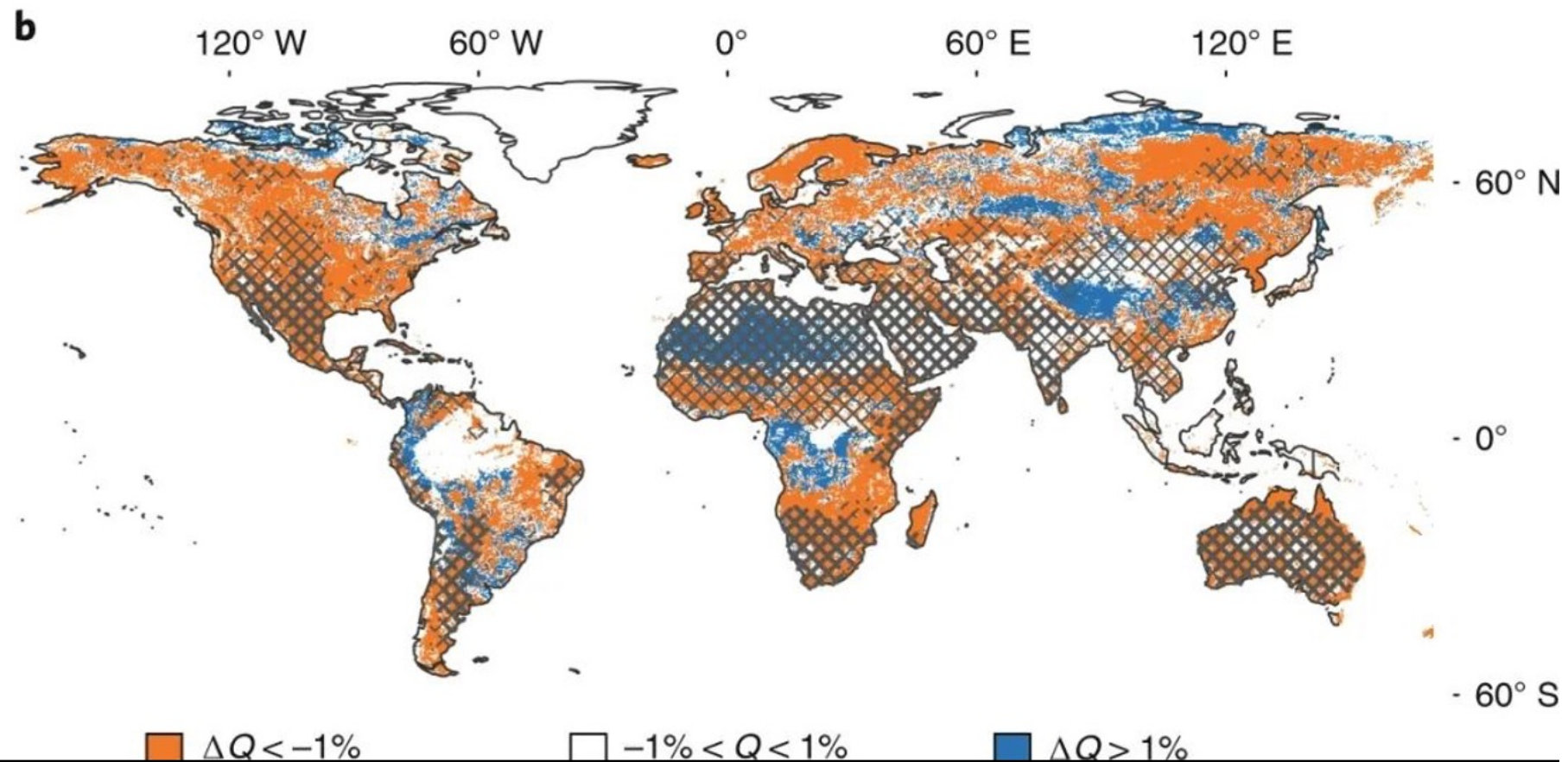
Liwei Ma^{a,1}, Franca J. Bongers^{a,1}, Shan Li^a, Ting Tang^{a,b}, Bo Yang^c, Keping Ma^a,
Xiaojuan Liu^{a,*}

Site A: 271 mu (18.4 ha)



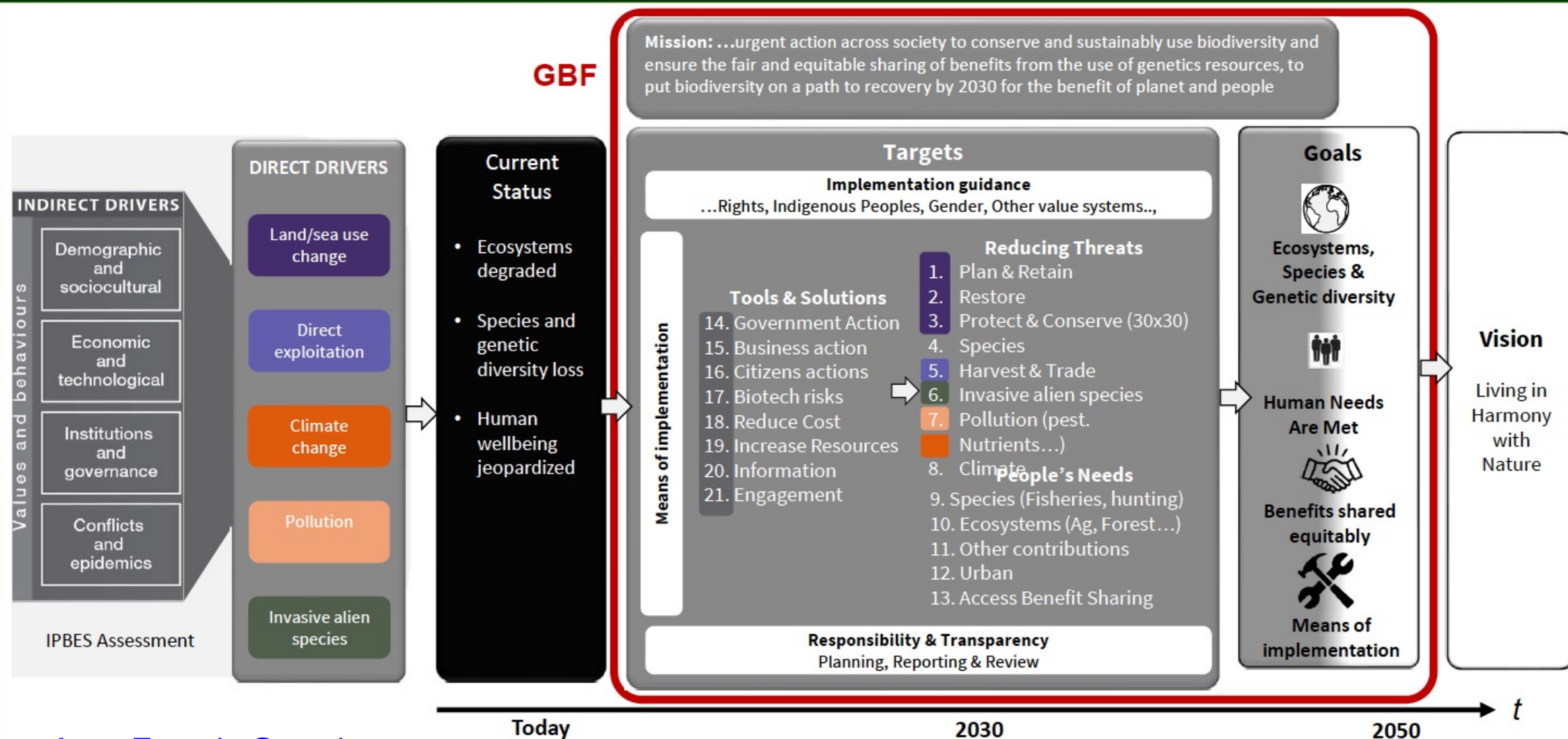
Shifts in regional water availability due to global tree restoration

[Anne J. Hoek van Dijke](#) , [Martin Herold](#), [Kaniska Mallick](#), [Imme Benedict](#), [Miriam Machwitz](#), [Martin Schlerf](#), [Agnes Pranindita](#), [Jolanda J. E. Theeuwen](#), [Jean-François Bastin](#) & [Adriaan J. Teuling](#) 



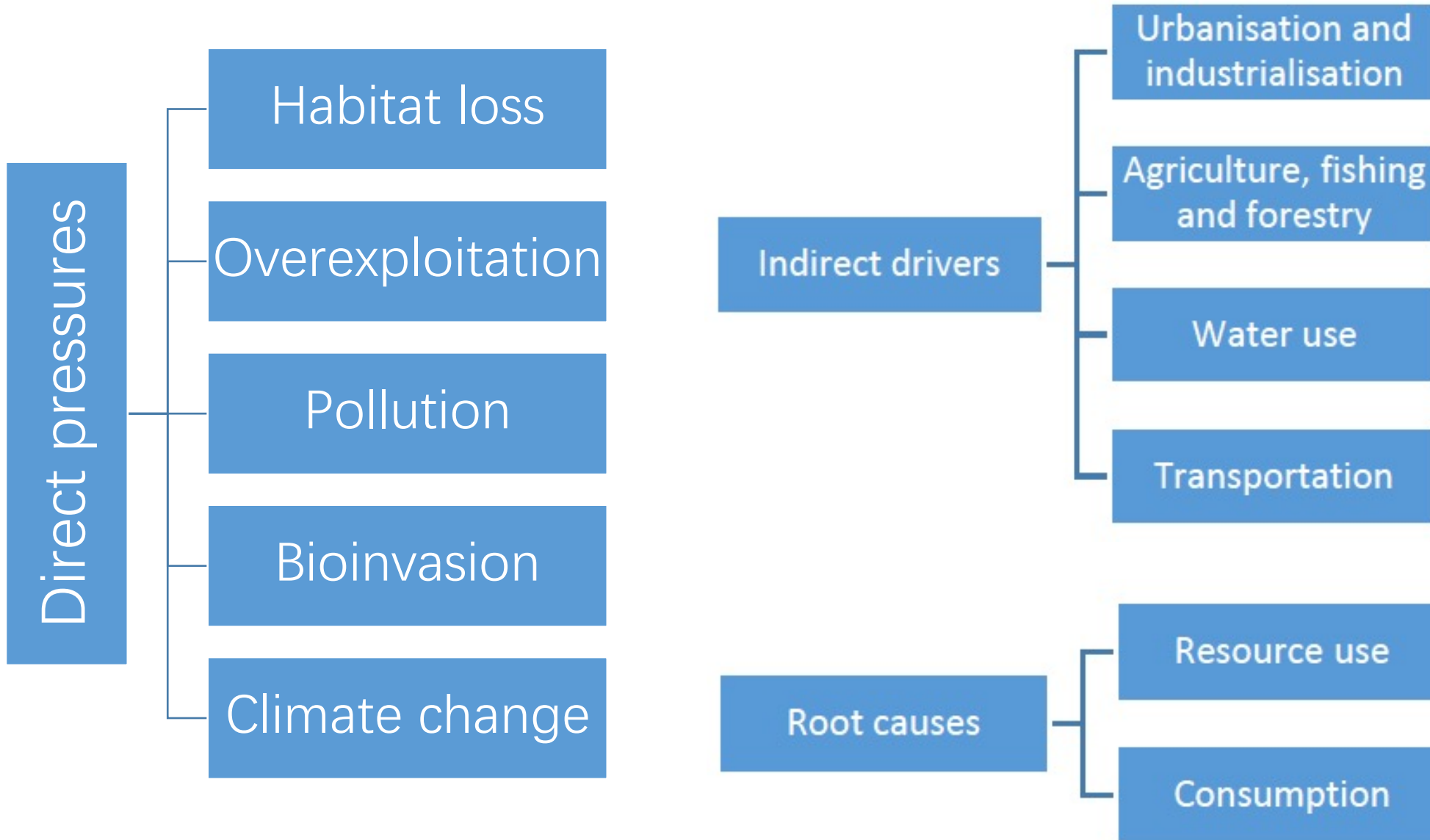
变革性改变 Transformative change

GBF is a whole: every part is important

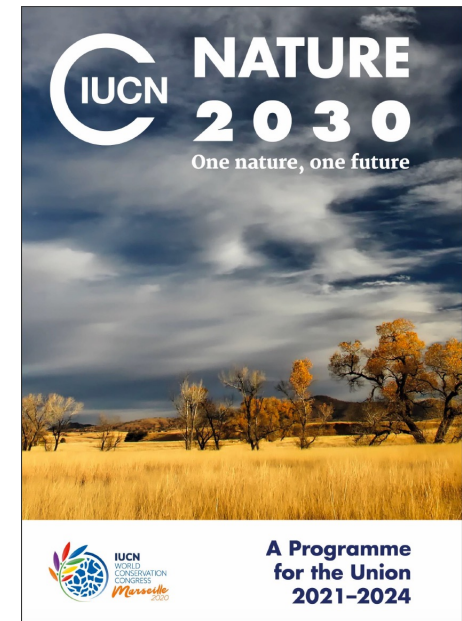


from Francis Ogwal

Priority drivers and pressures on ecosystem services addressed by the IUCN Programme 2021–2024

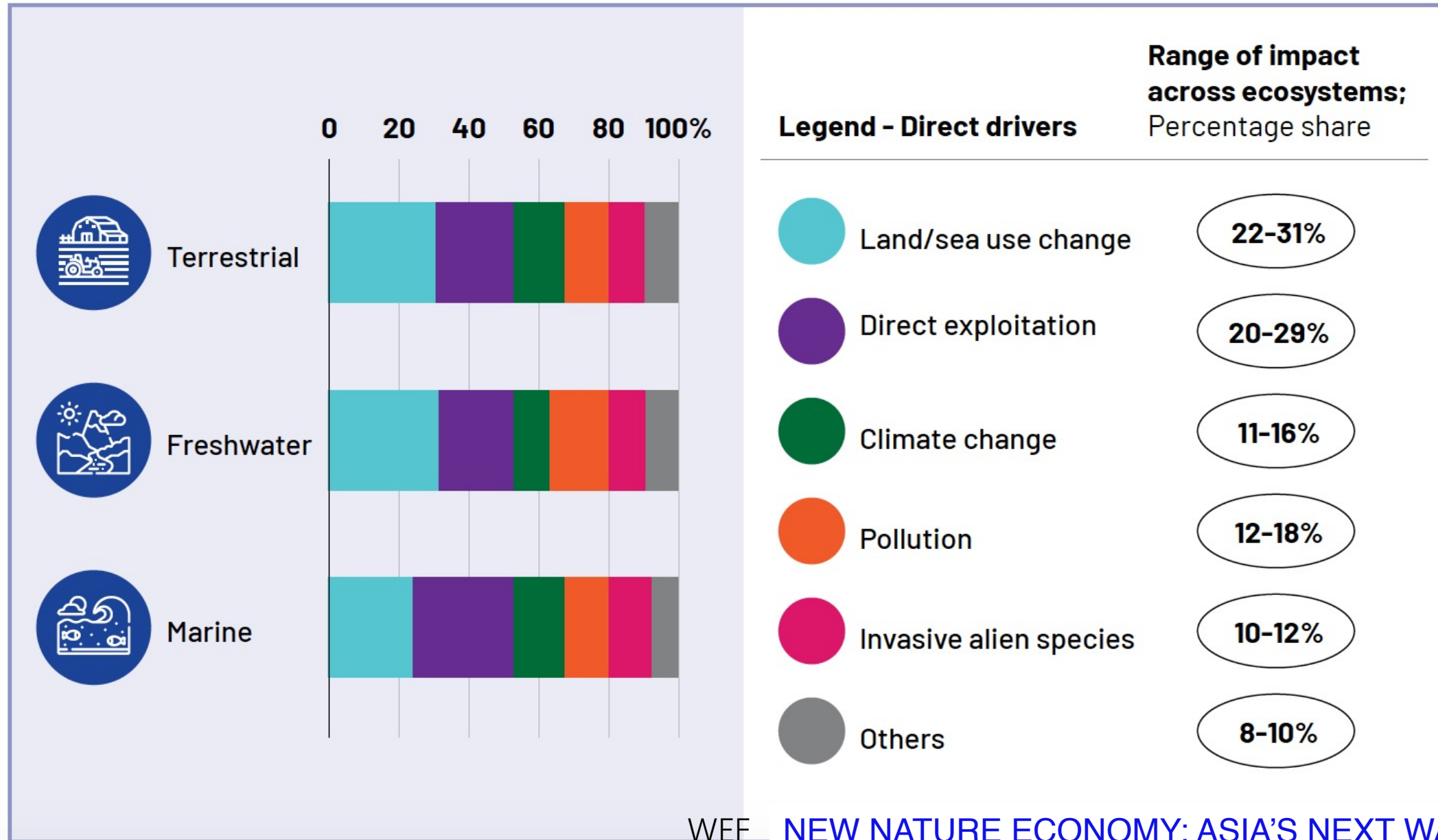


One Nature
One Future



GLOBAL BIODIVERSITY AND NATURE LOSS IMPACT BY DIRECT ANTHROPOGENIC DRIVERS

Share of overall current impact on total biodiversity and nature loss across different ecosystems



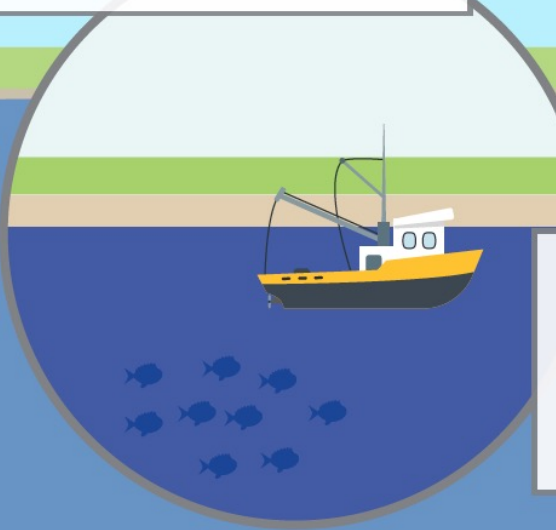
63 PERCENT OF GDP IS AT RISK FROM BIODIVERSITY AND NATURE LOSS IN THE ASIA PACIFIC REGION



Agriculture, fishing and forestry accounts for over 90% of deforestation in APAC including 2.2 million ha of tropical forest loss annually

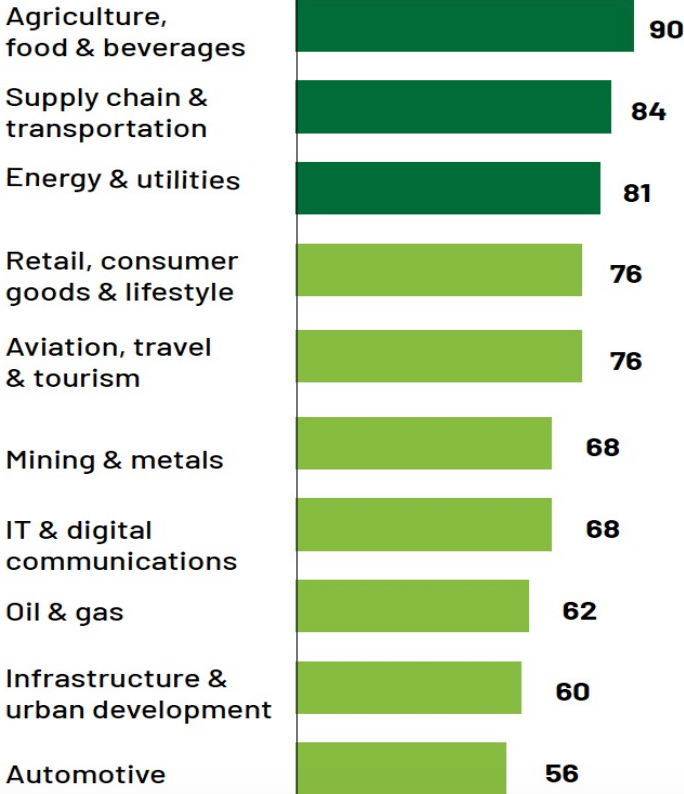
Economic activities in three socioeconomic systems have been identified as key contributors to biodiversity and nature loss: food, land, and ocean use; infrastructure and the built environment; and energy and extractives.

m accounts for over 70%
ional freshwater use

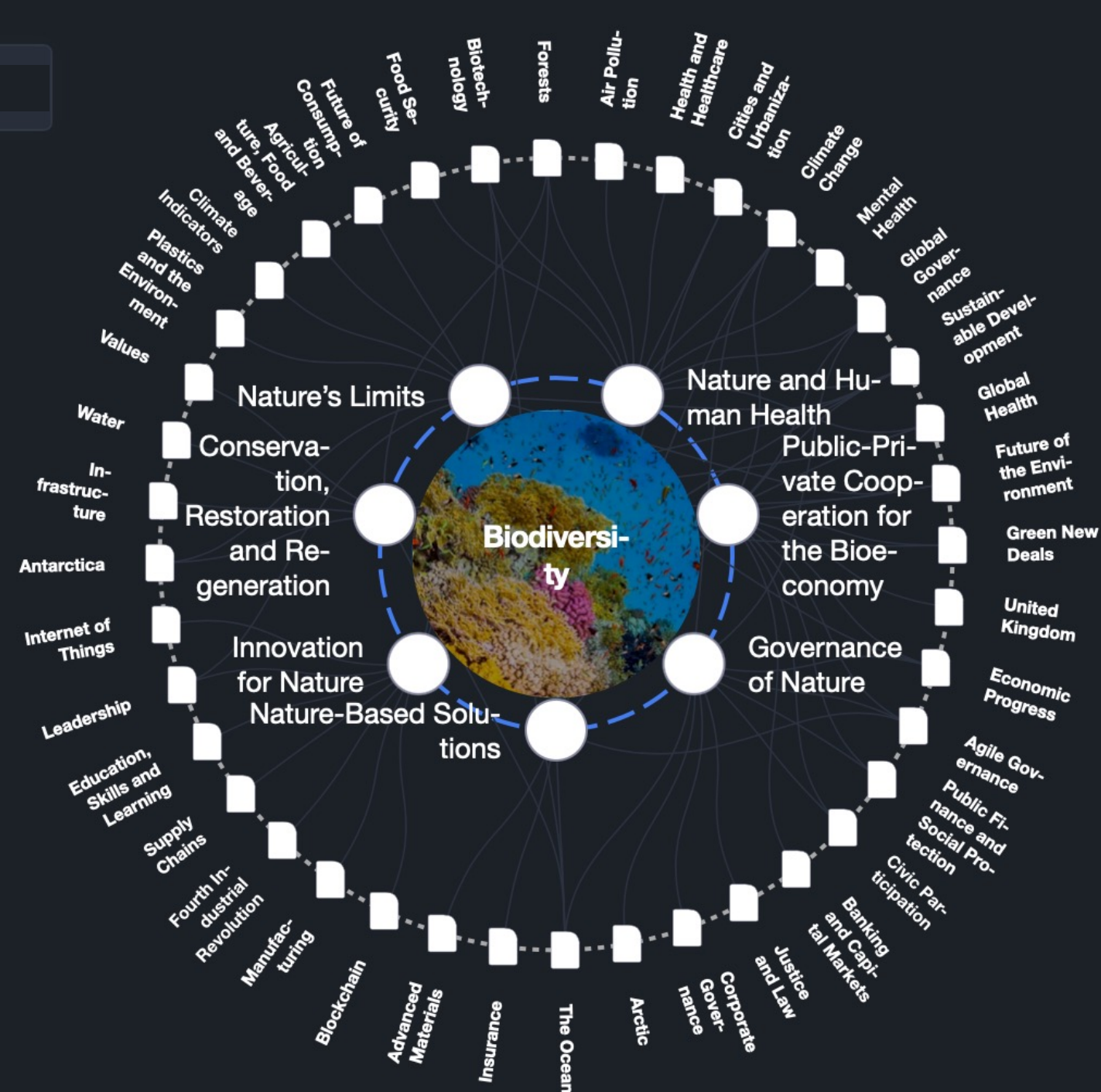


Top 10 industry sectors at risk of disruption

Disruption risk (Max = 100)



Over 70% of fish stocks in the Philippines are fished beyond sustainable levels



Biodiversity provides us with water, oxygen, fertile soils, climate control, medicine, and food - in addition to recreation and spiritual inspiration. While the traditional bioeconomy relies on crops, animals and micro-organisms, the unsustainable use of these resources has now pushed nature to its limits. There is a pressing need for cooperative action to halt biodiversity decline.

- Nature and human health
- Public-private cooperation for bioeconomy
- Nature's limits
- Governance of nature
- Conservation, restoration and regeneration
- Nature based solutions
- Innovation for nature

This briefing is based on the views of a wide range of experts from the World Economic Forum's Expert Network and is curated in partnership with Aoife Bennett, Extraordinary Researcher at the Universidad Nacional Intercultural de la Amazonía and Visiting Research Associate at the University of Oxford, along with contributors from the University of Oxford.

Curation

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1. Nature and human health
2. Public-private cooperation for bioeconomy
3. Nature's limits
4. Governance of nature
5. Conservation, restoration and regeneration
6. Nature based solutions
7. Innovation for nature

3 Nature's limits

1. Future of consumption
2. Agriculture, Food, and beverage
3. Climate indicators
4. Plastics and the environment
5. Biotechnology
6. Forests
7. Antarctica
8. Leadership

实现生物多样性保护与生态产品打造双赢

- 钱江源国家公园开展农田地役权，将周边的农田每年给农民的补贴是200元/亩，要求是不准施化肥禁用农药；
- 经营主体(公司) 以不低于5.5元/斤的价格（高于市场价2倍以上）收购农田地役权改革基地上生产的稻谷，以不低于10元/斤的价格销售大米（高于市场2倍）；
- 管理局给予经营主体2元/斤的市场营销补贴，并允许使用国家公园相关品牌。



生态产品 ——开化清水鱼



清水鱼的价格高于同样品种和质量的普通养鱼产品一倍。



生物多样性补偿的生态账户交易



巴伐利亚州
案例：农民
只出售生态
点，并不出
售土地，生
态措施的维
护义务由农
民完成，项
目持续25年。
土地面积 2
公顷，出售
生态点获益
20万欧元。

牛津大学生物多样性足迹分析

Analysis: the biodiversity footprint of the University of Oxford

Joseph William Bull, Isobel Taylor, Elizabeth Biggs, Henry M. J. Grub, Tom Yearley, Harriet Waters & E. J. Milner-Gulland

Every large organization should plot a path to net gain in biodiversity – here's how.

To help to achieve ecological recovery worldwide, more multinational corporations are making commitments to biodiversity conservation^{1–3}. According to the most recent assessment in 2018, 31 of the 100 largest companies by revenue worldwide (the global Fortune 100) have done so, from the retail corporation Walmart to the insurance company AXA⁴.

To deliver real gains – in the population sizes of endangered species, say, or in the number of hectares of restored forests, grasslands or wetlands – large organizations need to determine which of their activities have the greatest impacts on biodiversity⁵.

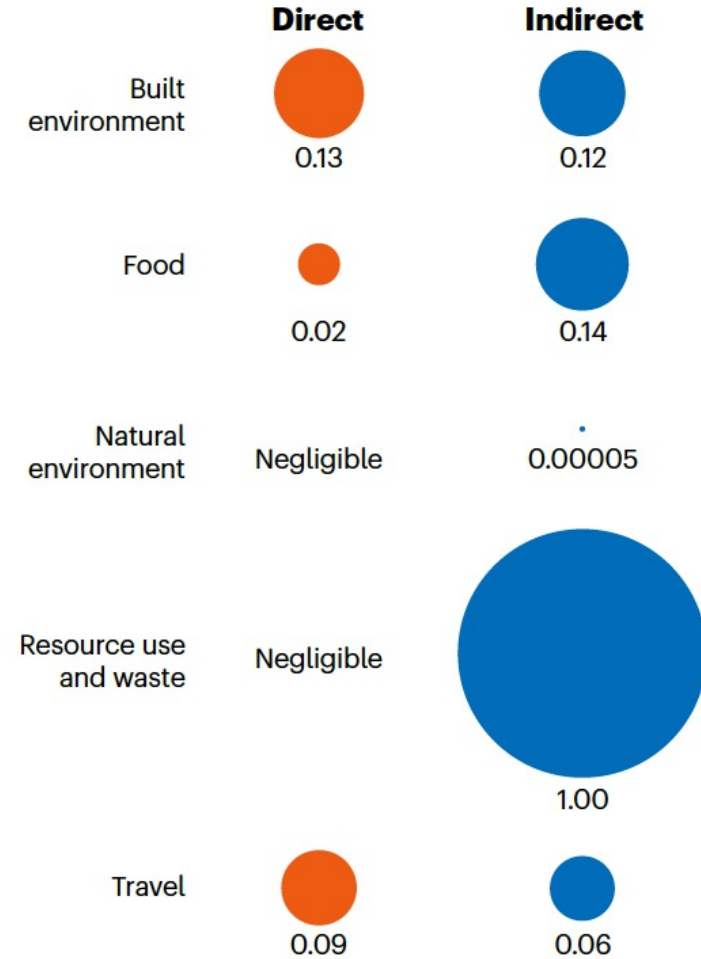
And they need to disclose and mitigate those impacts. Currently, methods for doing this are lacking (see 'Promises are hard to keep'). (By large organizations, we mean formal entities composed of hundreds of people or more that act towards a certain purpose, whether in the public, private or non-profit sectors.)

When quantitative analyses have been done, a variety of metrics have been used to quantify impacts. These range from the proportion of local species that would be lost as a result of an activity, to factors such as hectares of habitat affected, or the amount of sustainably sourced paper, fish or palm oil that is used⁴. But the choice of metric can radically

牛津大学生物多样性足迹分析

UPSTREAM EFFECTS

The University of Oxford's biggest impact on biodiversity* is from the indirect effects of resource use and waste in external supply chains it does not control.



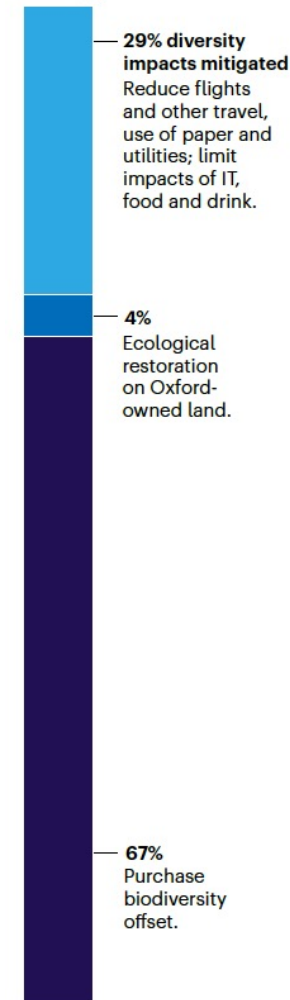
*As measured by local relative species loss for each impact category (see M. A. J. Huijbregts et al. *Int. J. Life Cycle Assess.* **22**, 138–147 (2017) for method).

OXFORD'S OPTIONS

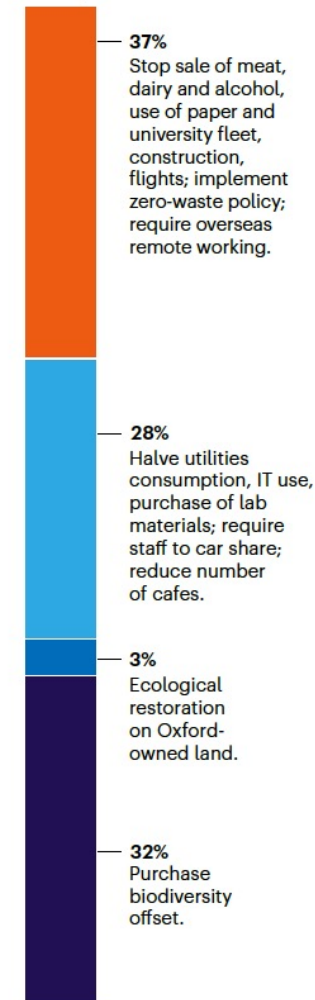
To achieve no net loss of biodiversity, the University of Oxford could focus more heavily on preventing harms to biodiversity (option 1). Or it could try to compensate for the impacts that its activities and operations have on the planet (option 2).

■ Avoid ■ Minimize ■ Remediate ■ Offset

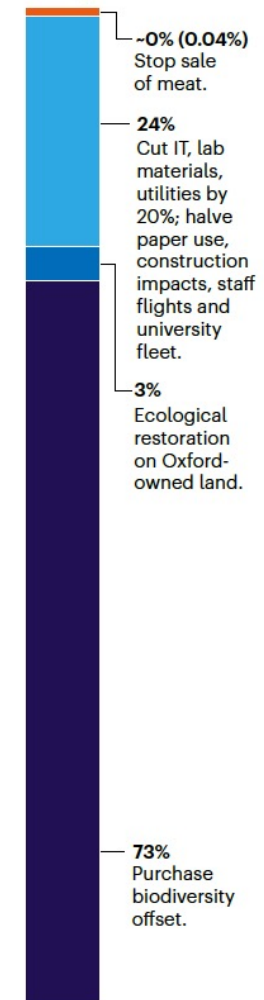
Current strategy



Option 1: Heavy avoidance



Option 2: Heavy offset



Linking climate and biodiversity

Climate change and loss of biological diversity are global challenges, linked to each other and to other socioeconomic and environmental challenges. These interlinkages have been discussed by the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), valuable references for multilateral negotiations in the United Nations Framework Convention on Climate Change (UNFCCC), whose Conference of the Parties (COP) convenes in November, and the UN Convention on Biological Diversity (CBD), whose COP convened in October. In the past year, in recognition of common challenges and opportunities, the IPCC and IPBES formally collaborated for the first time. Decision-making processes around these complex issues will be more effective if they integrate responses to climate change, biodiversity loss, and human development gaps at various spatial scales: global, regional, national, and local.

Since 1988, the IPCC has brought together a segment of the international scientific community for periodic assessments that provide rigorous results, drawing on diverse climate change science, which are relevant for policy decision-making. The IPBES has, since 2012, assessed

linkages are captured, at least partially, in the 17 UN Sustainable Development Goals. A comprehensive consideration of the Indigenous and local knowledge contributions in responding to these global challenges, as well as the development of research capacities on these topics, especially in developing countries, are other issues to be prioritized as part of the joint efforts.

The UNFCCC and CBD COP events constitute spaces for encounters and confrontation, considering, on the one side, common objectives and, on the other side, various priorities based on prevailing global and regional socioeconomic asymmetries. There is an international consensus that both cases are about global challenges, where we are all part of the problem and must all be part of the solution; but the consensus is broken when it comes to negotiating responsibilities and commitments of each country to guarantee lasting solutions.

Solutions to both problems require immediate actions, but with a long-term perspective and a historical approach. Actions must be equitable and consider multiple socioeconomic and environmental interrelationships evaluated by science. Application of the principle of common but differentiated responsibilities, incorporated into the negotiations in the 1992 Rio Declaration

**“The UNFCCC
and CBD COP
events constitute
spaces for
encounters and
confrontation...”**



**Ramón Pichs
Madruga**

is director of the World Economy Research Center (CIEM), Havana, Cuba. He is also vice-chair of IPCC Working Group III and a member of the IPBES Task Force on scenarios and models. rpichs@ciem.cu

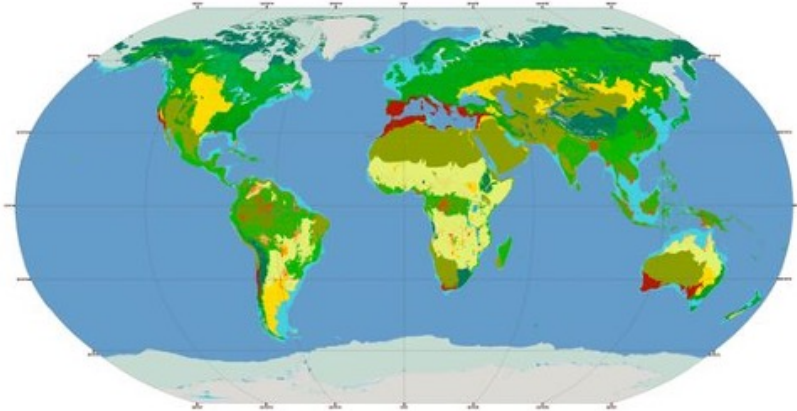
Post-2020 biodiversity targets need to embrace climate change

Almut Arneth^{a,b,1} , Yunne-Jai Shin^c , Paul Leadley^d, Carlo Rondinini^e, Elena Bukvareva (Букварева Елена)^f ,
Melanie Kolb^g , Guy F. Midgley^h, Thierry Oberdorffⁱ , Ignacio Palomo^{j,k} , and Osamu Saito^l 

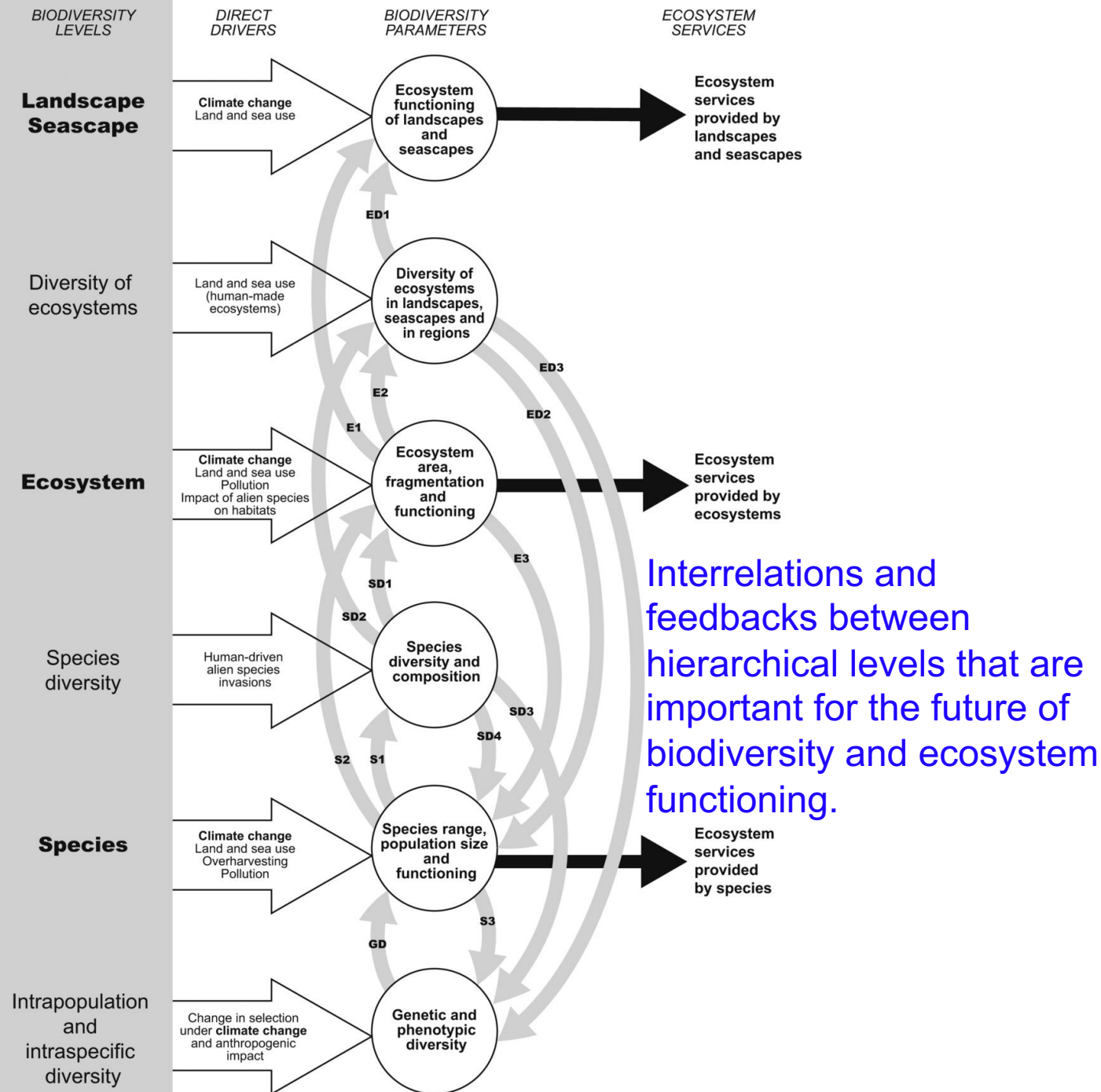
Recent assessment reports by the Intergovernmental Panel on Climate Change (IPCC) and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) have highlighted the risks to humanity arising from the unsustainable use of natural resources. Thus far, land, freshwater, and ocean exploitation have been the chief causes of biodiversity loss. Climate change is projected to be a rapidly increasing additional driver for biodiversity loss. Since climate change and biodiversity loss impact human societies everywhere, bold solutions are required that integrate environmental and societal objectives. As yet, most existing international biodiversity targets have overlooked climate change impacts. At the same time, climate change mitigation measures themselves may harm biodiversity directly. The Convention on Biological Diversity's post-2020 framework offers the important opportunity to address the interactions between climate change and biodiversity and revise biodiversity targets accordingly by better aligning these with the United Nations Framework Convention on Climate Change Paris Agreement and the Sustainable Development Goals. We identify the considerable number of existing and proposed post-2020 biodiversity targets that risk being severely compromised due to climate change, even if other barriers to their achievement were removed. Our analysis suggests that the next set of biodiversity targets explicitly addresses climate change-related risks since many aspirational goals will not be feasible under even lower-end projections of future warming. Adopting more flexible and dynamic approaches to conservation, rather than static goals, would allow us to respond flexibly to changes in habitats, genetic resources, species composition, and ecosystem functioning and leverage biodiversity's capacity to contribute to climate change mitigation and adaptation.

Post-2020 biodiversity targets need to embrace climate change

Almut Arneith^{a,b,1}, Yunn-Jai Shin^c, Paul Leadley^d, Carlo Rondinini^e, Elena Bukvareva (Букварева Елена)^f, Melanie Kolb^g, Guy F. Midgley^h, Thierry Oberdorffⁱ, Ignacio Palomo^{j,k}, and Osamu Saito^l



Examples of future projected impacts of climate change (CC) and CO₂ on biodiversity and ecosystem processes, which can interact with other major drivers of change (such as land use change, resource extraction, and pollution, among others).

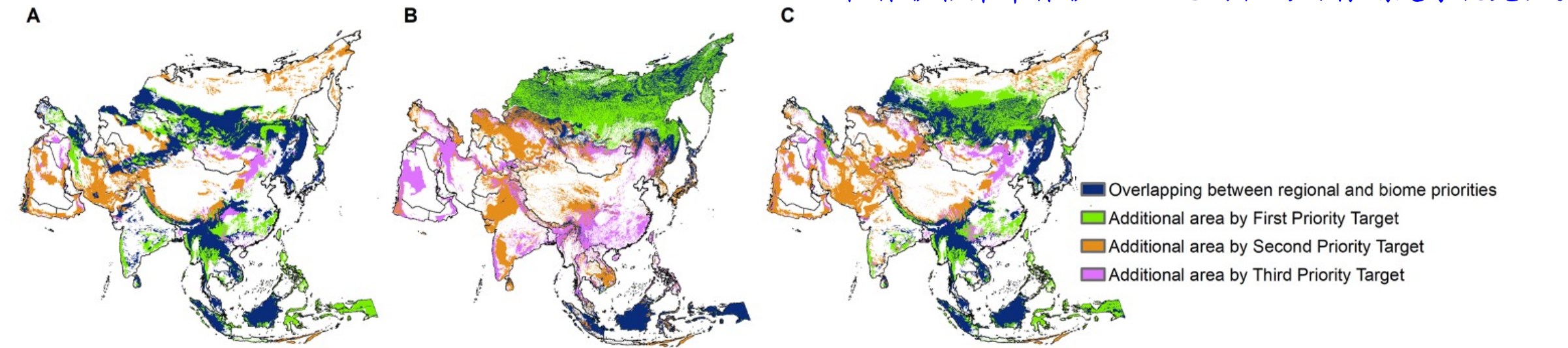


ECOLOGY

Regional scalable priorities for national biodiversity and carbon conservation planning in Asia

Li Zhu^{1†}, Alice C. Hughes^{2†}, Xiao-Qian Zhao^{1†}, Li-Jing Zhou^{1,3}, Ke-Ping Ma^{1,3*}, Xiao-Li Shen¹, Sheng Li⁴, Ming-Zhang Liu⁴, Wu-Bing Xu⁵, James E. M. Watson^{6,7}

为促进《生物多样性公约》2020后全球生物多样性框架更好地实施，亟需制定国家层面切实可行的生物多样性保护目标。研究提出基于亚洲区域、生物群区和国家多个尺度确定保护优先区的研究框架，并且为实现保护生物多样性与减缓气候变化的协同目标，识别了多样性和碳储量协同增效区域，为2020后生物多样性保护框架中保护30%土地面积的目标划定了优先区。



基于(A)生物多样性、(B)碳储量、(C)生物多样性和碳储量确定的不同优先等级的保护优先区。亚洲区域尺度和生物群区尺度优先区重叠区域（深蓝色）为顶级优先区；绿色为第一优先目标在顶级优先区基础上新增面积，橙色为第二优先目标在第一优先目标基础上新增面积，紫色为第三优先目标在第二优先目标基础上新增面积。



EU Biodiversity Strategy for 2030

Bringing nature back into our lives

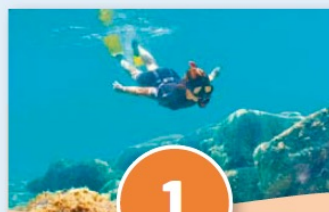
ONE VISION

By 2050, all of the world's ecosystems are **restored**, **resilient**, and adequately **protected**

ONE GOAL

Put Europe's biodiversity on the path to recovery by 2030 for the benefit of **people**, the **planet**, the **climate** and our **economy**

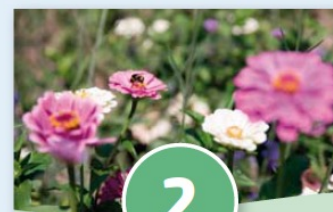
FOUR PILLARS



1

Protect Nature

Expand protected areas to 30% of the EU's land and sea, and put a third of these areas under strict protection



2

Restore Nature

Restore nature and ensure its sustainable management across all sectors and ecosystems



3

Enable transformative change

Strengthen the EU biodiversity governance framework, knowledge, research, financing and investments



4

EU action to support biodiversity globally

Deploy EU external actions to raise the level of ambition for biodiversity worldwide, reduce the impact of trade and support biodiversity outside Europe



ACTIONS AND COMMITMENTS TO 2030



Pillar three: Key commitments and goals

- Establish a strengthened European biodiversity governance framework.
- Step up implementation and enforcement of EU environmental legislation.
- Launch a new initiative for sustainable corporate governance and support a European Business for Biodiversity movement.
- Strengthen the Commission's biodiversity proofing framework to ensure that EU funding contributes to, and does not harm, biodiversity.
- Unlock at least €20 billion a year for nature and ensure that a significant proportion of the 30% of the EU budget dedicated to climate action is invested in biodiversity and nature-based solutions.
- Establish a common classification of economic activities that contribute to biodiversity, supported by the Renewed Sustainable Finance Strategy.
- Encourage changes in national fiscal systems to shift tax burden from labour to pollution, resource use and other environmental externalities.
- Introduce a new long-term strategic research agenda for biodiversity in the future Horizon Europe programme, set up a dedicated Biodiversity Partnership and a Knowledge Centre for Biodiversity.
- Propose a Council Recommendation on education for environmental sustainability.
- Use the new Skills Agenda to help biodiversity restoration and sustainable management, as well as a fair and inclusive transition to a green economy.

Asia Nature Forum (AsiaNat)-3

Virtual | 25 July 2022

09:30 a.m. GMT | 4:30 p.m. Bangkok | 5:30 p.m. Beijing



Prof Ma Keping
Chair, IUCN Asia Regional
Committee



Dr Chunquan Zhu
Head, China Nature Initiatives,
Centre for Nature and Climate,
World Economic Forum



Prof Jon Paul Rodriguez
Chair, IUCN Species Survival
Commission

Programme (Bangkok Time)

- 16:30-16:35 Welcome remarks by Prof. Ma Keping
- 16:35-17:00 Transition of food system for nature positive agenda by Dr. Chunquan Zhu
- 17:00-17:05 Q&A
- 17:05-17:45 Integration of species and ecosystem red lists for improved evidence-based conservation decisions by Prof Jon Paul Rodriguez
- 17:45-17:50 Q&A
- 17:50-18:00 Closing

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谢谢！

