PROTEUS ANNUAL MEETING

13th – 14th June 2019, David Attenborough Building, Cambridge, UK

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AngloAmerican BHP bp Chevron eni equinor ExxonMobil REPSOL RioTinto Shell TOTAL woodside

HORIZON SCAN:

Emerging Issues and Trends In Biodiversity Management and Data

Corli Pretorius

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RESTORATION AND THE UN DECADE

Lera Miles @lera_miles

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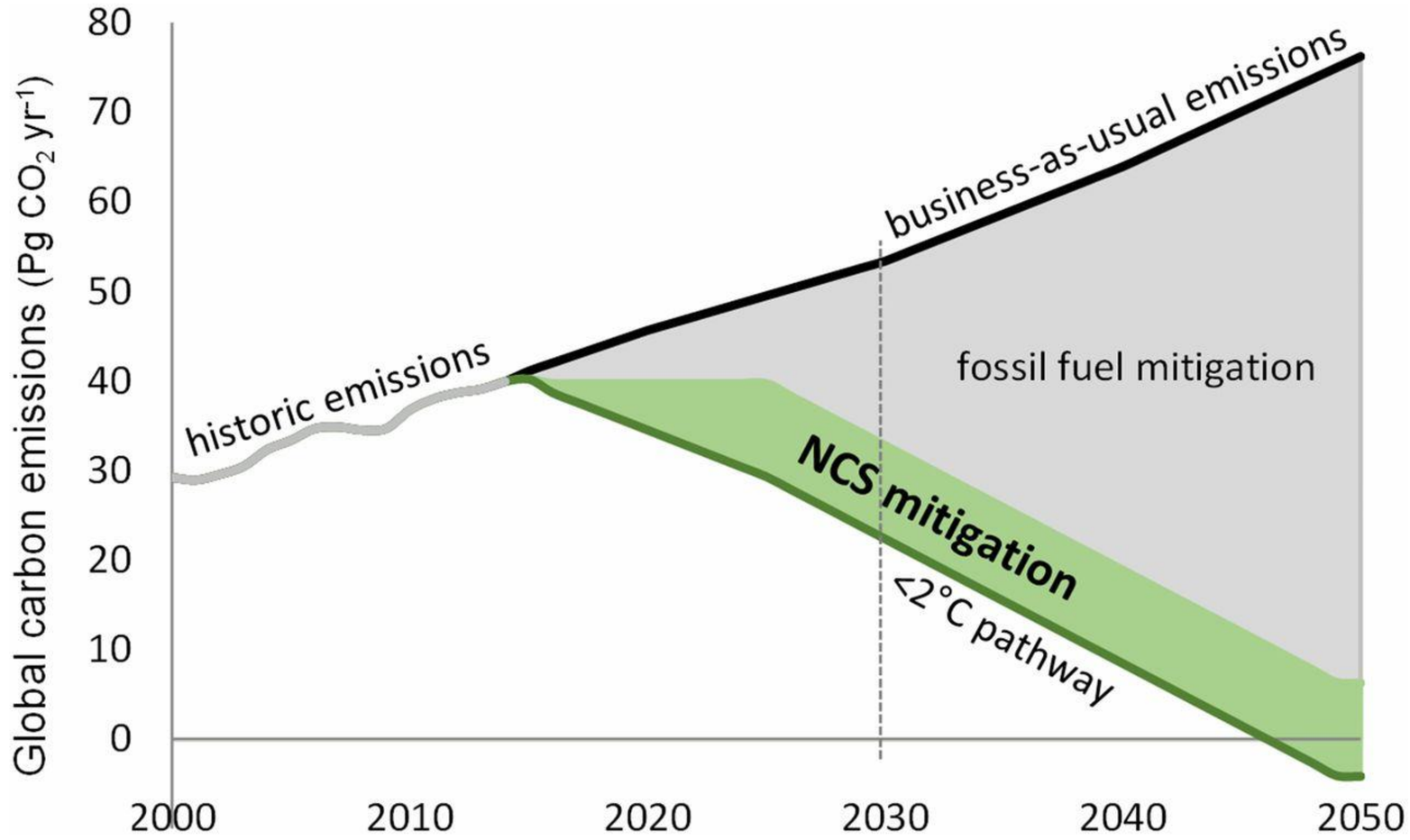
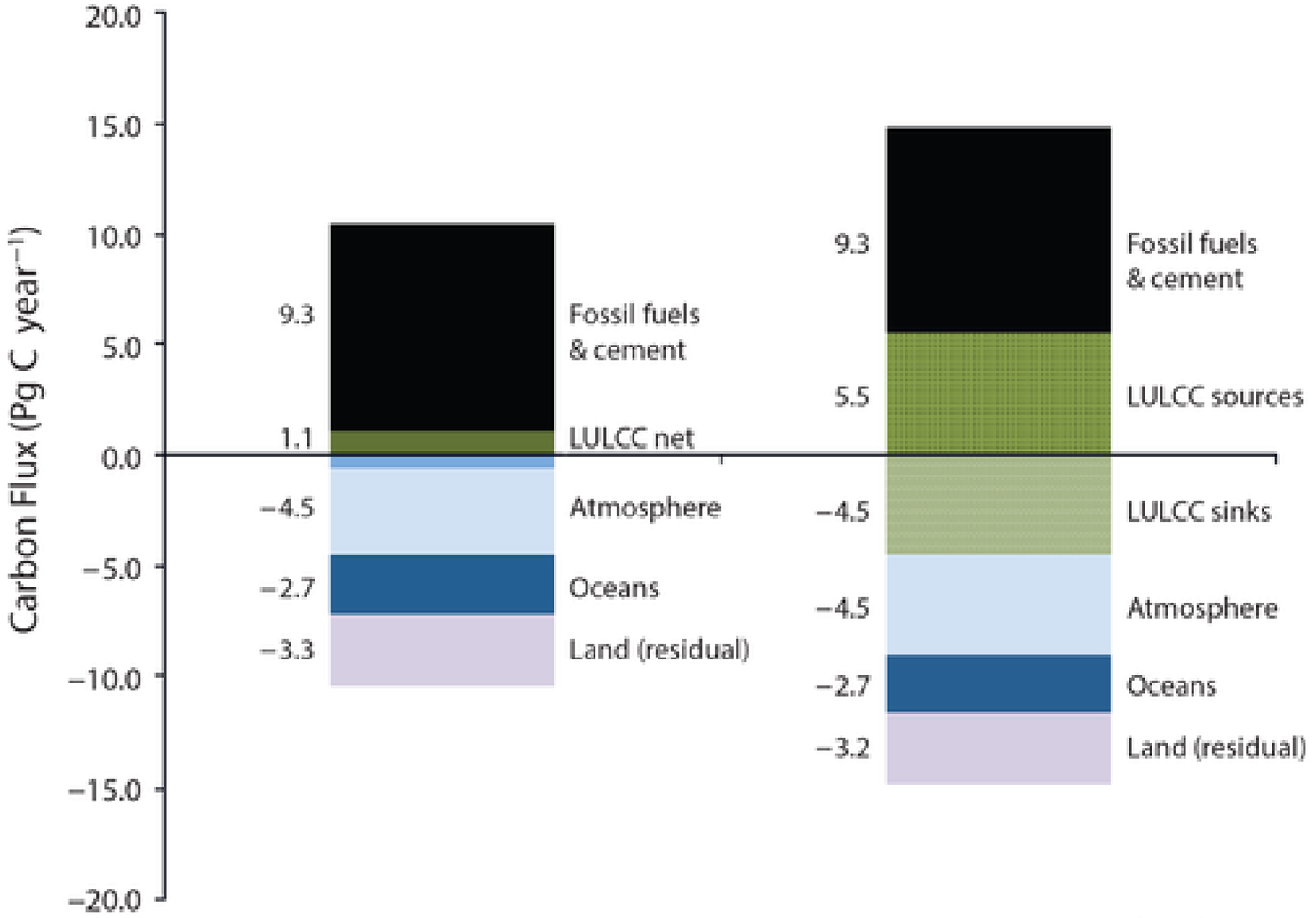
The need for restoration

Natural climate solutions are needed to stabilise warming to below 2°C



 Griscom et al. PNAS 2017;114:44:11645-11650

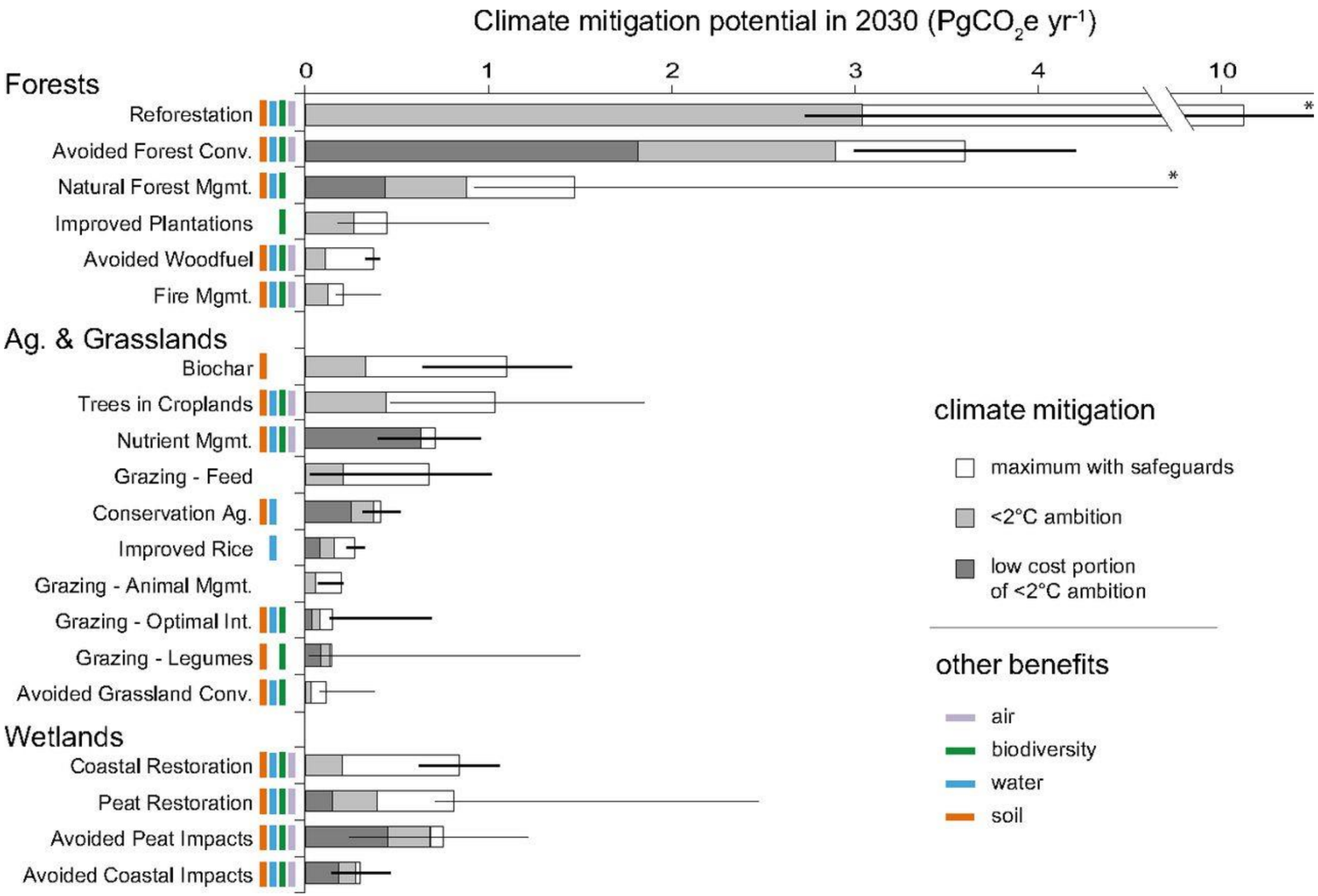
Net statistics obscure size of sources & sinks on land



LULCC = land use & land cover change

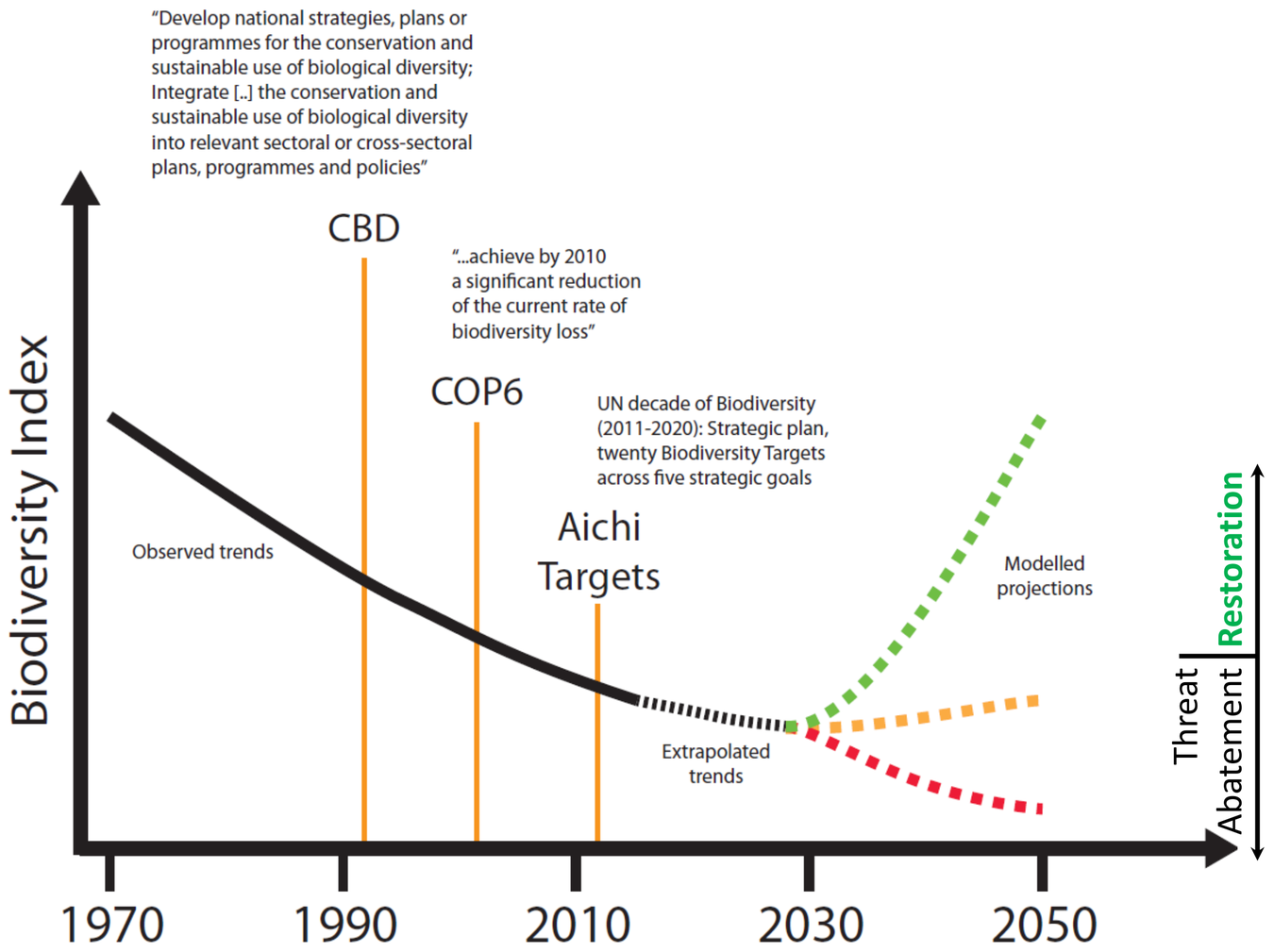
Houghton & Nassikas 2017. Global Change Biology 24(1):350-359

Climate mitigation potential of 20 natural pathways

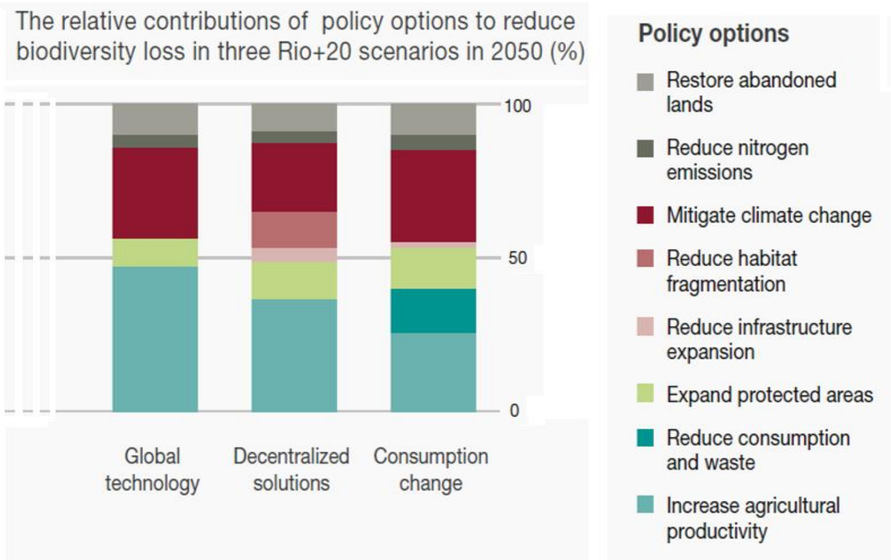


Griscom et al. PNAS 2017;114:44:11645-11650

Restoration is needed to help reverse biodiversity loss



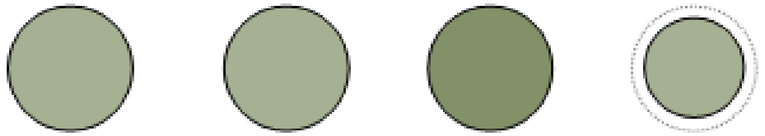
ACTIONS / POLICY OPTIONS



Mace et al. 2018 Nature Sustainability 1:448-451

How (& where) to restore depends on objectives

Score card:

Approach	Ecosystem-derived benefit – result and speed of delivery			
	Biodiversity	Water	Soil	NTFPs
Natural regeneration				
Assisted natural regeneration				
Planting native species				
Planting non-native species				

Larger circles indicate greater delivery of service; darker circles represent faster speed of delivery. See key for detail.

Miles et al. 2010 UN-REDD Multiple Benefits Series 5

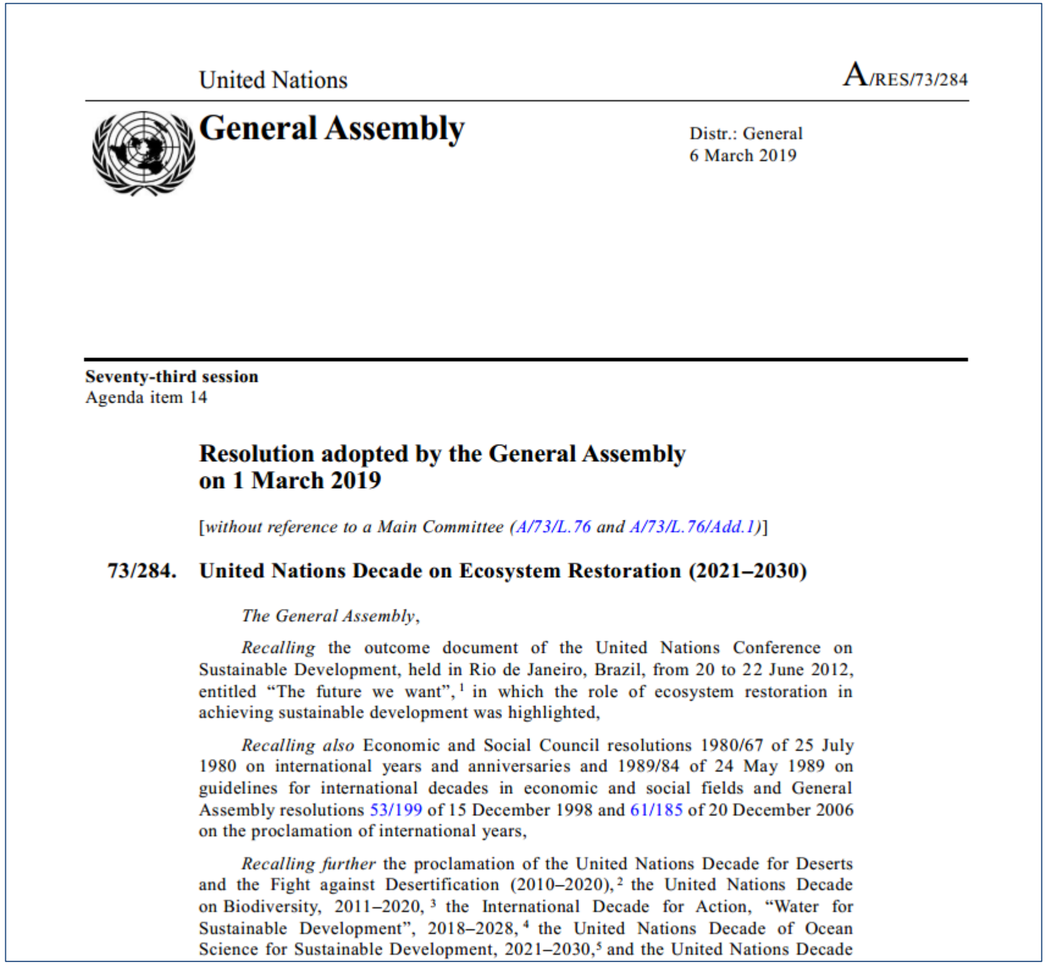
UN Decade on Ecosystem Restoration

UN Decade on Ecosystem Restoration: 2021-30

Proposed by El Salvador.

Adopted by UN General Assembly on 1 March 2019.

Aim: **supporting and scaling up efforts** to prevent, halt and reverse the degradation of [marine and terrestrial] ecosystems worldwide and **raise awareness** of the importance of successful ecosystem restoration.



United Nations A/RES/73/284

General Assembly

Distr.: General
6 March 2019

Seventy-third session
Agenda item 14

Resolution adopted by the General Assembly on 1 March 2019

[*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)

The General Assembly,

Recalling the outcome document of the United Nations Conference on Sustainable Development, held in Rio de Janeiro, Brazil, from 20 to 22 June 2012, entitled "The future we want",[1] in which the role of ecosystem restoration in achieving sustainable development was highlighted,

Recalling also Economic and Social Council resolutions 1980/67 of 25 July 1980 on international years and anniversaries and 1989/84 of 24 May 1989 on guidelines for international decades in economic and social fields and General Assembly resolutions 53/199 of 15 December 1998 and 61/185 of 20 December 2006 on the proclamation of international years,

Recalling further the proclamation of the United Nations Decade for Deserts and the Fight against Desertification (2010–2020),[2] the United Nations Decade on Biodiversity, 2011–2020,[3] the International Decade for Action, "Water for Sustainable Development", 2018–2028,[4] the United Nations Decade of Ocean Science for Sustainable Development, 2021–2030,[5] and the United Nations Decade

Encourages member states to:

Foster political will, resource mobilisation, capacity building, research, cooperation at all scales

Mainstream restoration into development plans (adaptive capacity)

Policies/plans to **prevent ecosystem degradation**

Scale up existing initiatives

Facilitate **synergies** to achieve multiple commitments

Share experiences and good practices on ecosystem restoration

Spatial data need and availability

Atlas of Forest Landscape Restoration Opportunities

Introduction About Data Print Share

Layers Basemap

Bonn Challenge

Restoration Opportunities

+ transparency -

Restoration Opportunity Areas
- Wide-scale restoration
- Mosaic restoration
- Remote restoration

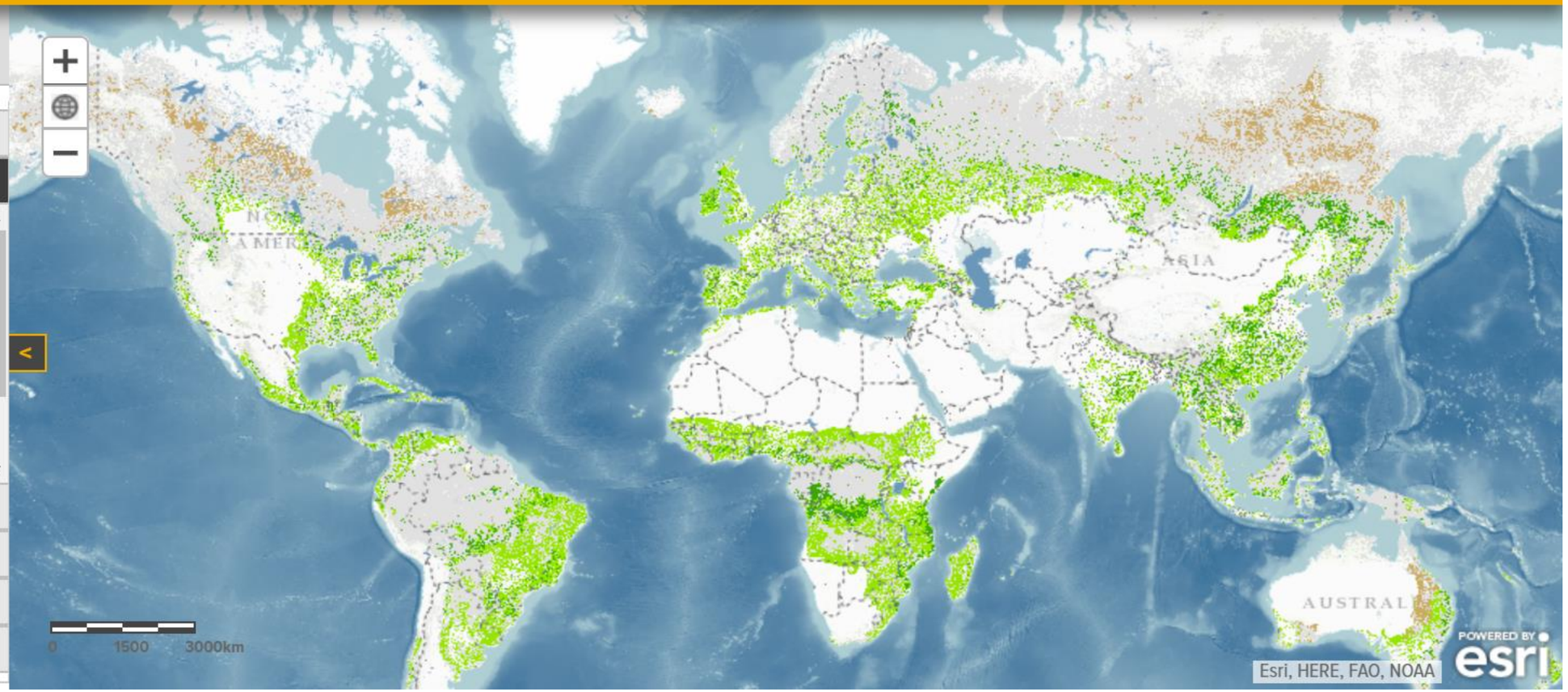
Other Areas

Forest Condition

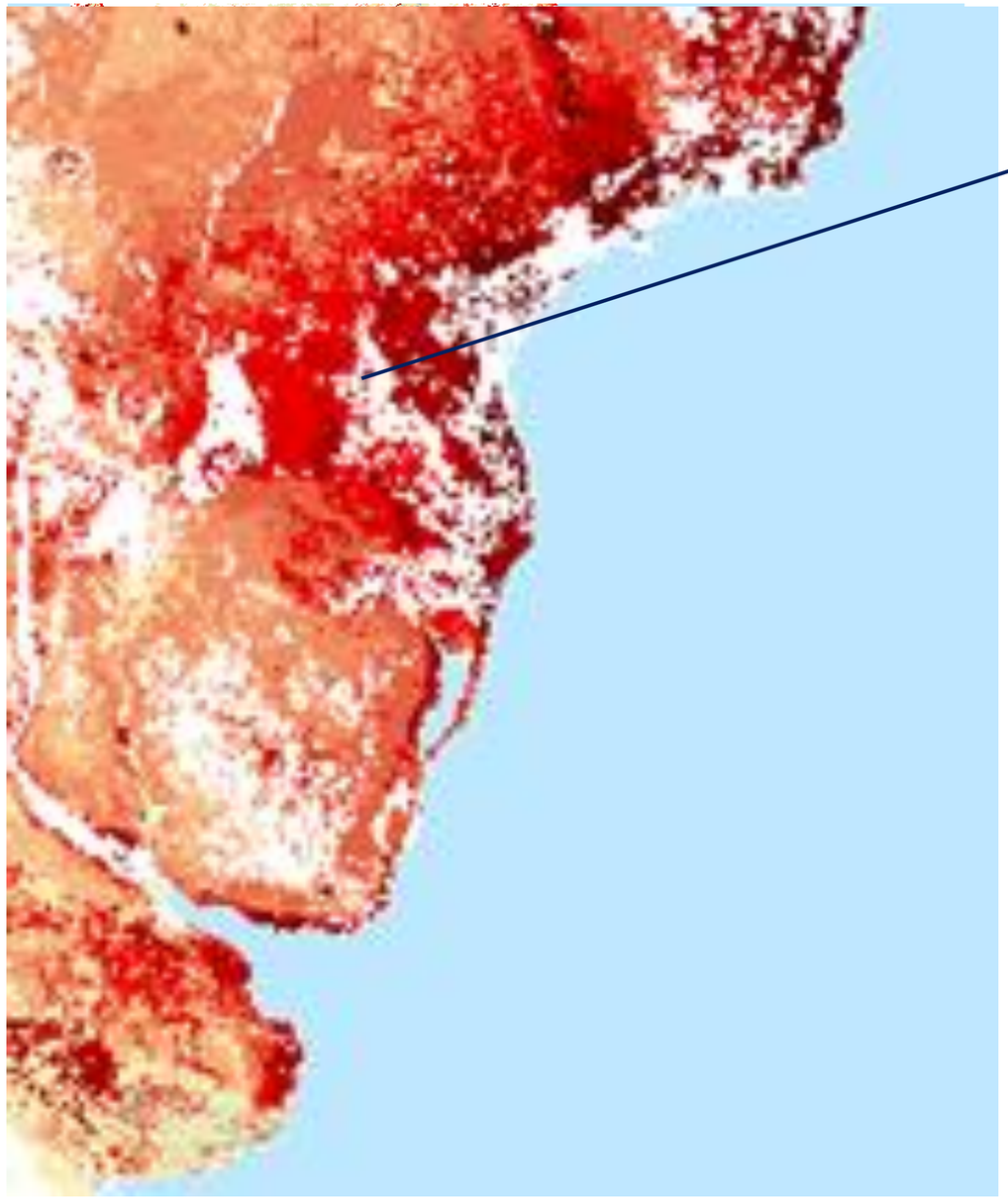
Current Forest Coverage

Potential Forest Coverage

Human Pressure



Strassburg approach – integer linear programming to rank priorities



Priority

5% 5-10% 10-15% 15-20% 20-30% 30-40%
40-55% 55-70% 70-85% 85-100% Not restorable

For each 300m pixel:

Biodiversity Impact	Climate Change Impact	Opportunity Costs
• List of species protected • Red List Classification • Reduction in Extinctions	• Tonnes of CO2 Sequestered per hectare restored	• Value of agricultural production displaced ($/hectare)

Restoration of **converted land** to original ecosystem

Optimisation through many model runs

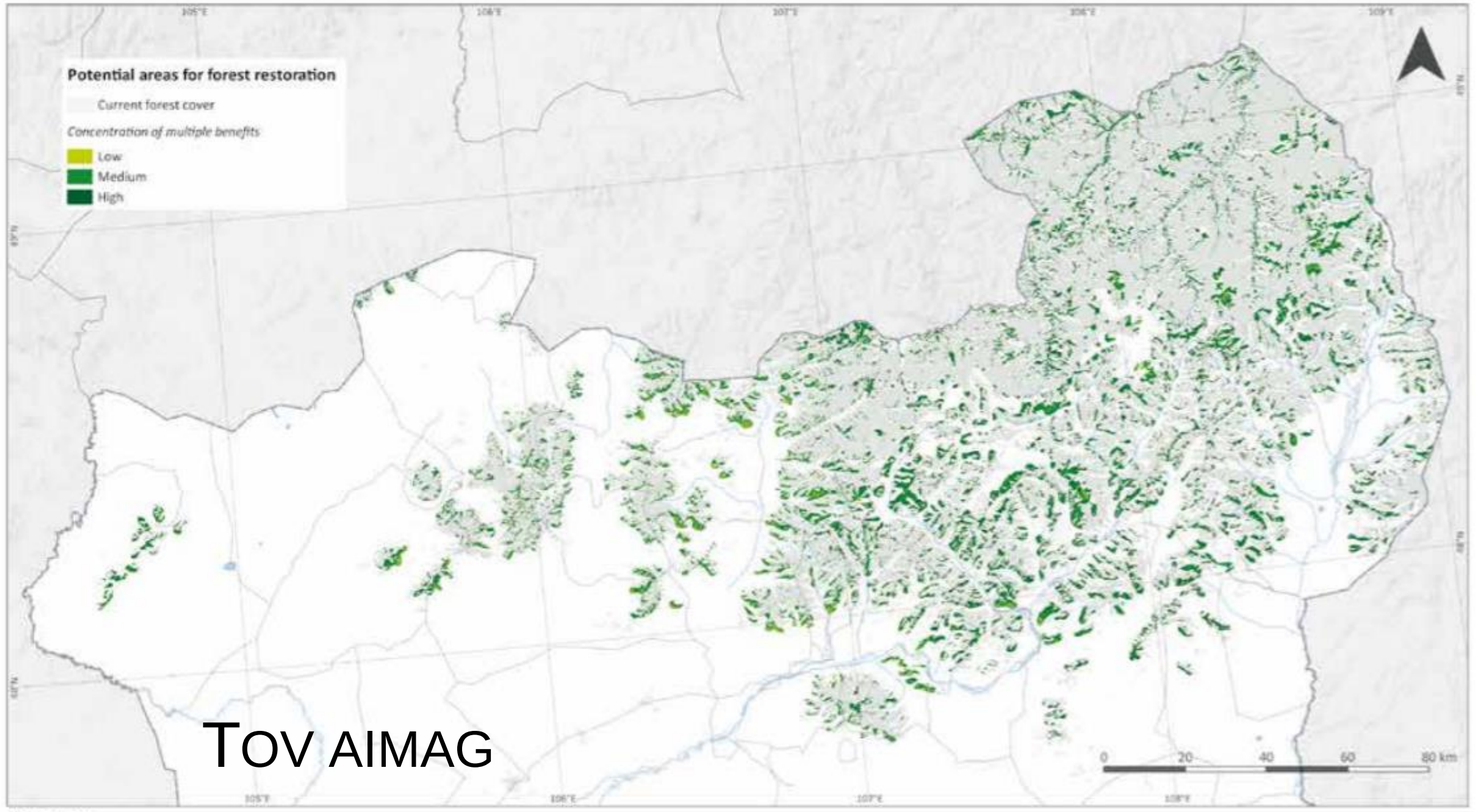
Approach applicable from farm scale to global scale

Data needs vary with purpose & scale

Defining restoration objectives & constraints critical

Global priority setting =/= landscape-scale planning

Adapt analysis to local circumstances



Data sources:
Current forest cover: National Forest Taxation Inventory (compilation year 2014).
Roads: Ministry of Roads, Transportation, Construction and Urban Development (2007). Provided by Environment Information Center of Mongolia.
Population centers: Ministry of Roads, Transportation, Construction and Urban Development (2007). Provided by Environment Information Center of Mongolia.
DEM: Lehner, et al. (2008) New global hydrography derived from spaceborne elevation data. Eos, Transactions, AGU 89 (10): 93-94. Downloaded from http://hydrosheds.cr.usgs.gov/index.php
Potential Carbon: Smith, et al. (2013). The climate dependence of the terrestrial carbon cycle, including parameter and structural uncertainties Biogeosciences (10) 583-606.
Potential water provision: Modelled in the WaterWorld modelling system (Mulligan 2013. WaterWorld: a self-parameterising, physically based model for application in data poor but problem-rich environments globally. Hydrology Research Vol. 44, No. 5).
Crops: IRIMHE, Remote Sensing Department (2015) Provided by Environment Information Center of Mongolia.

#WeCanMakeChange

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