



UNIVERSITY OF ABERDEEN



Scotland's centre of expertise connecting
climate change research and policy

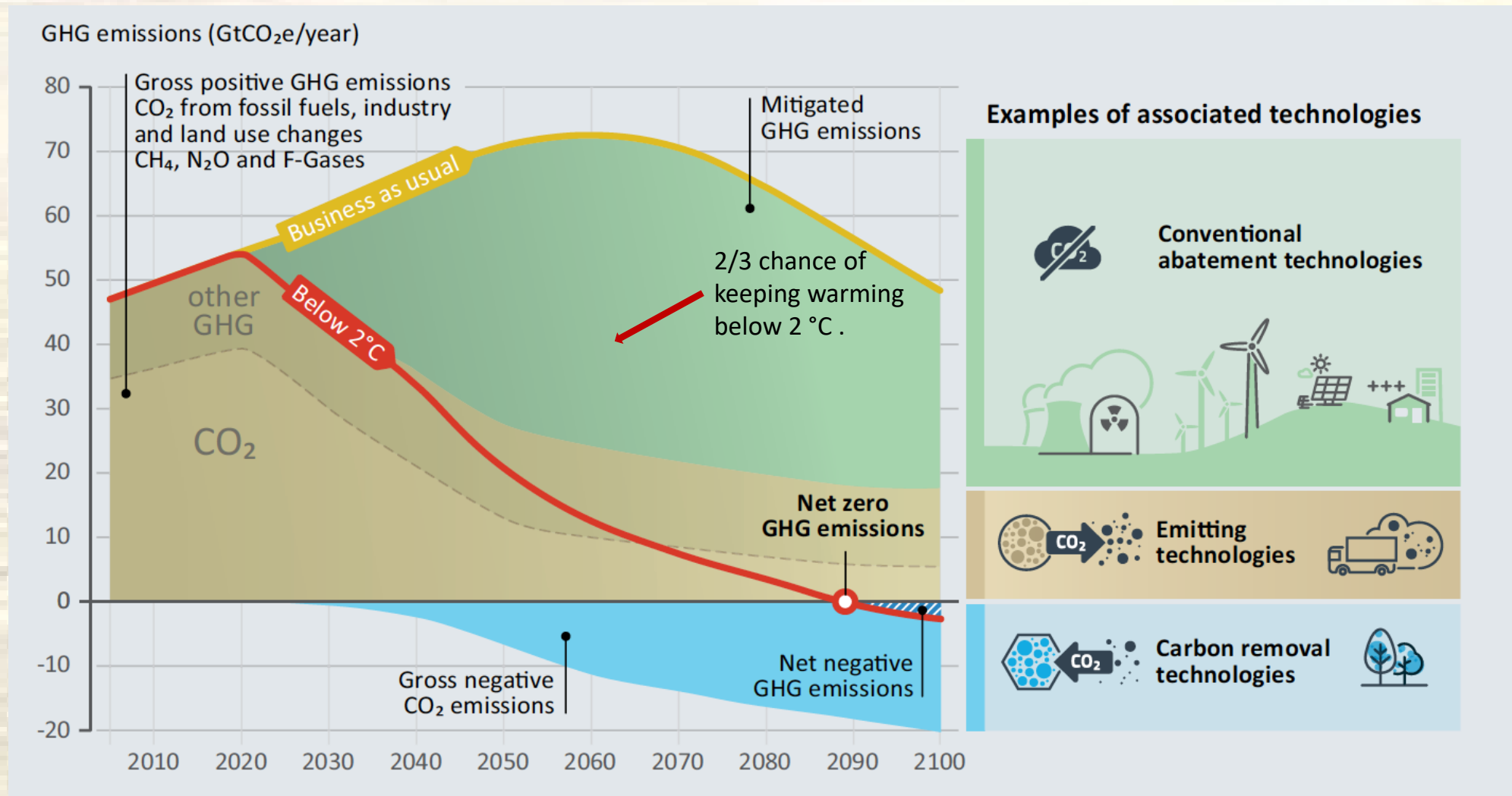
Some reflections on “nature-based” CDR

Pete Smith

Professor of Soils & Global Change, FRS, FRSE, FNA, F.EurASc, F.I. Soil Sci., FRSB
Institute of Biological & Environmental Sciences
University of Aberdeen,
Scotland, UK.
E-mail: pete.smith@abdn.ac.uk

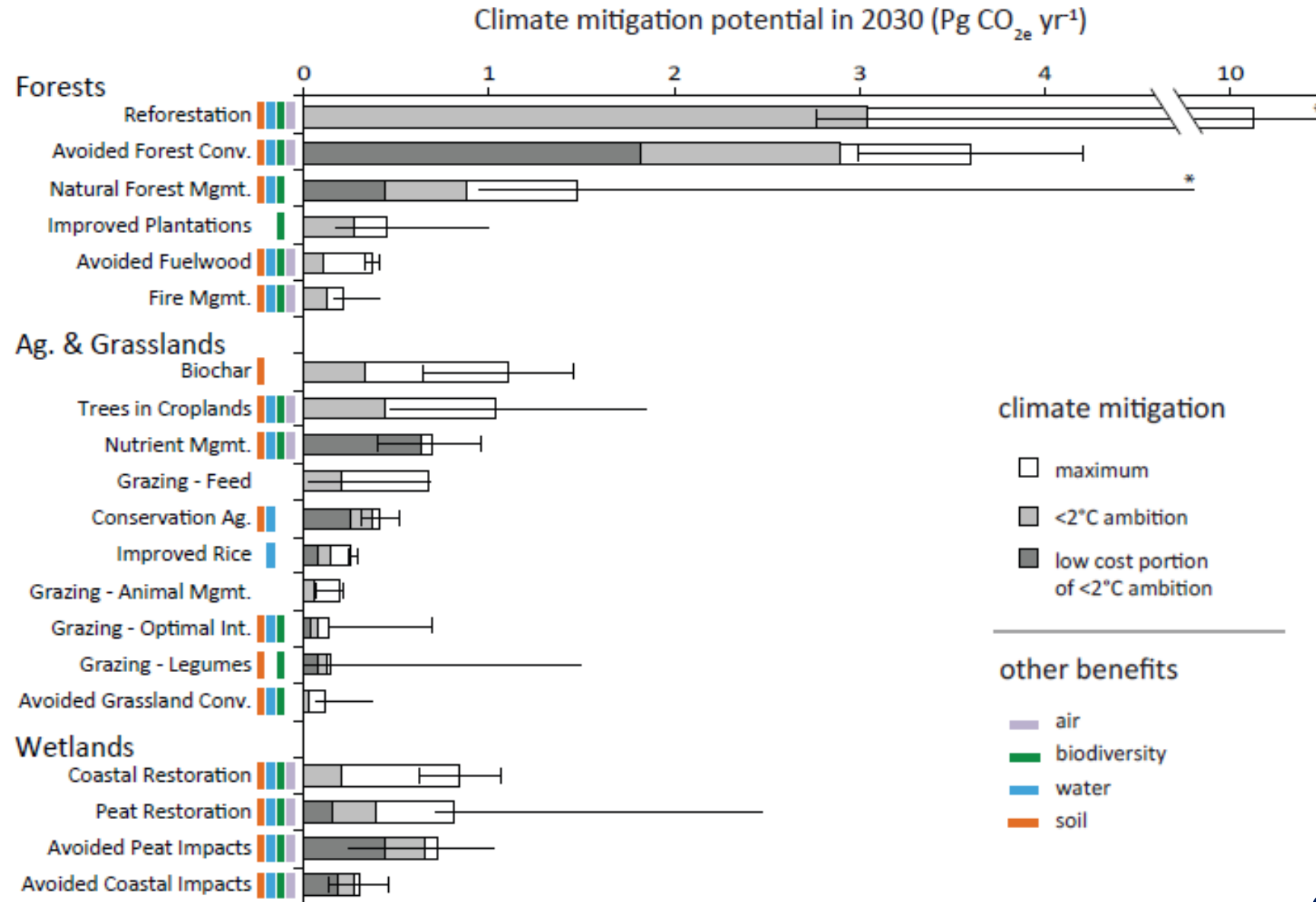
Shell NbS Science Summit, Amsterdam, 20th June 2023

We need CDR options to achieve Net Zero emissions



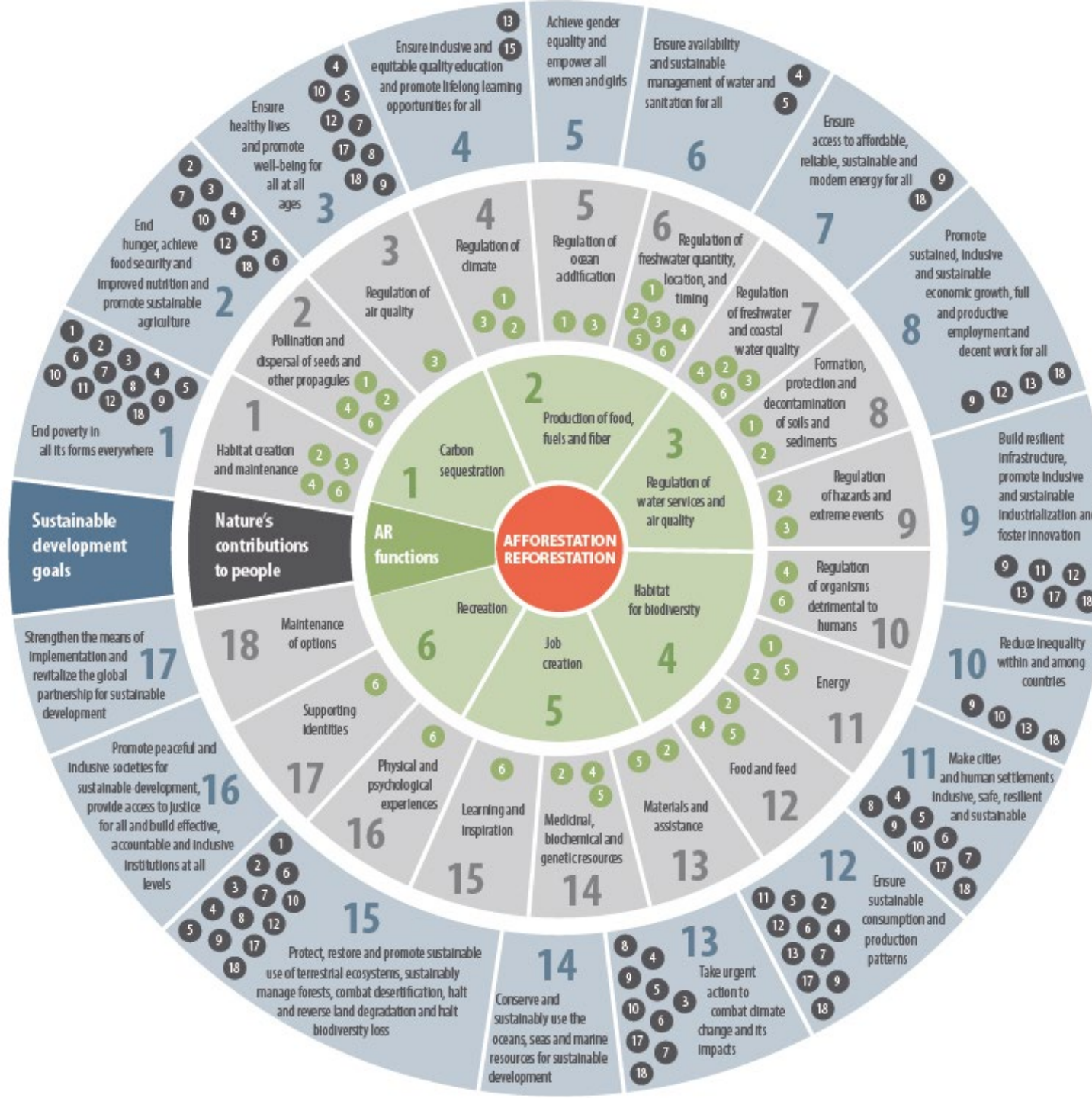
Source: Smith et al. 2017. Chapter 7 of UNEP emissions gap report

Land-based GHG removal options -“Natural climate solutions”



Impacts of *afforestation / reforestation* on NCP and the UN SDGs

- Mostly **positive** impacts on most NCP, and most SDGs
- **Variable** impacts on NCP Food and Feed and SDG 2 “Zero hunger” – competes for land for food production; but can reduce land degradation so can improve yields
- Reduced deforestation could have some **negative** impacts (locally) on economic growth



Risks on nature-based CDR



- Double counting
- Lack of additionality
- Lack of permanence
- Sink saturation
- Mitigation deterrence
- Potential for greenwash



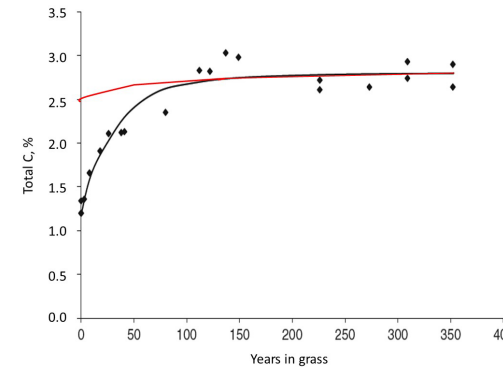
The age of
extinction
Carbon offsetting

● This article is more than 4 months old

Revealed: more than 90% of rainforest carbon offsets by biggest certifier are worthless, analysis shows

Investigation into Verra carbon standard finds most are 'phantom credits' and may worsen global heating

- **'Nowhere else to go': Alto Mayo, Peru, at centre of conservation row**
- **Greenwashing or a net zero necessity? Scientists on carbon offsetting**
- **Carbon offsets flawed but we are in a climate emergency**



DRIVERS SET TO GO CARBON NEUTRAL WITH SHELL

Oct 10, 2019

Shell will become the first retailer to offset the carbon dioxide (CO₂) emissions from customers' fuel purchases at its UK service stations at no extra cost from October 17, 2019. This will be available at more than 1,000 Shell-branded service stations.

According to a recent survey, 71% of people in the UK would like to reduce their CO₂ footprints, but nearly half are not clear on the actions they can take.

"Switching to an electric vehicle is the best way for drivers to reduce their CO₂ footprints and they can now charge on a growing number of our UK forecourts with 100% renewable electricity," said Sinead Lynch, Shell UK Country Chair.

"But today the majority of people still use petrol and diesel. We can help them address the impact of their emissions by offsetting their fuel purchases, starting now."

Drivers will automatically take part in the offsetting programme every time they scan their Shell Go+ app or card with their fuel purchase. The reward programme is available to join free of charge. Through the scheme, customers will receive a personal carbon statement, so that they can see how much is being offset on their behalf."

Summary

- We need CDR to achieve Net Zero
- If implemented carefully, ***nature-based CDR options*** are good for ***biodiversity***, good for ***people*** and good for both climate change ***adaptation*** and ***mitigation***
- ***Double counting, lack of additionality, lack of permanence, saturation and mitigation deterrence*** are real risks
- ***The land can't do it all!*** There is not enough land to soak up emissions from other sectors, like transport, energy generation aviation etc. ***Immediate and aggressive action*** is needed across all sectors of the economy in we are to meet net zero targets.
- More research into ***co-benefits and trade-offs of CDR*** – the co-benefits could drive implementation of well-planned CDR