



# Nature-based solutions to climate change

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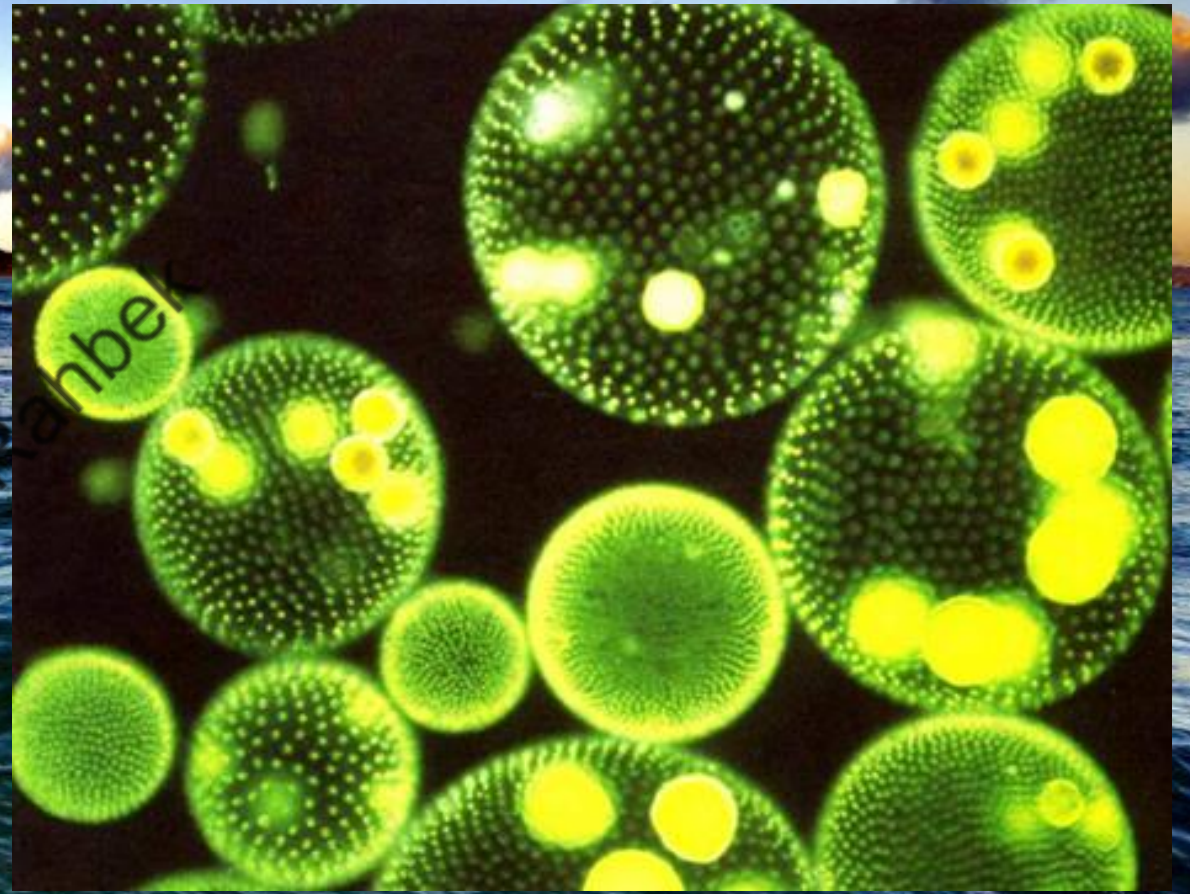
Carsten Rahbek



Freshwater holds 20-30% of the global carbon pool in the soil. But they only cover 5-8% of the world's land area.







Oceans absorb 30-50% of the CO<sub>2</sub> produced by the burning of fossil fuels



A photograph of a dense forest with vibrant green foliage. In the foreground, a large, fallen tree trunk lies on the ground, partially covered in moss. The background is filled with tall trees and a bright sky. The overall scene is a healthy, mature forest.

**Carbon emission since 1750  
sums up to 1.3 trillion ton**

**Carbon storage in temperate  
forest is currently 130 billion ton**

**In Denmark we have lost 85% of our  
original forestcover**

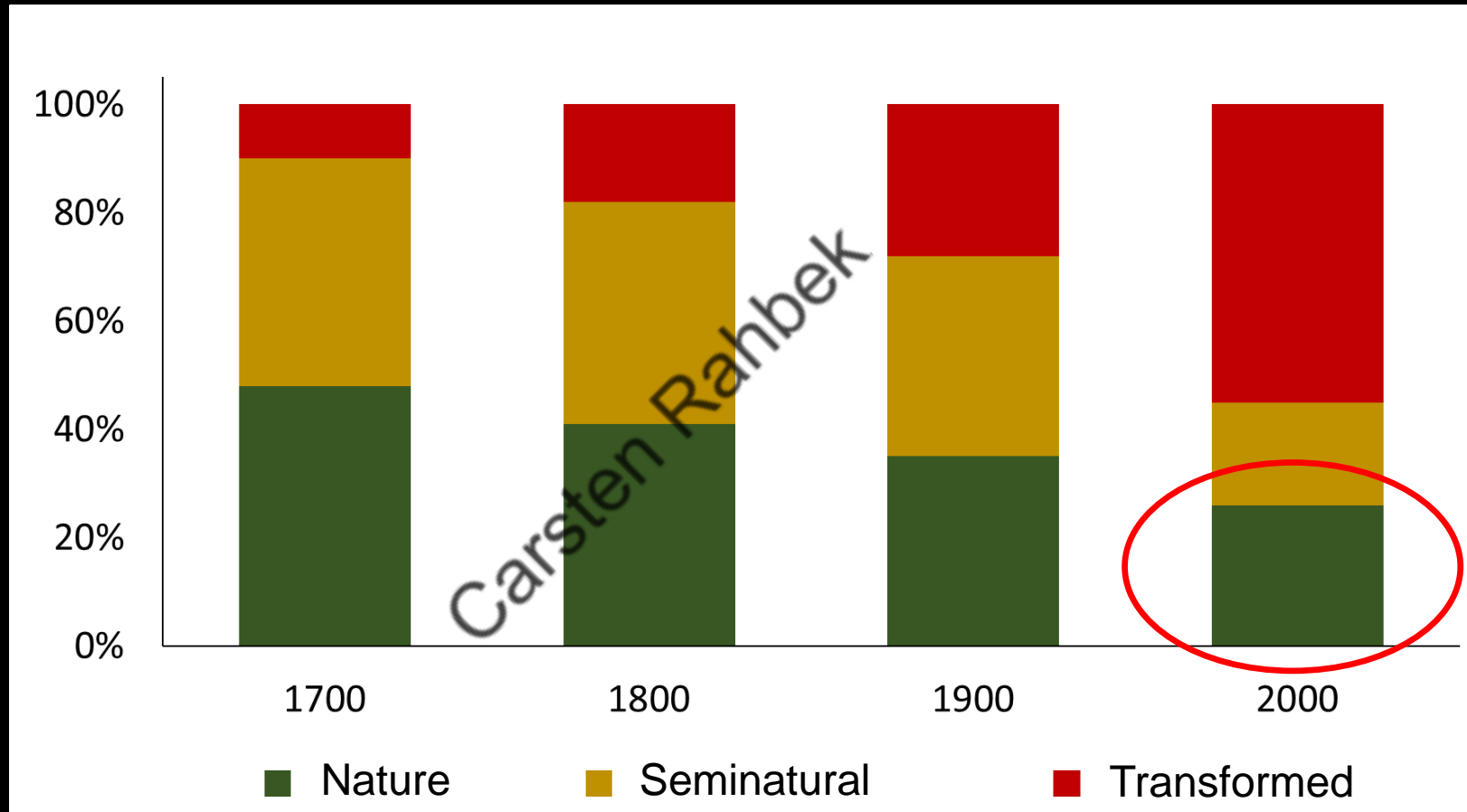




25% of the emissions of greenhouse gasses from Danish agriculture originates from drained peat soil



# We have transformed Earth...



Kilde:

*Global Ecology and Biogeography, (Global Ecol. Biogeogr.) (2010) 19, 589–606*

RESEARCH  
PAPER

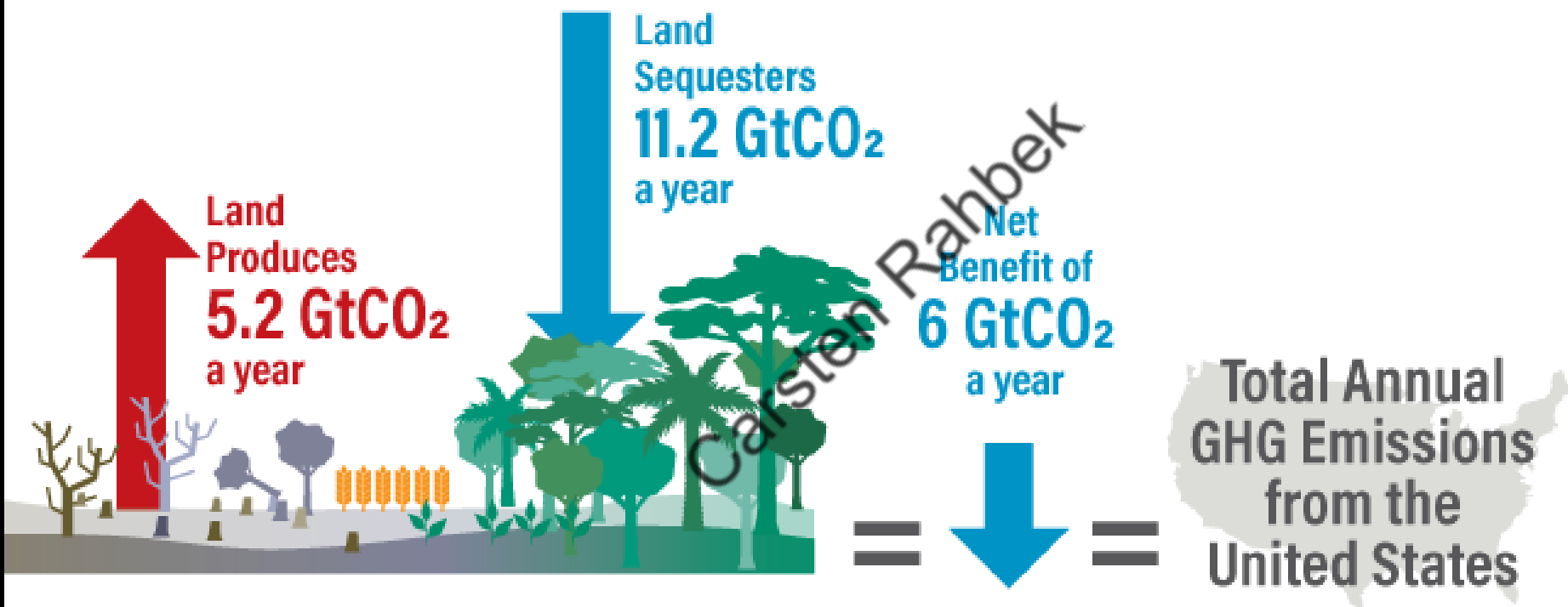
## Anthropogenic transformation of the biomes, 1700 to 2000

Erle C. Ellis<sup>1\*</sup>, Kees Klein Goldewijk<sup>2</sup>, Stefan Siebert<sup>3</sup>, Deborah Lightman<sup>4</sup> and Navin Ramankutty<sup>5</sup>





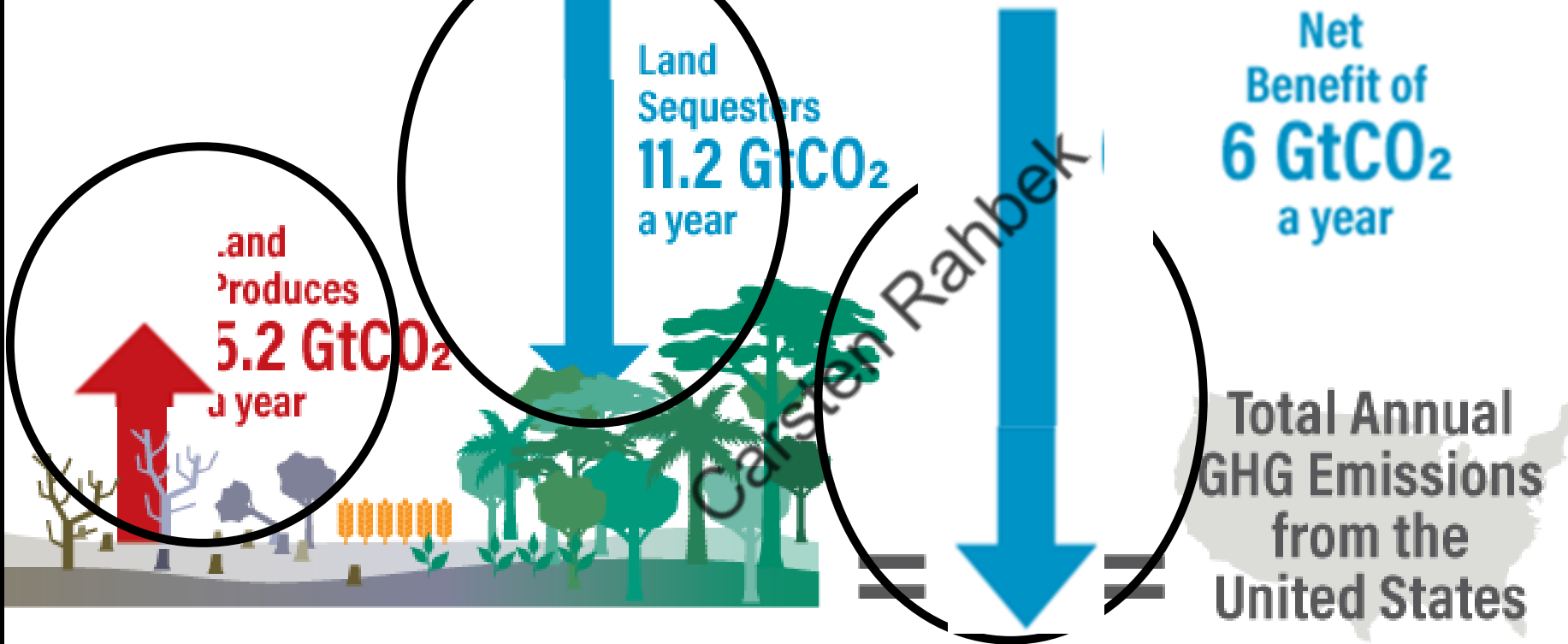
# Land is Both a Powerful Sink and Emitter of Carbon Dioxide Emissions



Note: Values are an average over 2007-2016  
Source: IPCC Special Report on Climate Change and Land



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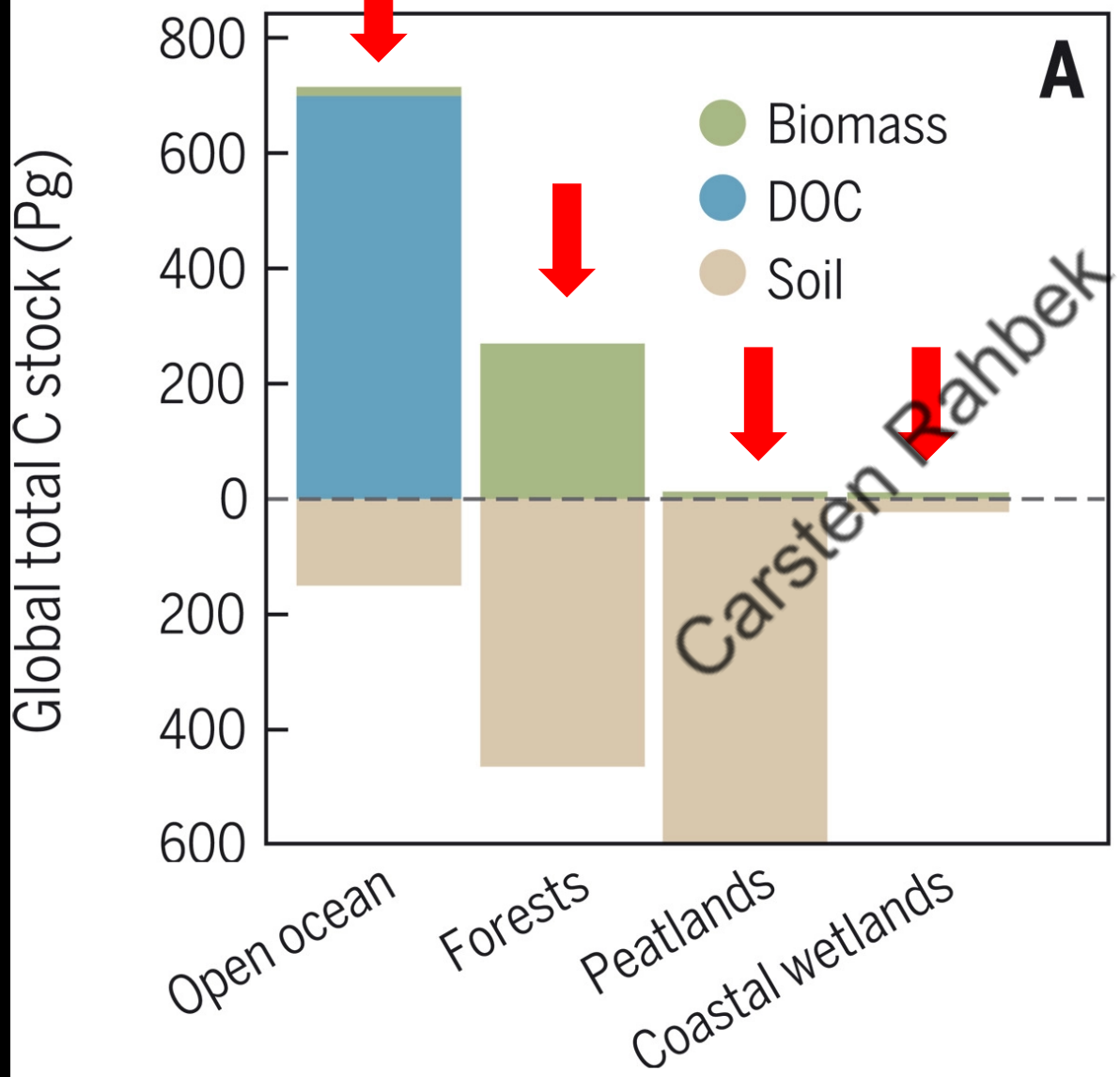
Source: IPCC Special Report on Climate Change and Land



WORLD RESOURCES INSTITUTE



# Carbon storage in ecosystems



DOC: dissolved organic carbon



A high-angle photograph of a powerful waterfall cascading down a rocky cliff into a pool of water. The surrounding landscape is a dense, lush tropical forest with vibrant green foliage. In the background, misty mountains are visible under a cloudy sky. A semi-transparent grey box in the top left corner contains white text. A diagonal watermark 'Carsten Rahbek' is visible across the center of the image.

**Carbon emission since 1750  
sums up to 1.3 trillion ton**

**Carbon storage in tropical  
forests is 300 billion ton**




**Amazonas is the largest  
terrestrial stock of carbon  
in the world**

Carsten Rahbek





An aerial photograph of a vast, dense Amazon rainforest. The forest is a thick canopy of various shades of green, with several tall palm trees standing out. In the distance, the forest meets a horizon under a sky filled with large, white and grey clouds. A dark grey rectangular box is positioned in the upper right corner, containing white text. Another similar box is in the lower left corner. A diagonal watermark is visible across the center of the image.

**Amazonas  
*was* a carbon sink**

**Now it is a carbon source**

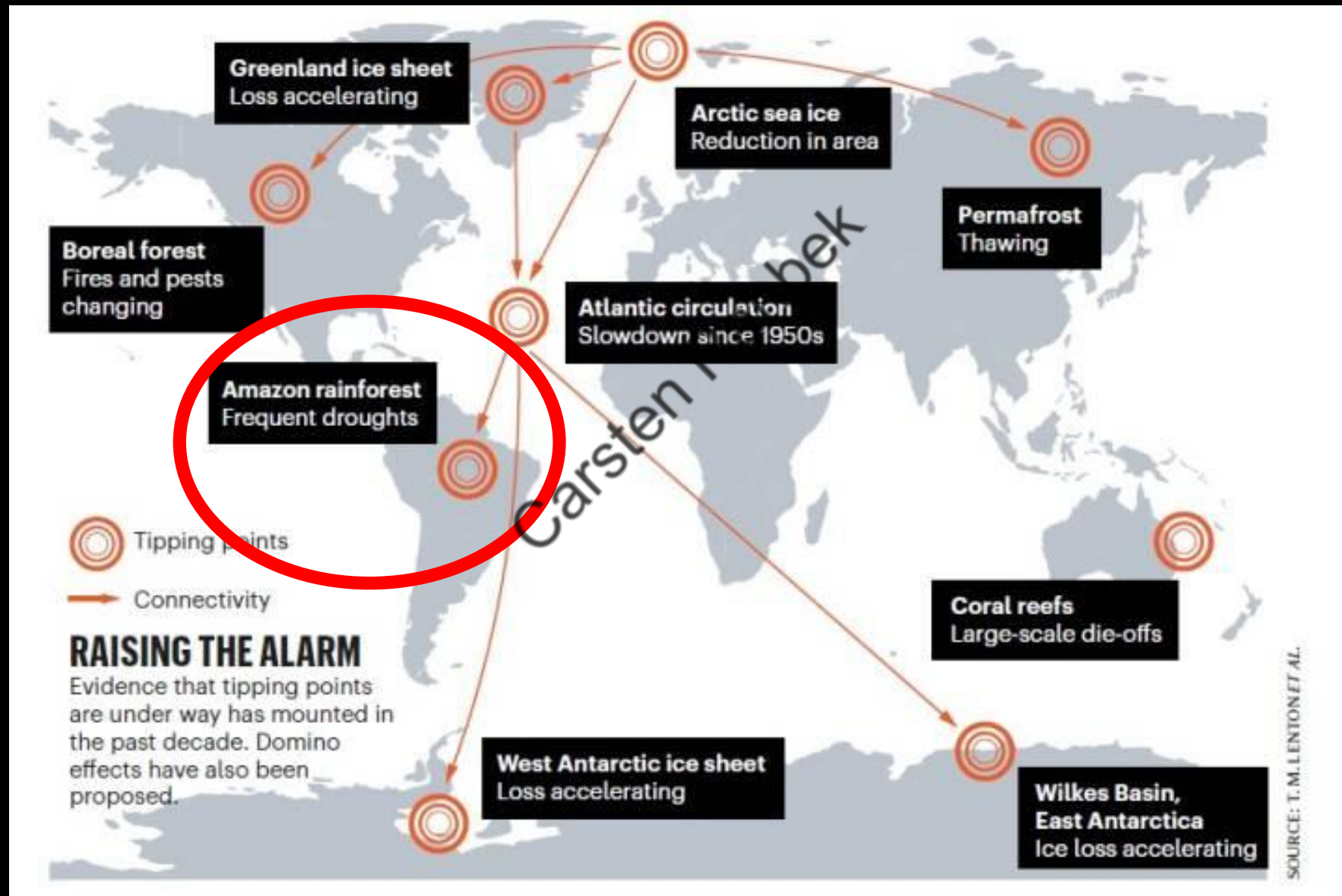


**With the current deforestation rate  
all tropical forests will be gone in  
100 years time**





# Global tipping points klima







**Amazonas**  
**– is a global tipping point**

**“tipped” to savannah,  
it will cause the carbon  
emission of 90 billion ton in a  
few years**

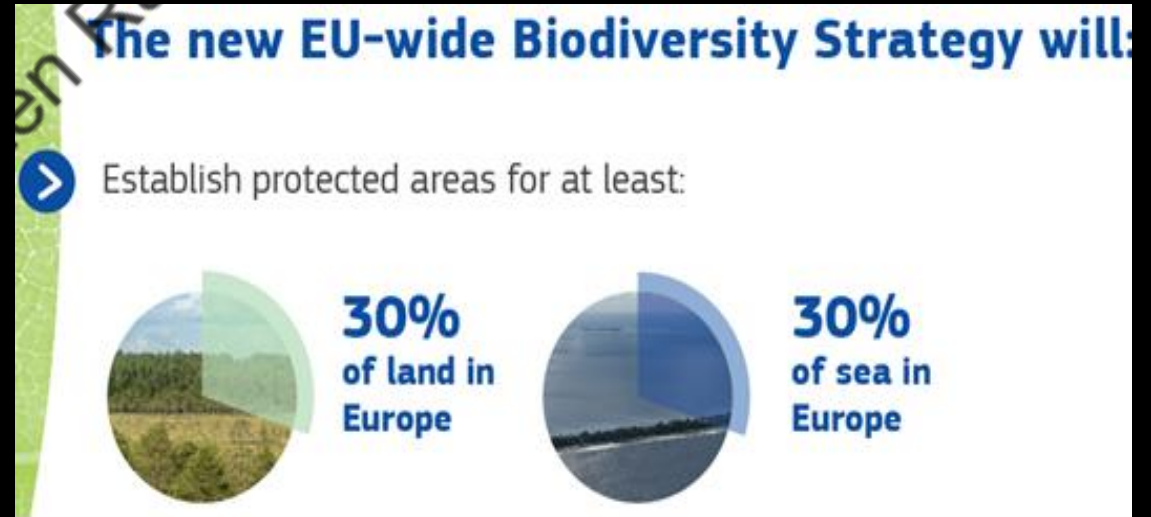
**(ca. 7% the total carbon emission to date)**





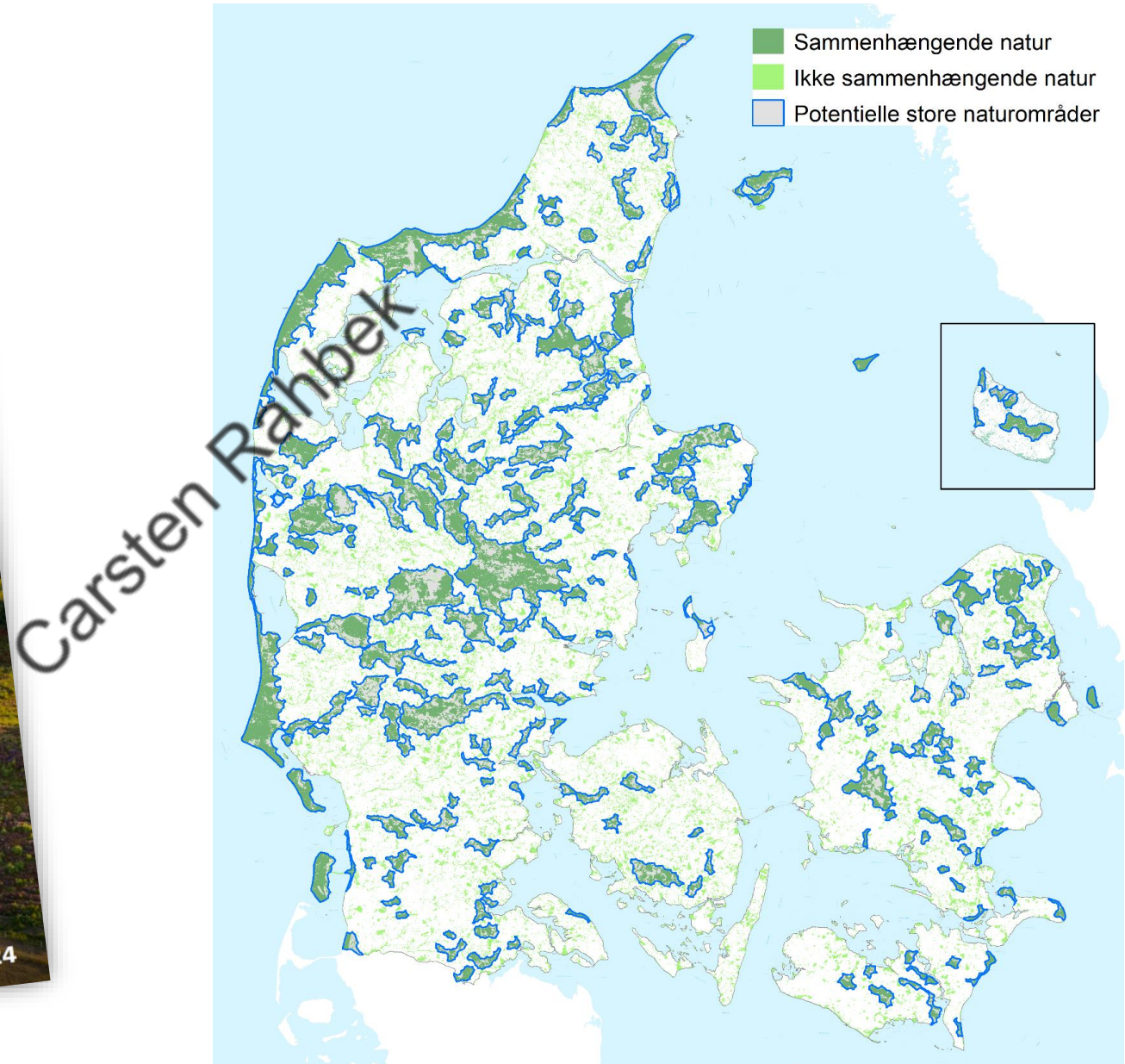
Ursula von der Leyen  
President of the EU Commission

*“It is time to fix our broken relationship with nature. Climate change, loss of biodiversity, and the spread of devastating pandemics demand it.”*





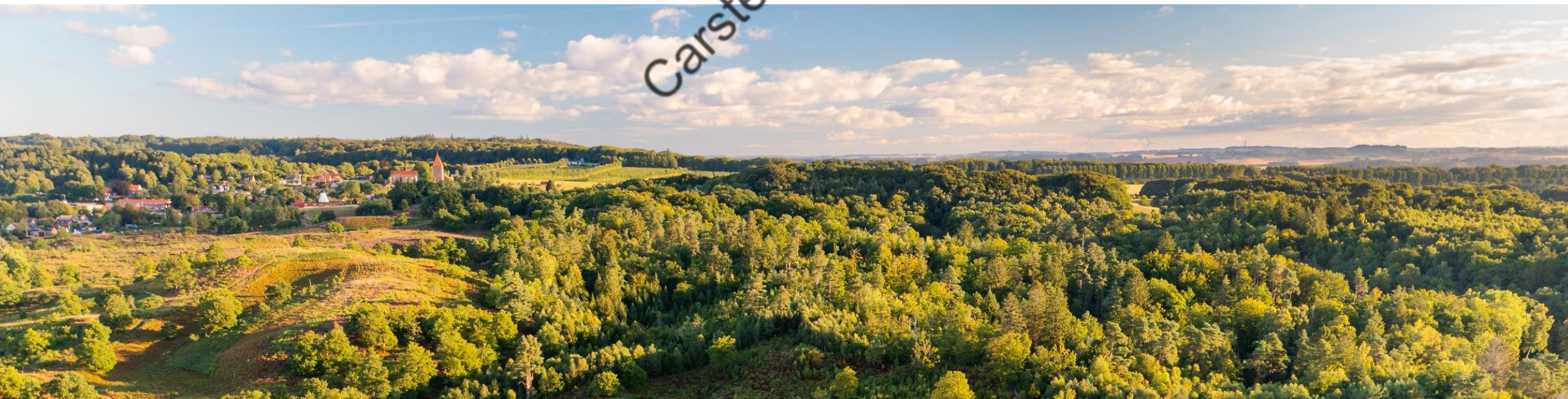
# Potential large natureareas in Denmark





# Nature-based solution to climate mitigation

- Unmanged forest → Continous carbon sequestration (for many decades)  
↓
- Stop of drainage → Decreased CO<sub>2</sub>-emission (wetlands + lowland areas)  
↑
- Stop of agriculture → Decreased emission of N<sub>2</sub>O (eg from fertilizer)  
plus increased sequestration with more forest





**Protected areas for nature will contribute to  
water-issues,  
nutrient pollution  
climate  
biodiversity**



Carsten Rahbek

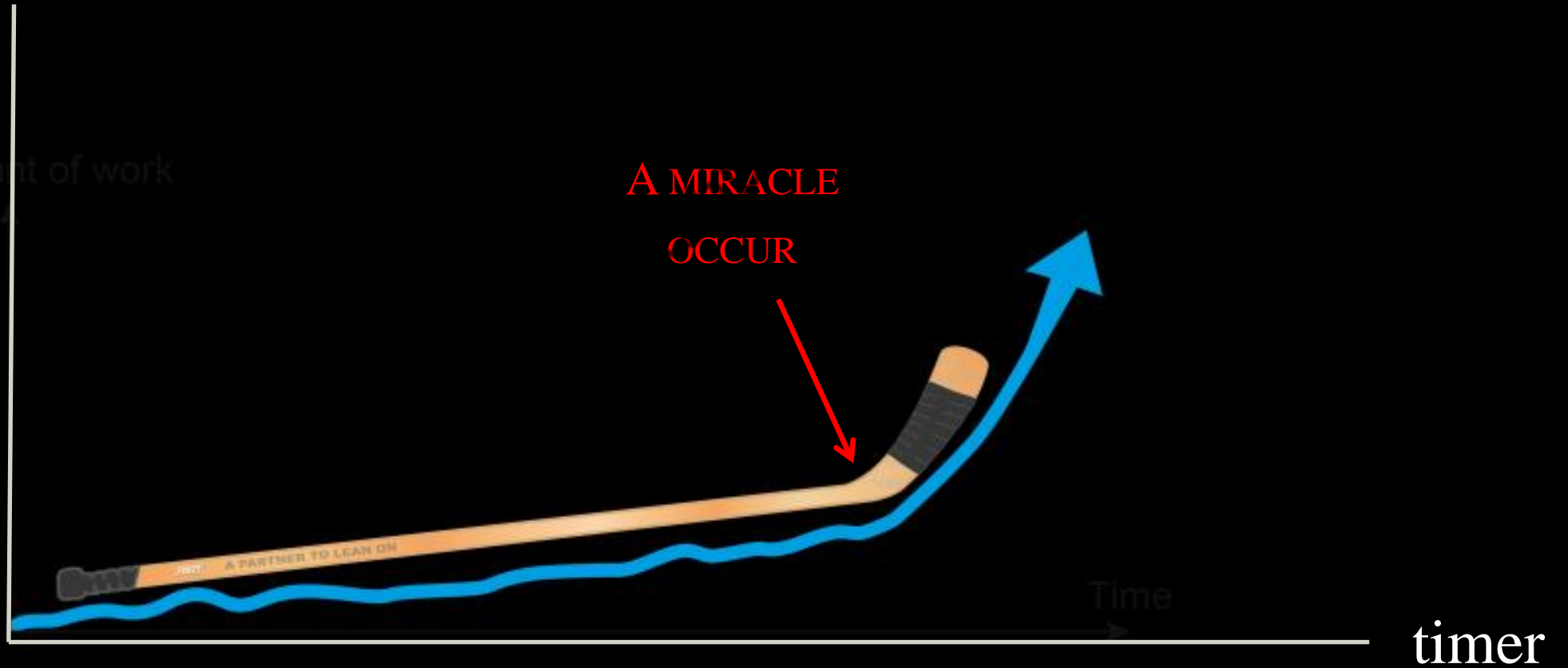


# The hokeystick solution

Effort

Amount of work

A MIRACLE  
OCCUR



Nature-based solutions is a known tecknology



# Thanks

A close-up photograph of a hand holding a small, realistic globe of the Earth. The globe shows the Americas and surrounding oceans. The name 'Carsten Rahbek' is printed diagonally across the globe. The background is a solid green color.

Carsten Rahbek

**Carsten Rahbek**

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