

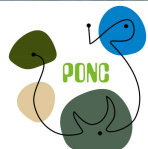


How rewilding enhances biodiversity *in human-dominated landscapes*

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The long-term perspective: wildlife and humans in landscapes through time



McCauley et al. (2015) *Science* 347: 6219



WWF

REPORT

INT

2018

THIS REPORT
HAS BEEN
PRODUCED IN
COLLABORATION
WITH:

ZSL
LET'S WORK
FOR WILDLIFE



Living Planet Report

2018: Aiming higher

Global decline in abundance of vertebrate animals

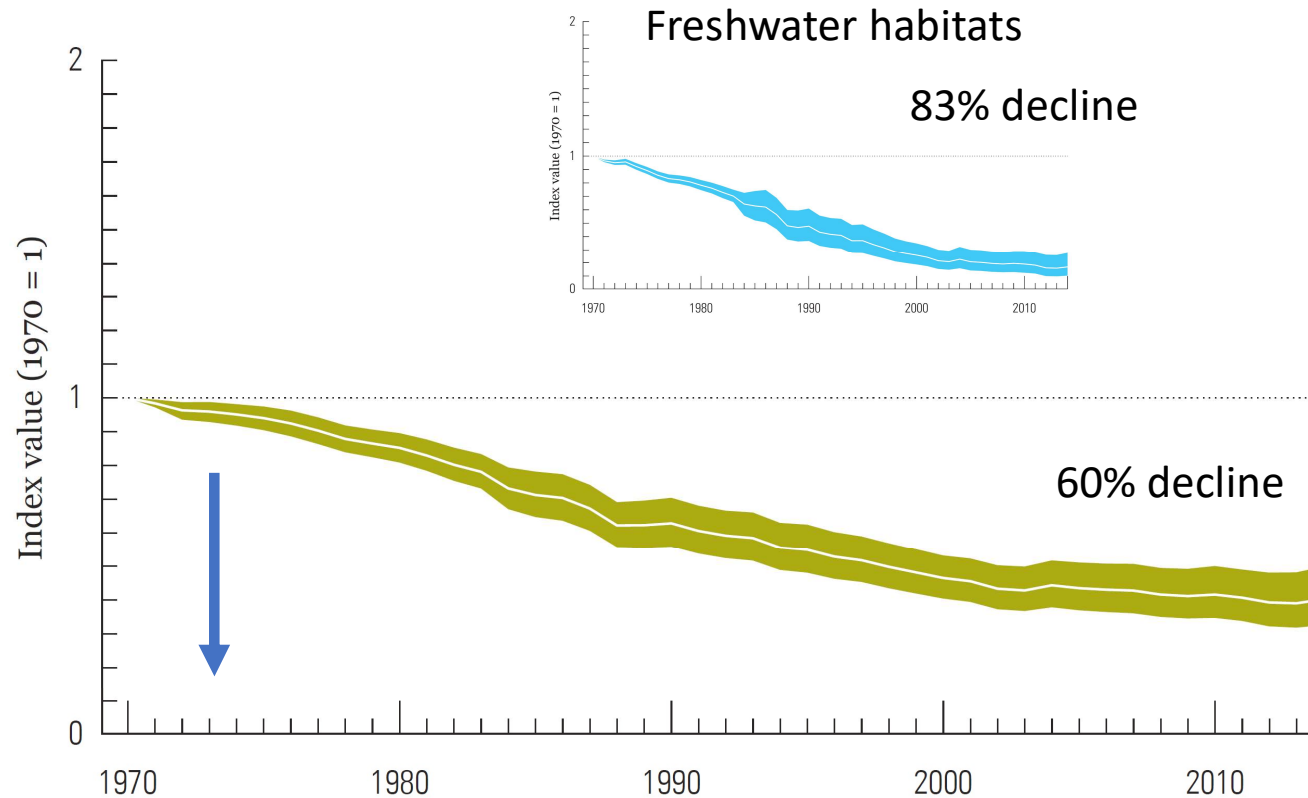


Figure 20: The Global Living Planet Index: 1970 to 2014
Average abundance of 16,704 populations representing 4,005 species monitored across the globe declined by 60%. The white line shows the index values and the shaded areas represent the statistical certainty surrounding the trend (range: -50% to -67%)¹.

Key

- Global Living Planet Index
- Confidence limits

“Develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity; Integrate [...] the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies”

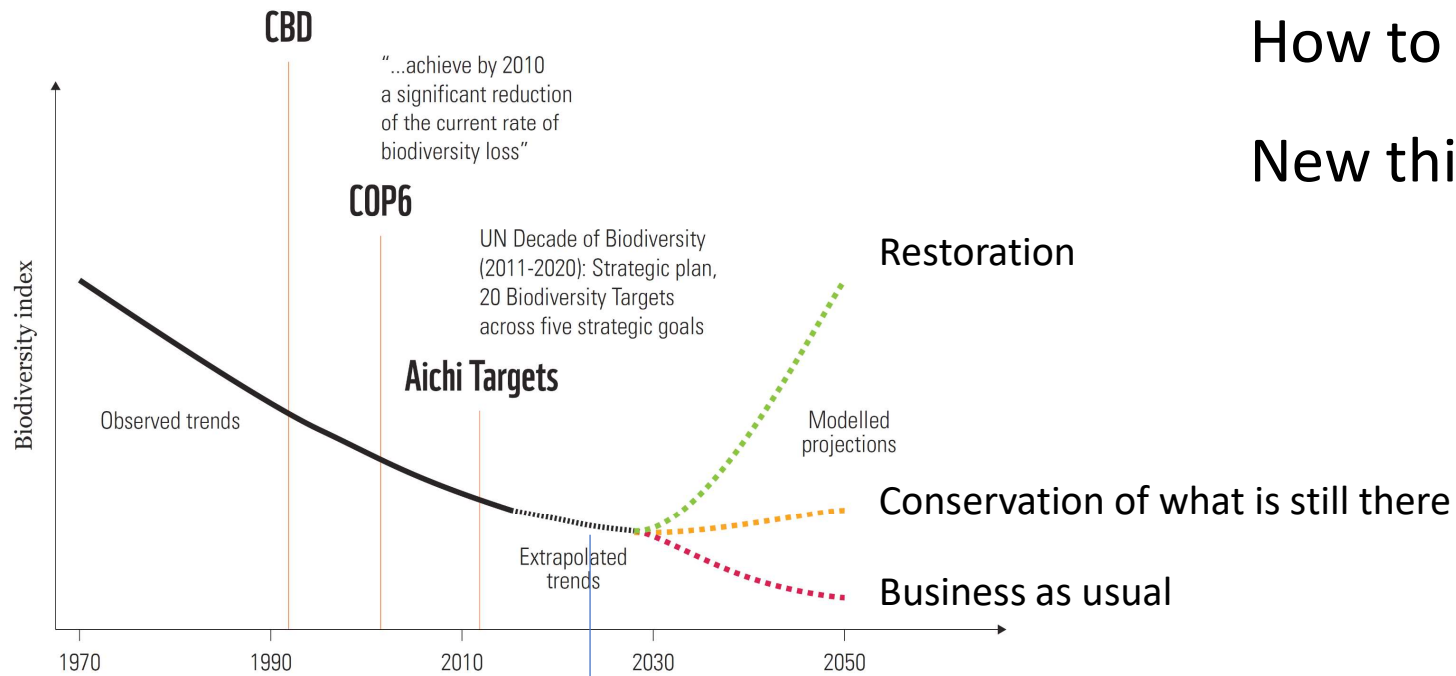


Figure 27: Biodiversity declines have continued despite repeated policy commitments aimed at slowing or halting the rate of loss
(redrawn from Mace et al. 2018³).

Kunming-Montreal Global Biodiversity Framework (2022)

The curve of biodiversity decline

How to bend the curve?

New thinking is needed!

“Conserve what you have;
restore what you can”



Momentum for ecosystem restoration:

How to do it?

UN decade of
ecosystem restoration
2021-2030

EU: Green Deal &
Biodiversity strategy &
Nature restoration law

Deltaplan
biodiversity recovery



Rewilding

An approach to **ecosystem restoration** which aims to create **more room for natural processes**



Abiotic rewilding



Trophic rewilding



Passive rewilding



Active rewilding

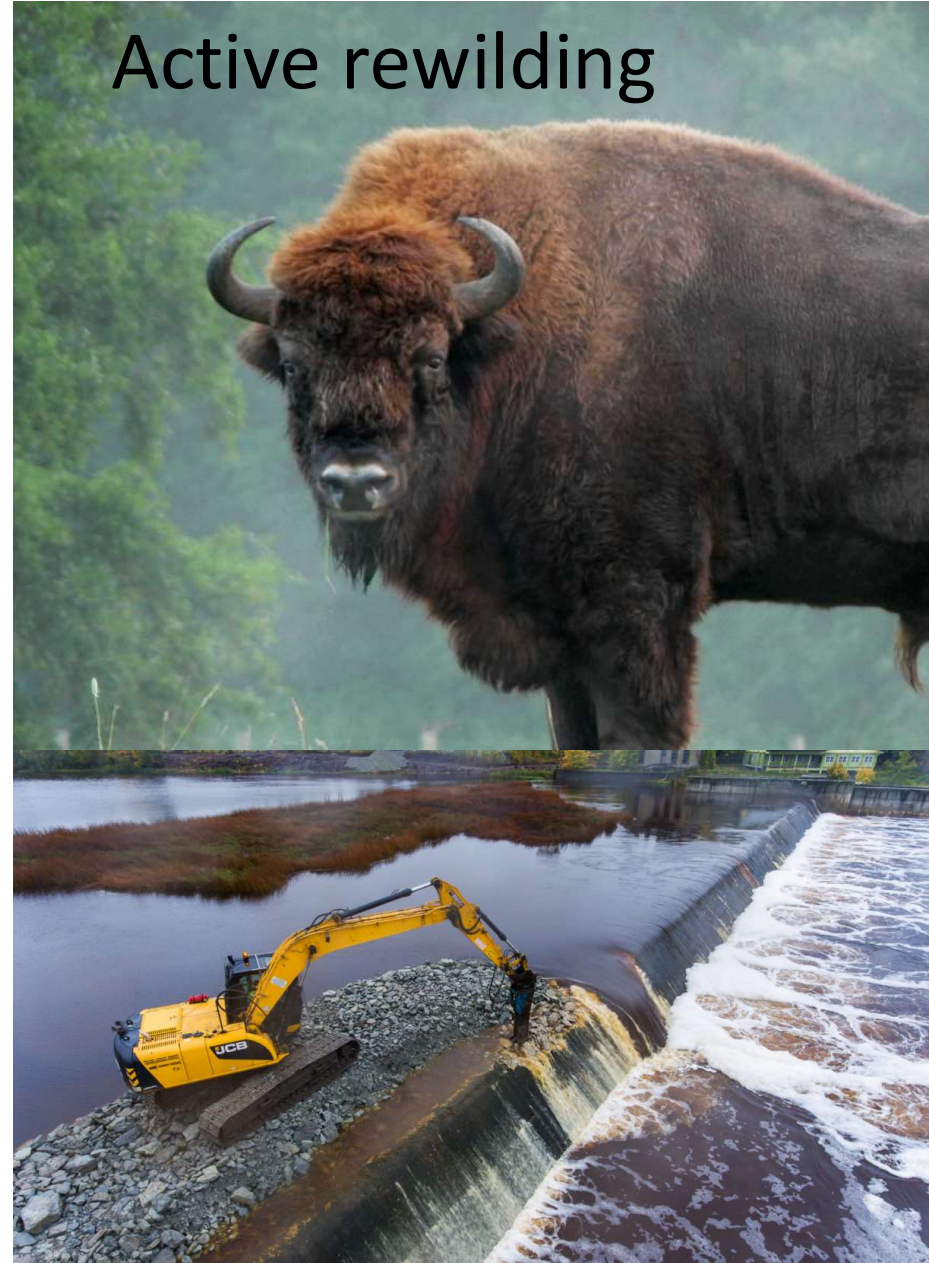
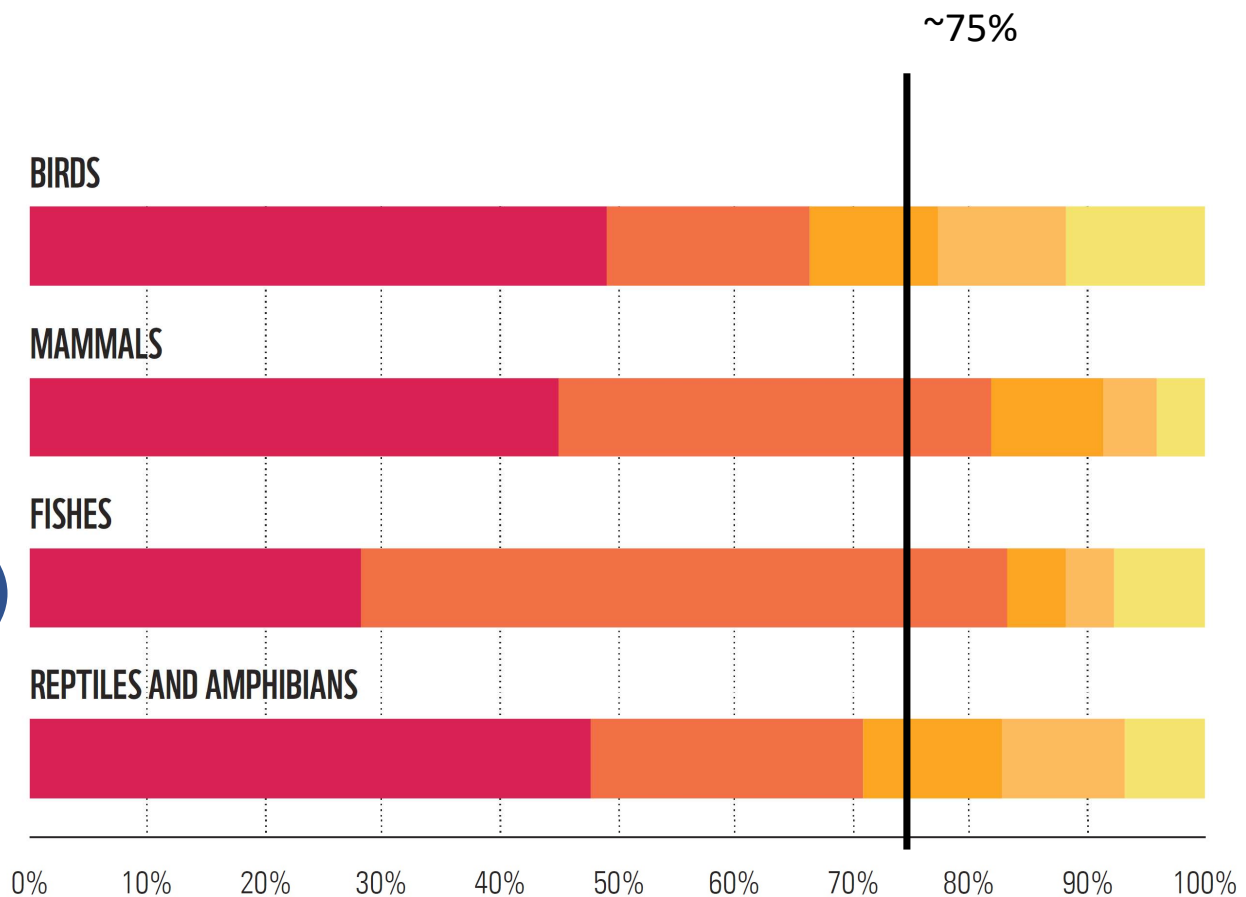


Figure 15: Relative frequency of major threats by taxonomic group

Threat data is available for 3,789 populations in the global LPI database. Each of these populations could be associated with up to three different threats. There were 6,053 threats recorded in all⁹⁸.

Key

- Habitat degradation/loss
- Exploitation
- Invasive species and disease
- Pollution
- Climate change



Major threats

Habitat degradation

Habitat loss

Exploitation

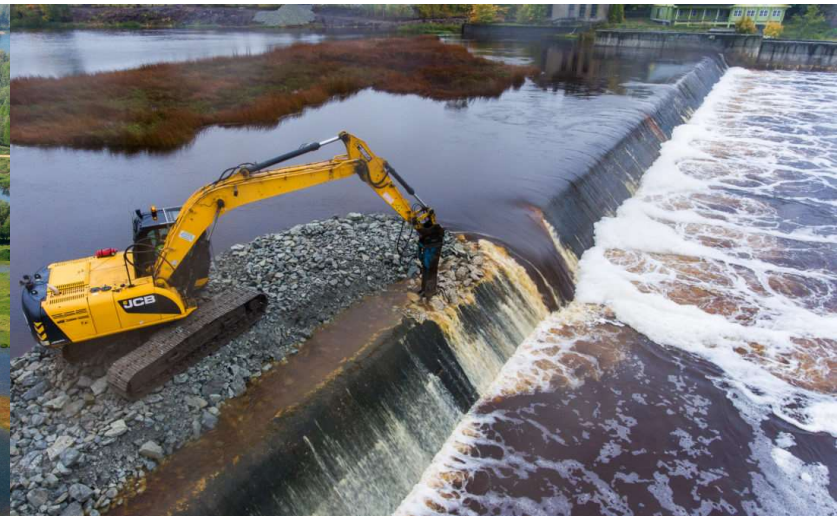
Solution

Habitat upgrading

Creating new habitat

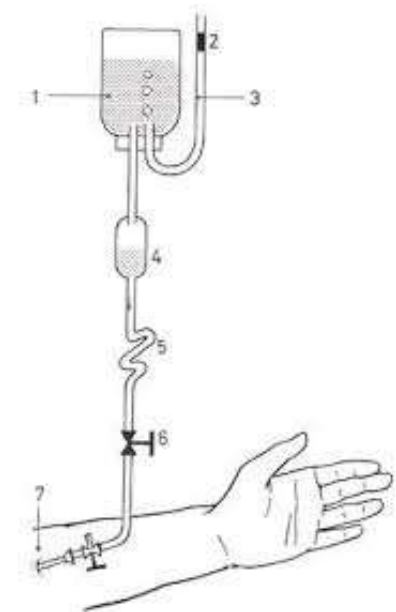
Stop or reduce hunting and fisheries or towards sustainable level

Rewilding: ecosystem restoration by giving more room to natural processes



Nature is on life support

- Nature is weak, threatened and 'everything declines'
- Philosophy of doom
- Nature is strong, bounces back as soon as it gets room to do so
- Philosophy of hope



Return white-tailed eagle

2006: first breeding pair in NL



1978: first breeding colony in NL



Oostvaardersplassen

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*Opportunities
and challenges
for species recovery*

WILDLIFE COMEBACK IN EUROPE

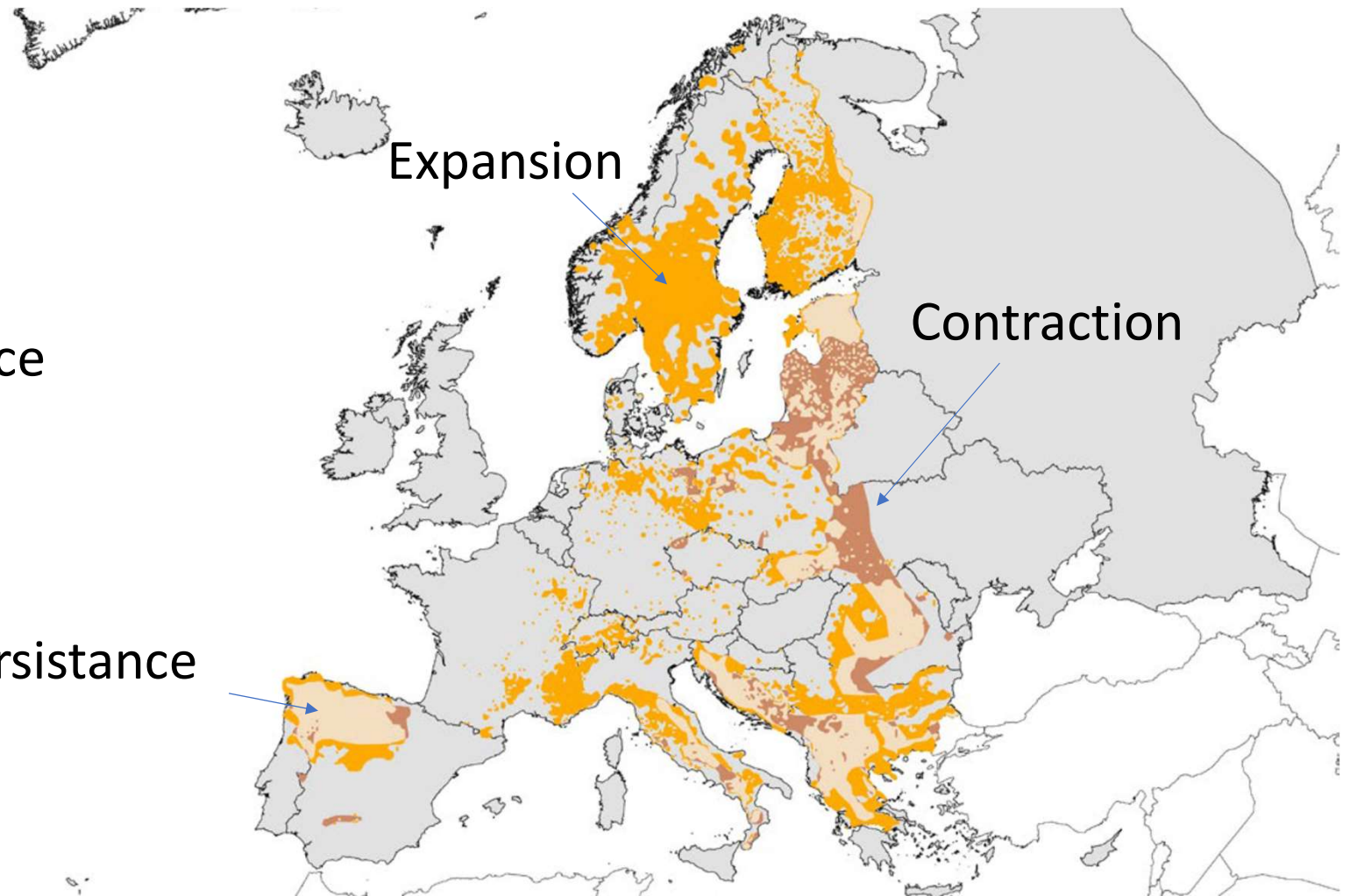


Wildlife comeback (2022)

Return Grey wolf

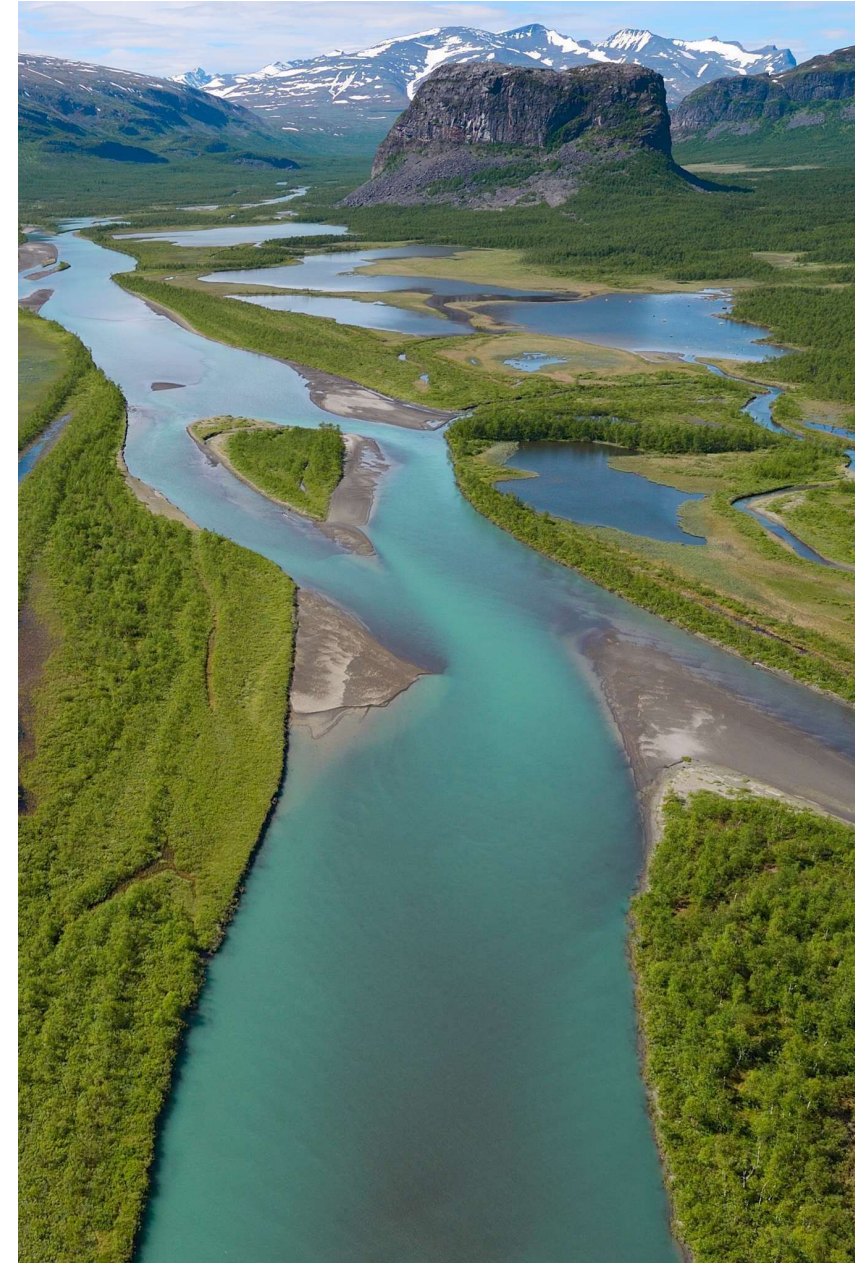
1965-2016:
Increase 1871%
in relative abundance

Persistence



Rewilding: a new conservation narrative

- Biodiversity derived from natural processes
- Future oriented, learning from the past
- Nature as an ally in solving today's challenges
- Progressive, moving up a scale of wildness



Biodiversity derived from natural processes:

- Plants and animals co-evolved
- Plants and animals had a place in the landscape before humans arrived



Prunus spinosa



Opportunities for rewilding:

Current problems:

1. Insect decline
2. Nitrogen crisis
3. Mitigation of climate change
4. Adaptation to climate change
5. Farming transition towards sustainable farming

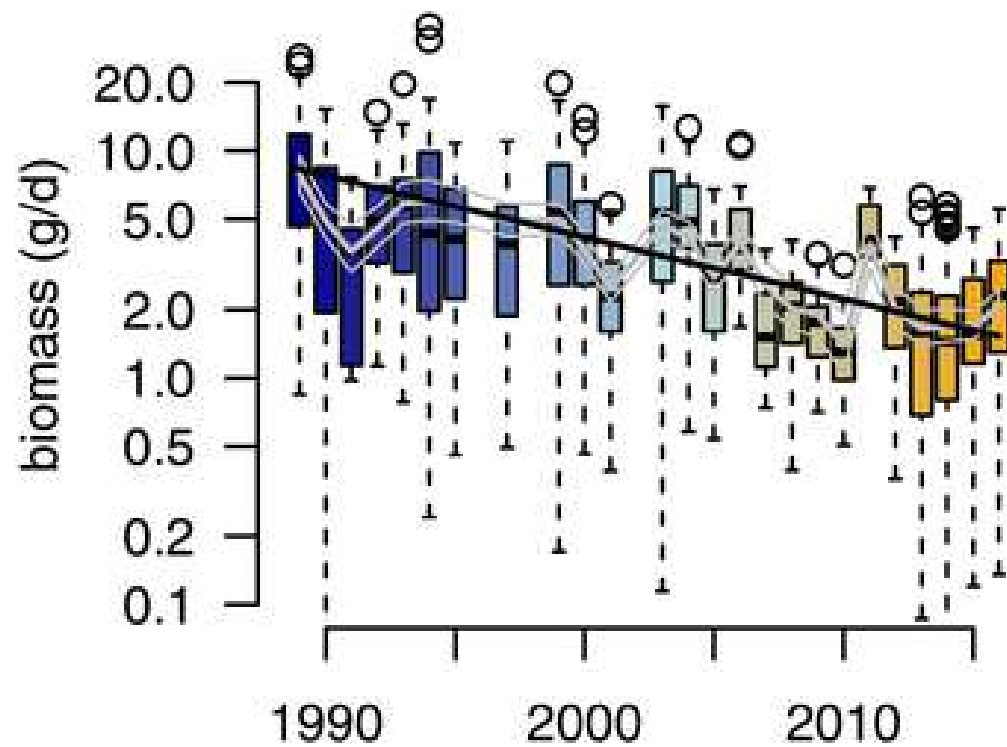
How to solve these through rewilding?

→ Creating benefits for biodiversity

1. Insect decline



Flying insects:
75% decline in biomass over 27 years



Wild van Vlinders



www.ark.nl/vlinders
© Jeroen Helmer / ARK Natuurontwikkeling

Sommige blauwtjes hebben mieren van vijand tot beschermer gemaakt in ruil voor uitgescheiden suikers

Door grote grazen geschilde bomen "bloeden". Dat trekt vlinders aan

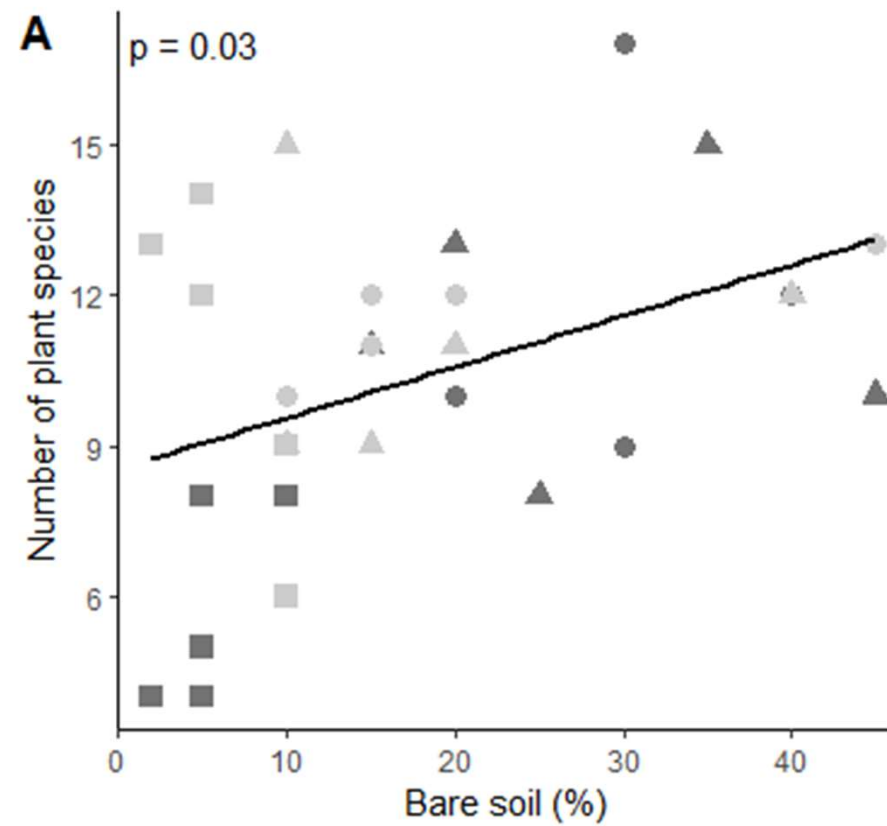
Vlinders warmen graag op in stenenkullen, op woetplekken en op wissels van hoefdieren

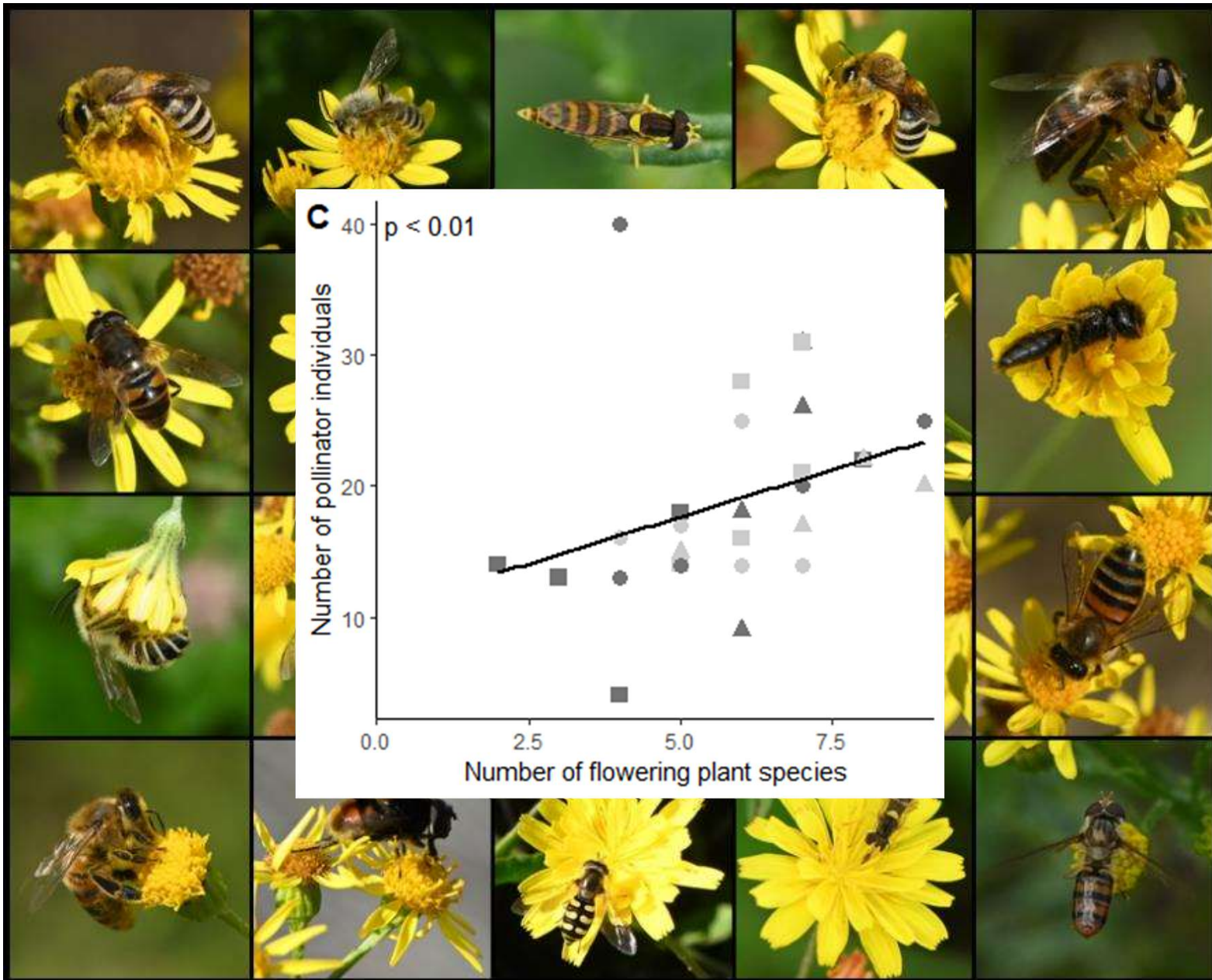
Jeroen Helmer



2. Nitrogen crisis







3. Climate change mitigation: reforestation for carbon capture



Natural processes?



Rewilding: forest and open areas (heathland)

Culling herbivores to promote forest rejuvenation

Woody species encroachment



Stop management and woody plants will appear





Climate change + spruce bark beetle and nitrogen deposition = dying forests

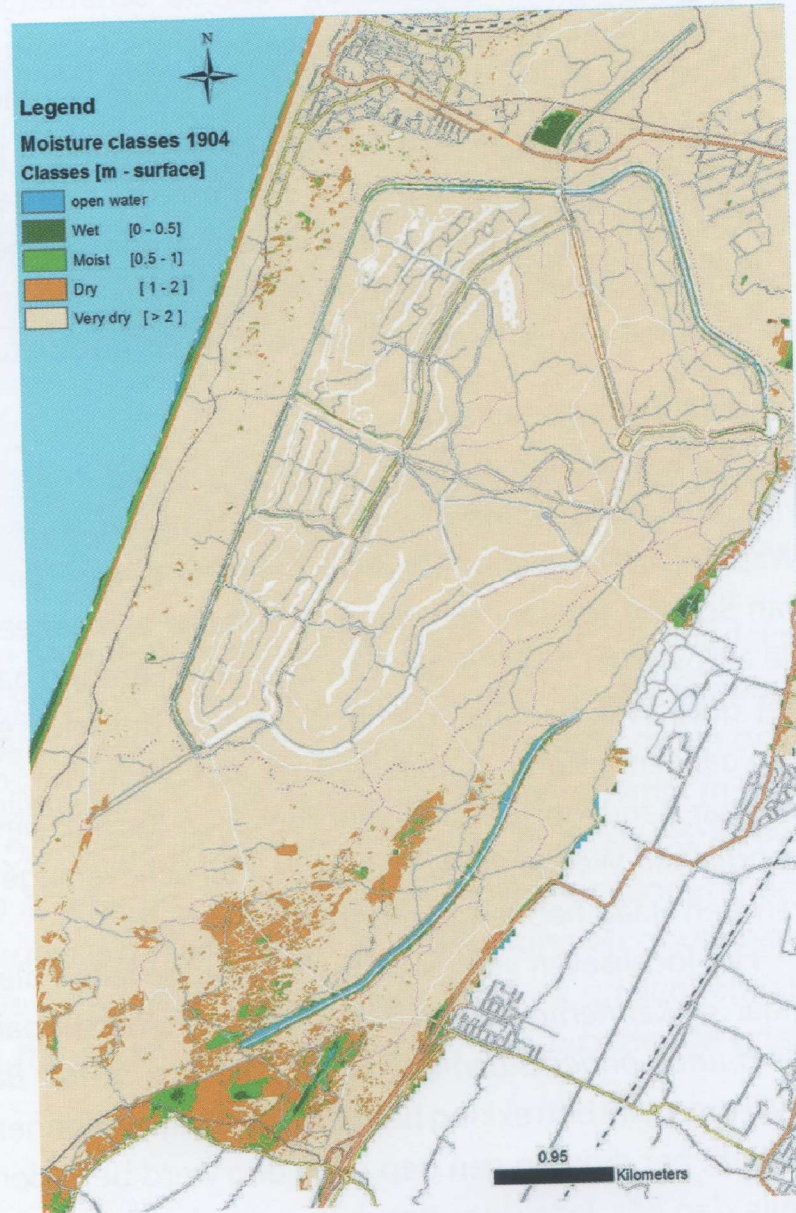
Climate smart forestry



Picea abies – non-native



Quercus robur - native



Drinking water extraction:

Disappearance of water from the landscape

Water level
 Amsterdamse
 Waterleidingduinen

Keijl et al 2020
 De Griel

Kaart 2: (cultuur)Landschappen Nederland



Peat = purple

Wetlands are superior for carbon sequestration

Drainage

Greenhouse gas emission

Soil subsidence

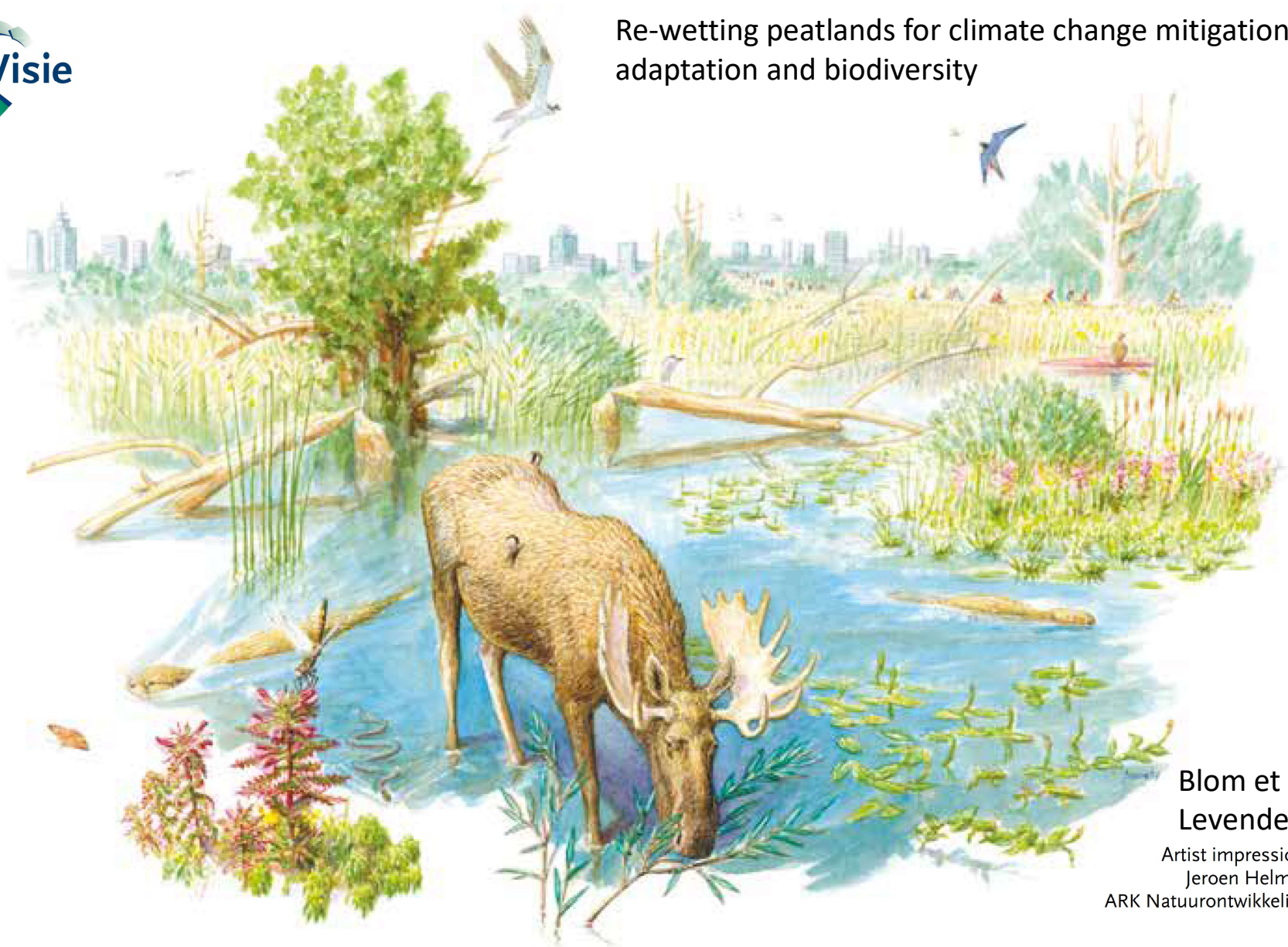
More drainage etc

= not sustainable





Re-wetting peatlands for climate change mitigation, adaptation and biodiversity



Blom et al. De
Levende Natuur 2021

Artist impression:
Jeroen Helmer,
ARK Natuurontwikkeling

4. Climate change adaptation (both flooding and drought)

Groninger museum



Water management: from champions of water drainage to storage



Creating floodplains



Hierdense beek
Ralf Verdonschot &
Piet Verdonschot

Example: Room for the river program



River flooding 1995



SCIENCE ADVANCES | RESEARCH ARTICLE *Sci. Adv.* 2017;3:e1602762

ECOLOGY

Biodiversity recovery following delta-wide measures for flood risk reduction

Menno W. Straatsma,^{1*} Alexandra M. Bloecker,² H. J. Rob Lenders,²
Rob S. E. W. Leuven,³ Maarten G. Kleinhans¹

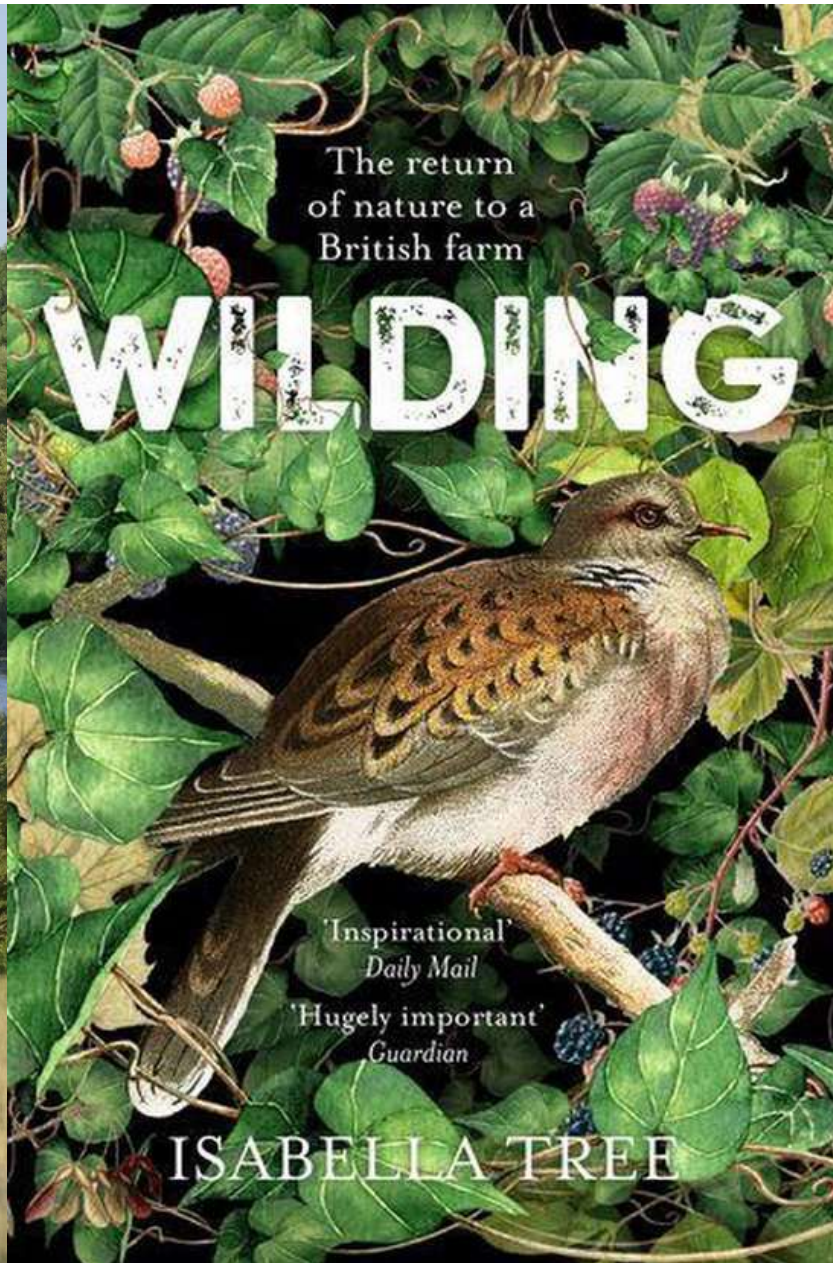


© Marco van de Bildt

Climate change adaptation:
Large herbivores may reduce wildfires by creating patchy landscapes

Rouet-Le Duc et al.





5. Rewilding farming systems

Knepp Estate, UK



Where to rewild?

Buffer zones surrounding nature reserves

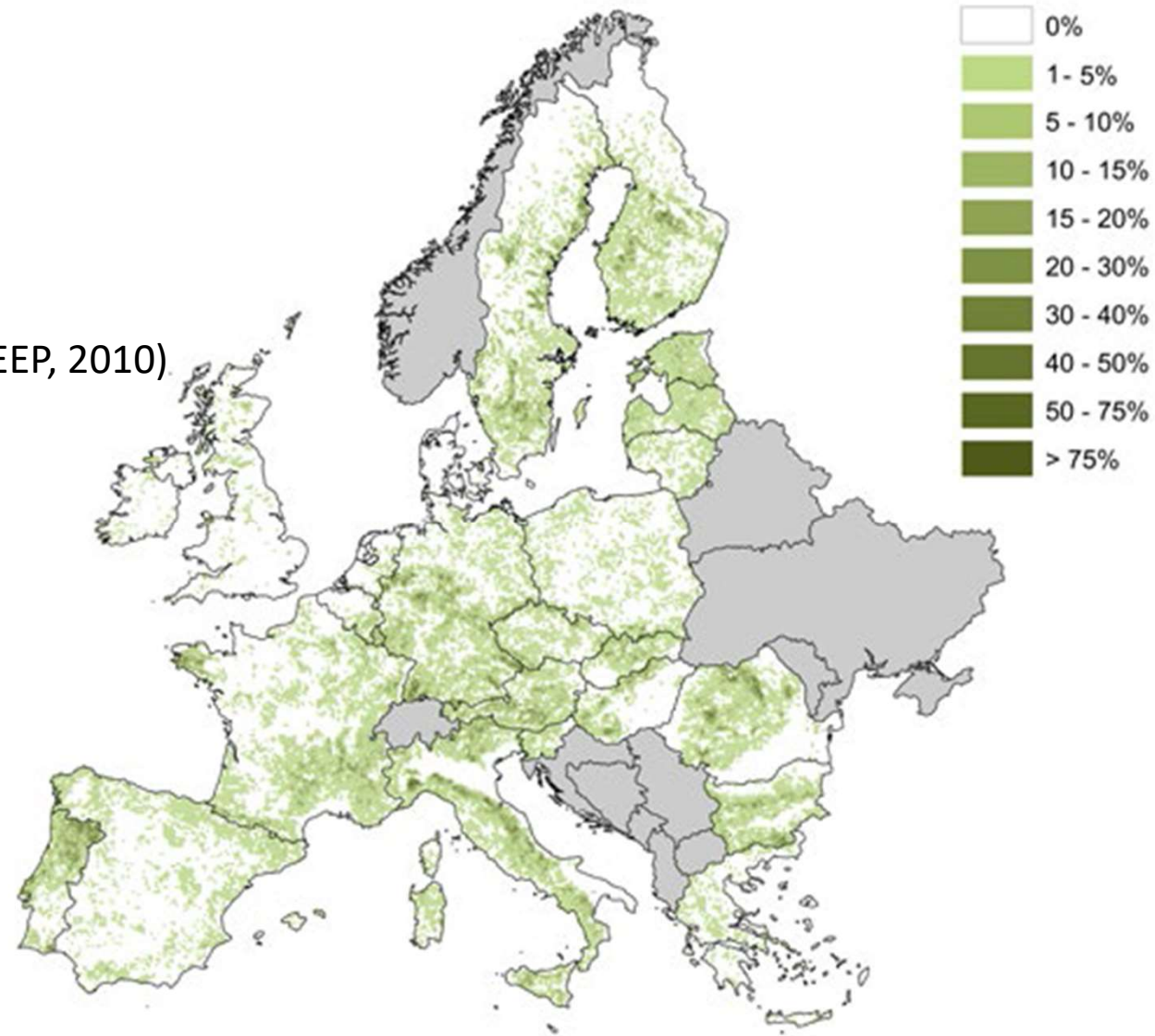


Where to rewild?

Urbanisation

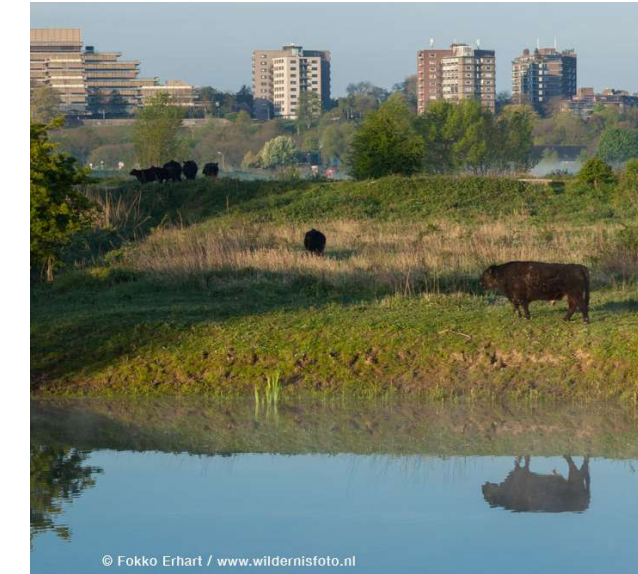
2020: 4 of 5 Europeans live in urban areas

18-25 million hectares left aside until 2035 (IEEP, 2010)



European Research Project: WildE Climate-smart rewilding

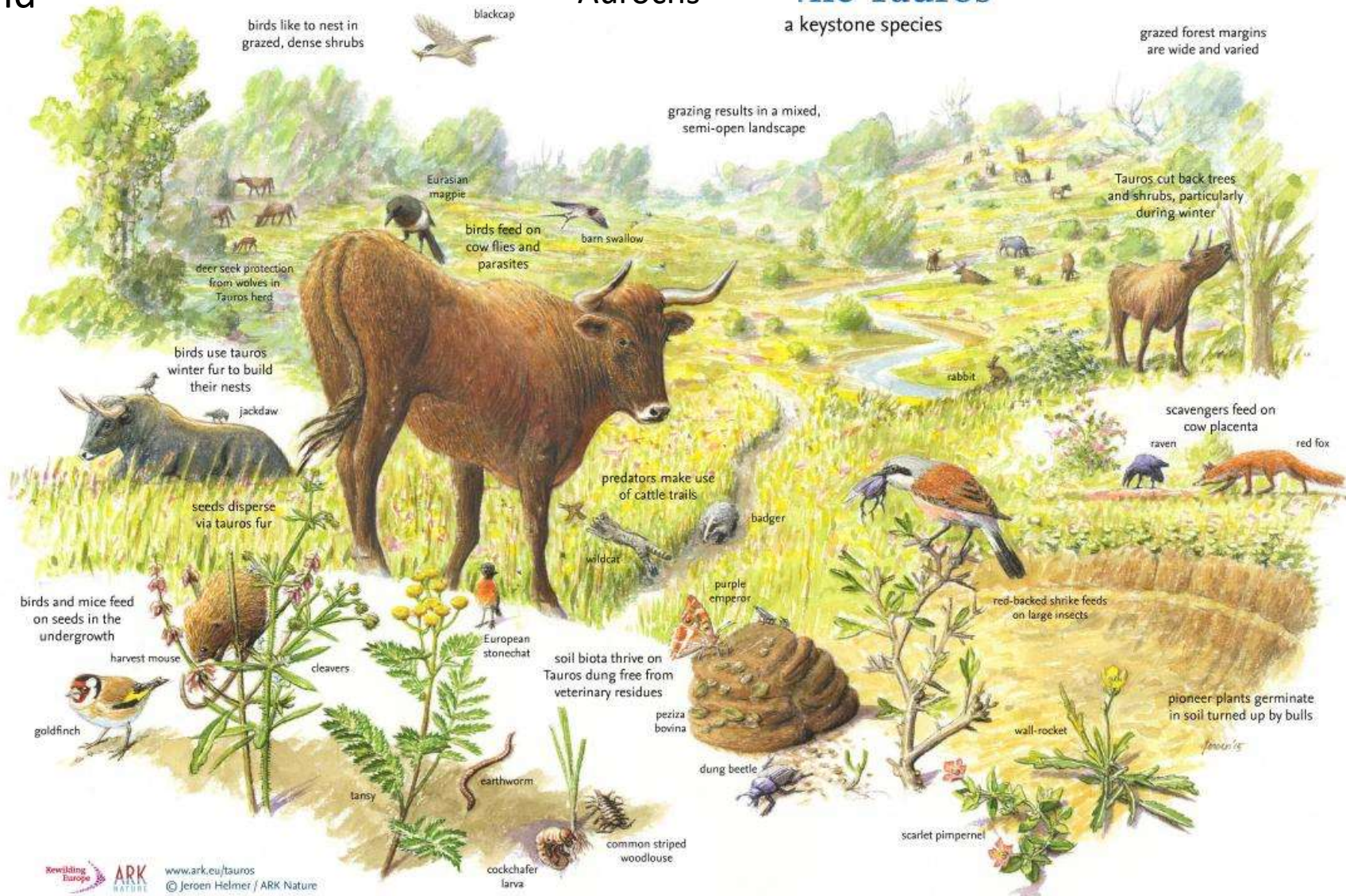
Rewilding Lab “Gelderse Poort”



Combining science and practice

Aurochs

The Tauros a keystone species



Rewilding human-dominated landscapes to enhance biodiversity

