The Climate Emergency

Scottish Biodiversity Science

RBGE

November 2019

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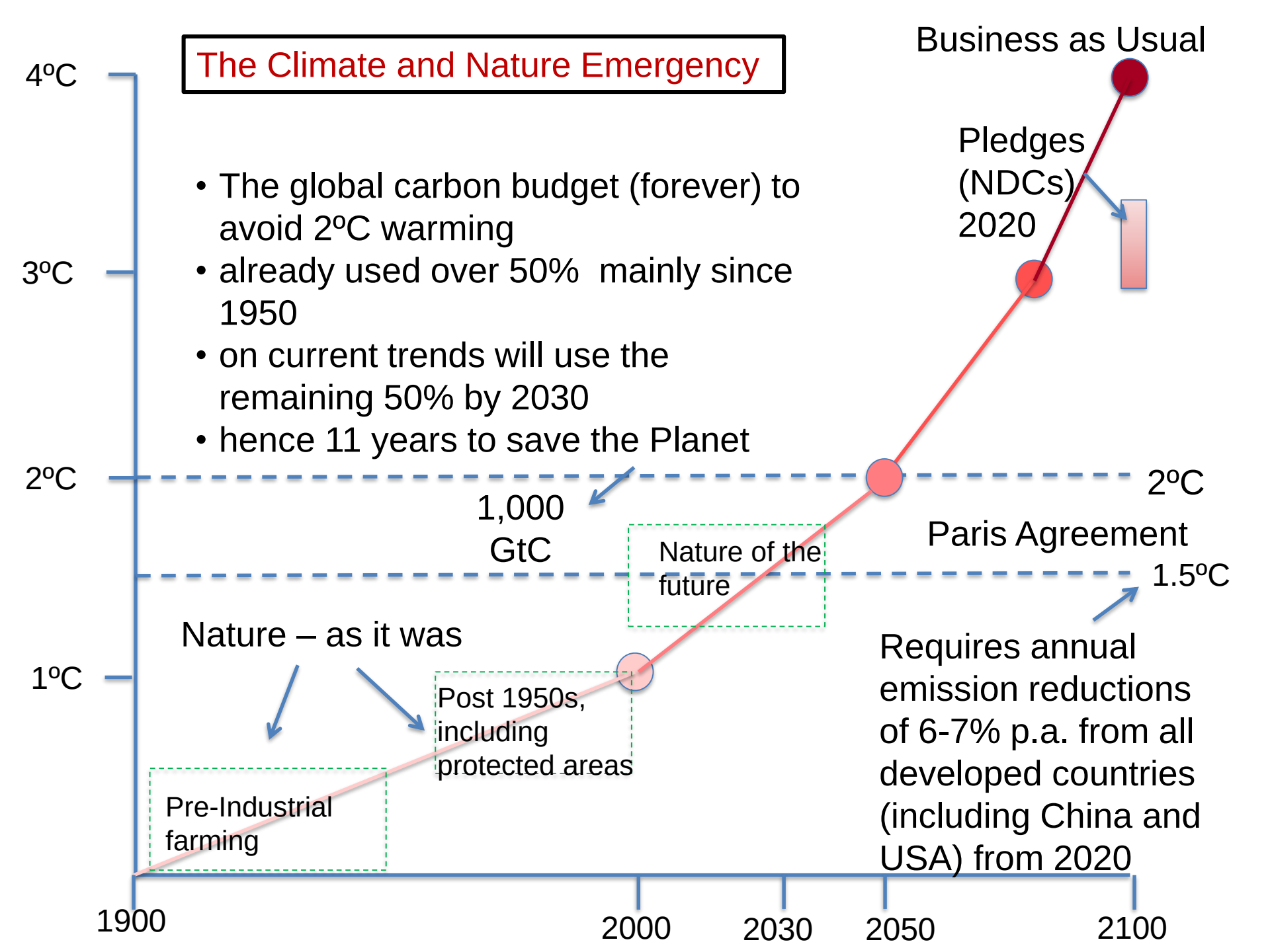
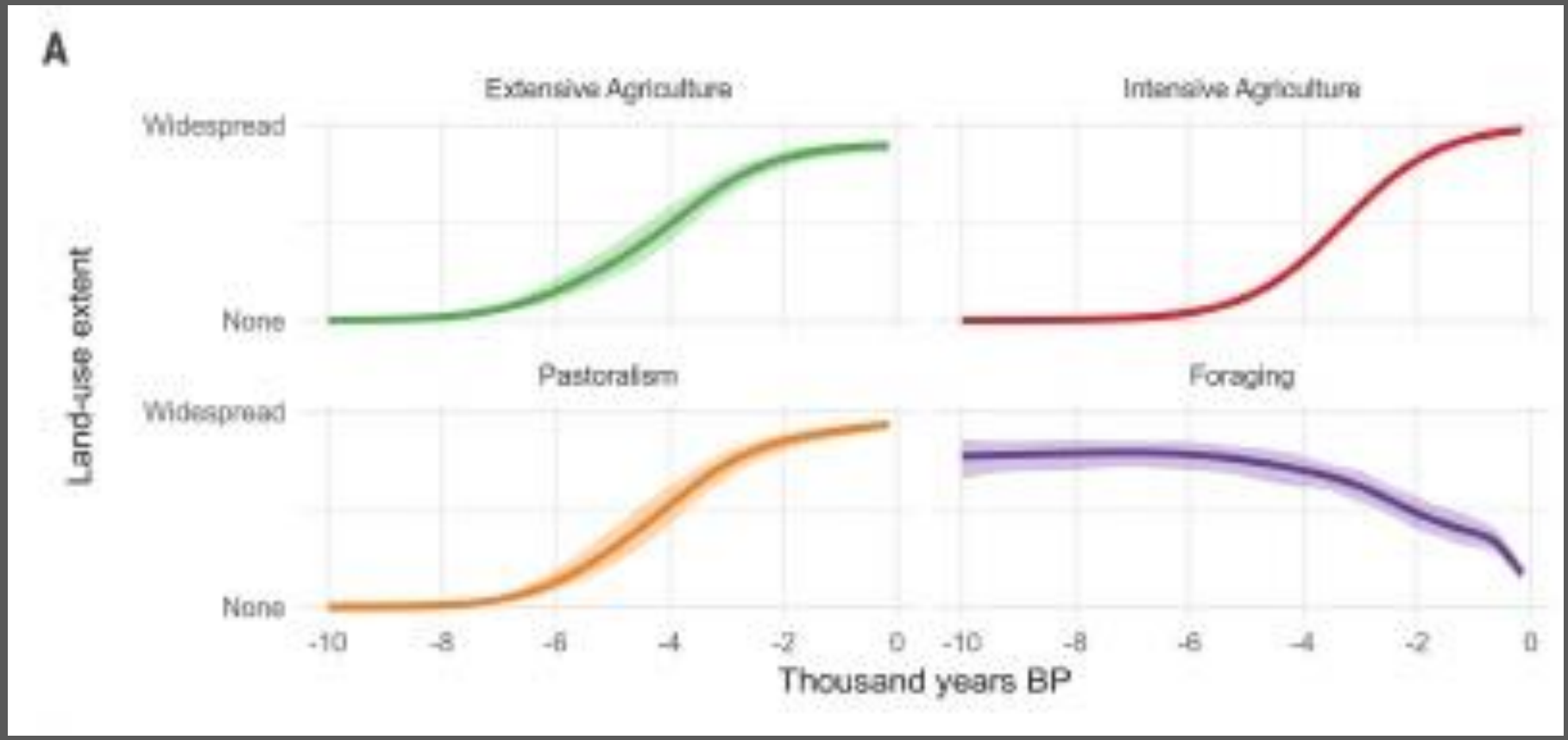

The Climate and Nature Emergency
Business as Usual
Pledges (NDCs) 2020
4ºC
3ºC
2ºC
1ºC
• The global carbon budget (forever) to avoid 2ºC warming
• already used over 50% mainly since 1950
• on current trends will use the remaining 50% by 2030
• hence 11 years to save the Planet
1,000 GtC
2ºC
Paris Agreement
1.5ºC
Nature of the future
Nature – as it was
Post 1950s, including protected areas
Pre-Industrial farming
Requires annual emission reductions of 6-7% p.a. from all developed countries (including China and USA) from 2020
1900
2000
2030
2050
2100

Earth's early transformation through land use



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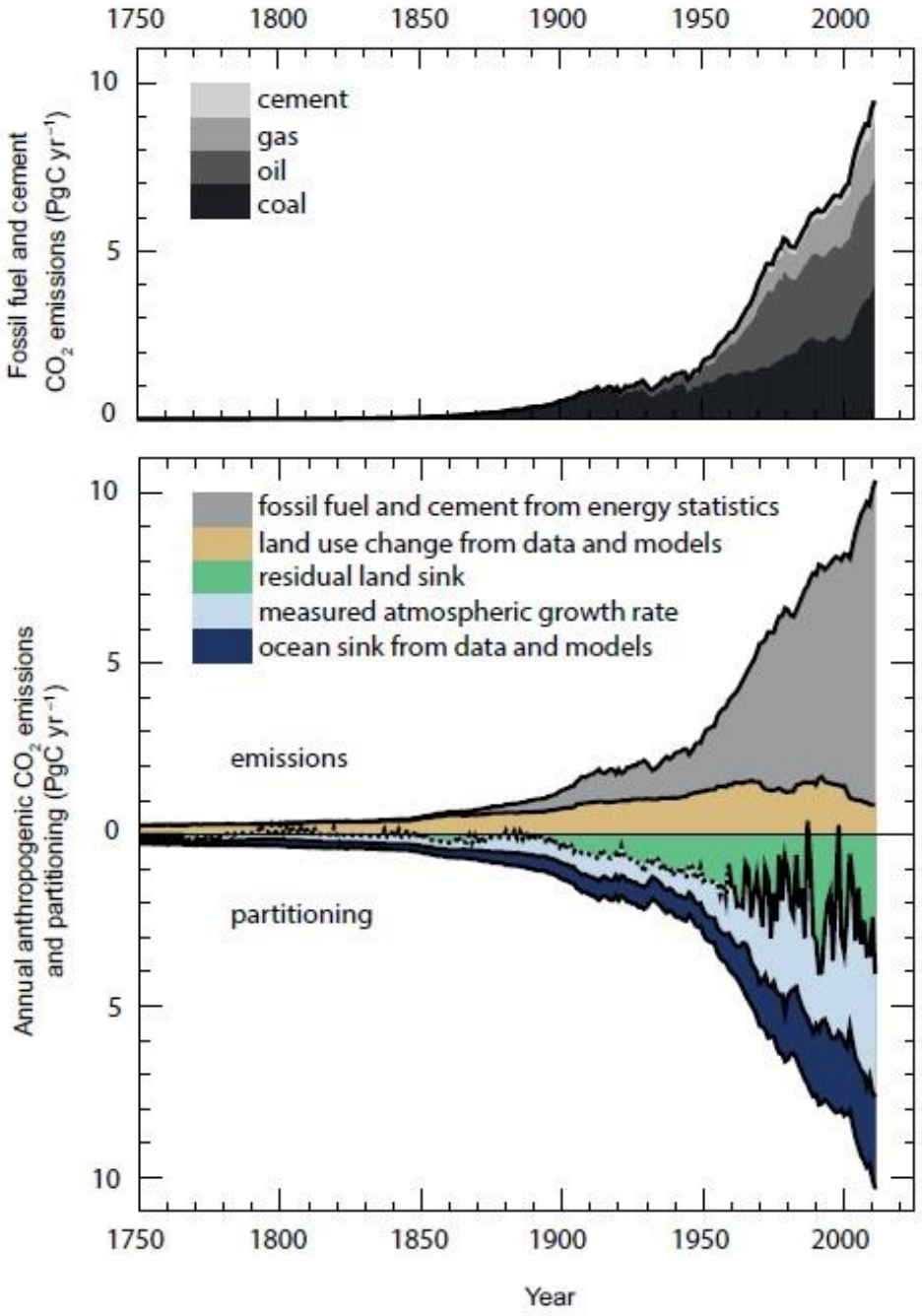
ArchaeoGLOBE Project, Science 365, 897–902 (2019)
30 August 2019

The Oil Economy

Annual anthropogenic CO_2 emissions and their partitioning among the atmosphere, land and ocean from 1750 to 2011 (IPCC 2013).

The Industrial revolution
1750-1850 – water
1850-1950 – steam (coal)
1950-present - oil

The bulk of the climate change problem has been generated since the 1950s



IPBES – (5) drivers of biodiversity loss

- Changing use of the land and sea especially for agriculture, forestry (and associated monocultures) and coastal infrastructure;
- Direct exploitation of organisms via harvesting, logging, hunting and fishing;
- Climate change;
- Pollution; and
- Invasive non-native species.
- Plus Consumption and behaviours/attitudes

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Climate and Nature

A triple challenge (or opportunity)

- Transition to a net zero economy, which will require major changes in the use of the land and sea with consequences for the state of nature;
- Adapt to climate change that is already locked into the system, which will also require major changes in the use of the land and sea; and
- Address the state of nature and the associated five main drivers of biodiversity loss, which include climate change.

All three - over the same period of time (2020-2045) - and on the same areas of land and sea

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Land sparing/sharing

‘parks and prairies’

Monocultures multiple benefits and scale/granularity

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Climate and Nature

- Nature and climate change are the same problem.
  - Nature is one of the factors that defines climate, and climate is one of the factors that defines nature. They are intimately bound in the Carbon Cycle, plus water, N, P.
  - Human-made climate change and the state of nature share the same causes – mainly the burning of fossil fossils (which also intensifies deforestation and land use change)

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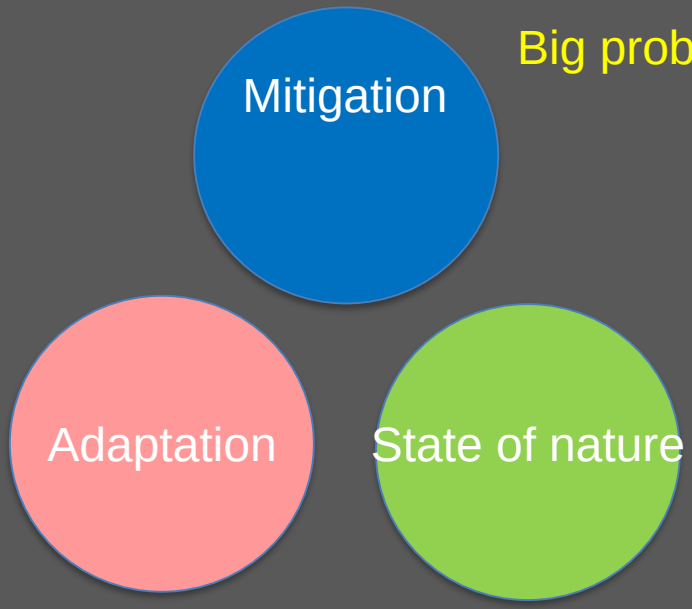
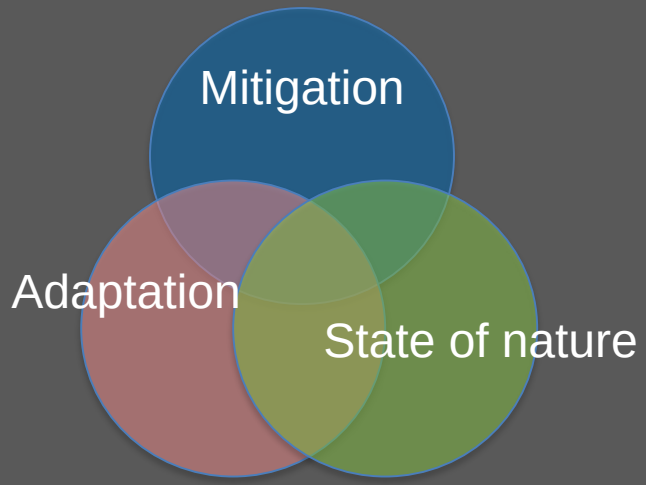
LULUCF: Mitigation, Adaptation, State of Nature

Big problem



Less of a problem



No problem?

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Diversity = multiple benefits = nature-rich

SNH - The Commitments

Changing use of the land

- Work with partners to transform land-use policy and incentives and promote habitat expansion to support nature-rich and resilient landscapes that contribute to net emissions reduction.

Changing use of the sea and coasts

- Develop policy and practice on enhancing C storage capacity of marine habitats, using MPAs as pilots and exemplars, and promote adaptation to climate change through marine and coastal nature.

Tackling climate-change effects on native habitats and species

- Helping Scotland's wildlife cope with climate change, developing approaches to protected areas. Focusing on areas that best cope with global change – both restoration and adapting to changes outwith our control.

Supporting climate-resilient communities

- Help to direct green infrastructure investment, and use place-based approaches to support low-carbon communities that can adapt to the effects of climate change.

Enabling new development that helps address climate change

- Work with partners to ensure that new development and infrastructure enhances nature to assist the transition to Net Zero and to promote resilience to climate change.

Managing SNH's own emissions and sequestration

- As a Low-C organisation, lead on moving our activities towards Net Zero, and enhancing C storage and sequestration on land we own or manage.

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