

Ecology and Spirituality: The Ecological Crisis

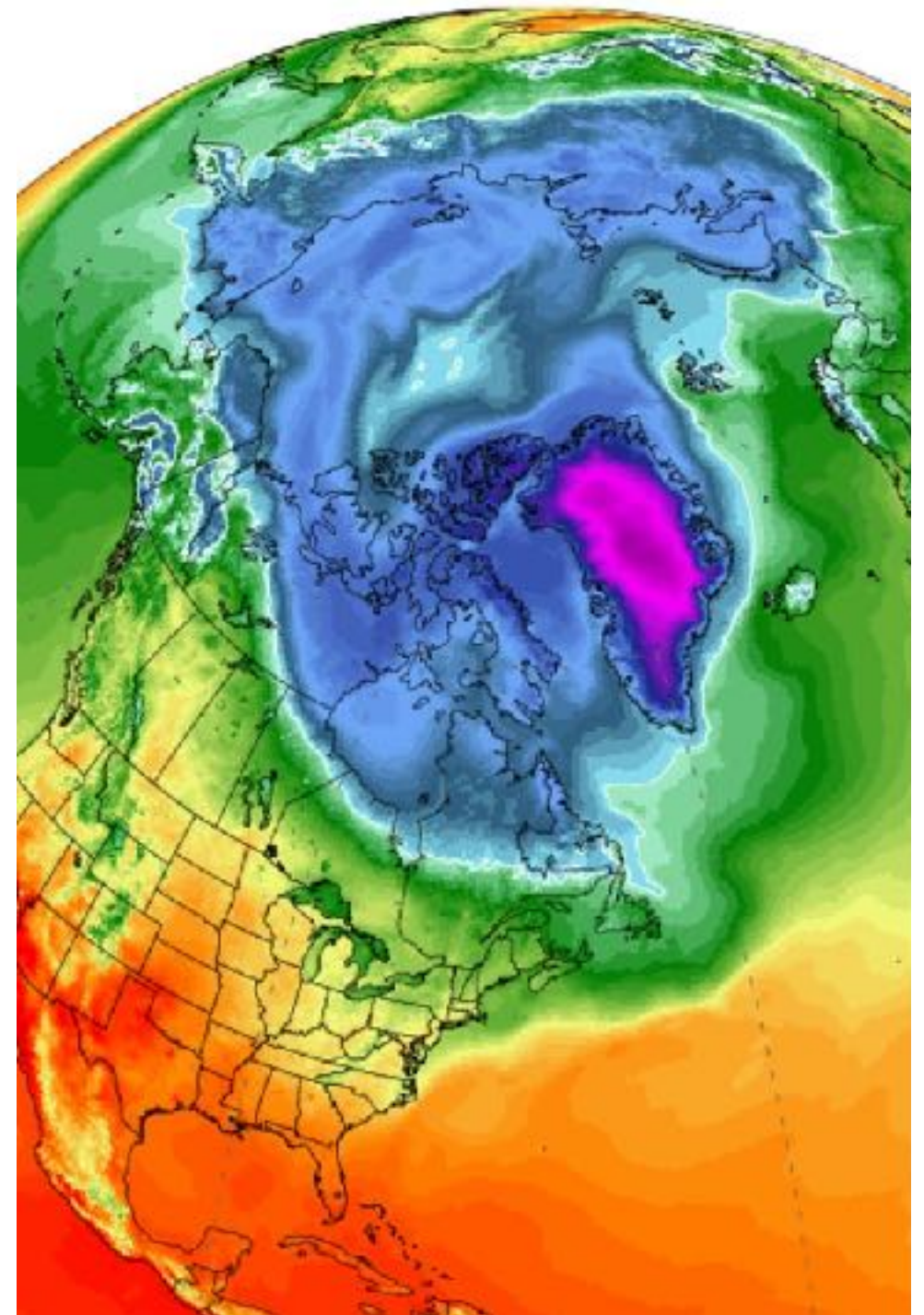


Overview

- **Symptoms**
 - **Climate Change**
 - **Misplaced Carbon**
 - **Soil Depletion**
 - **Biodiversity Loss**
 - **Anthropocene**
 - **Hyperobjects**
- **Aetiology - what are the causes of the crisis?**

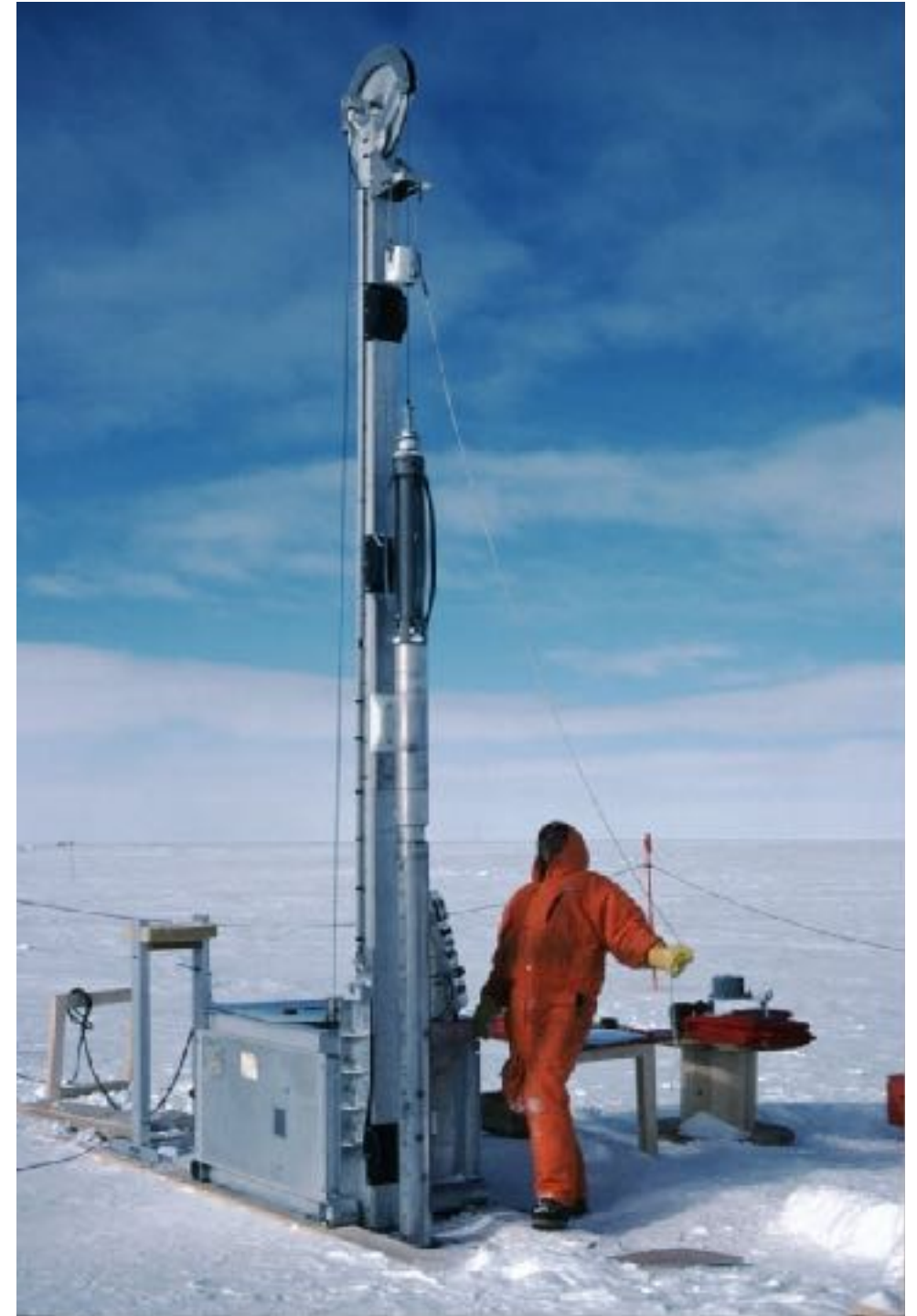
Climate not Weather

- **Weather** refers to the sort-term state of the atmosphere, e.g. rain, snow, air pressure, temperature.
- Therefore, a record hot July one year does not mean that the climate is changing.
- But with record temperatures over multiple summers in a row, it begins to suggest a long-term change in climate.
- **Climate** refers to the prevailing weather conditions averaged over a long period of time.
- e.g. the climate of the Sahara desert is hot and dry, while Wales is moderate and wet.
- Thinking about climate involves **thinking in the long-term**.

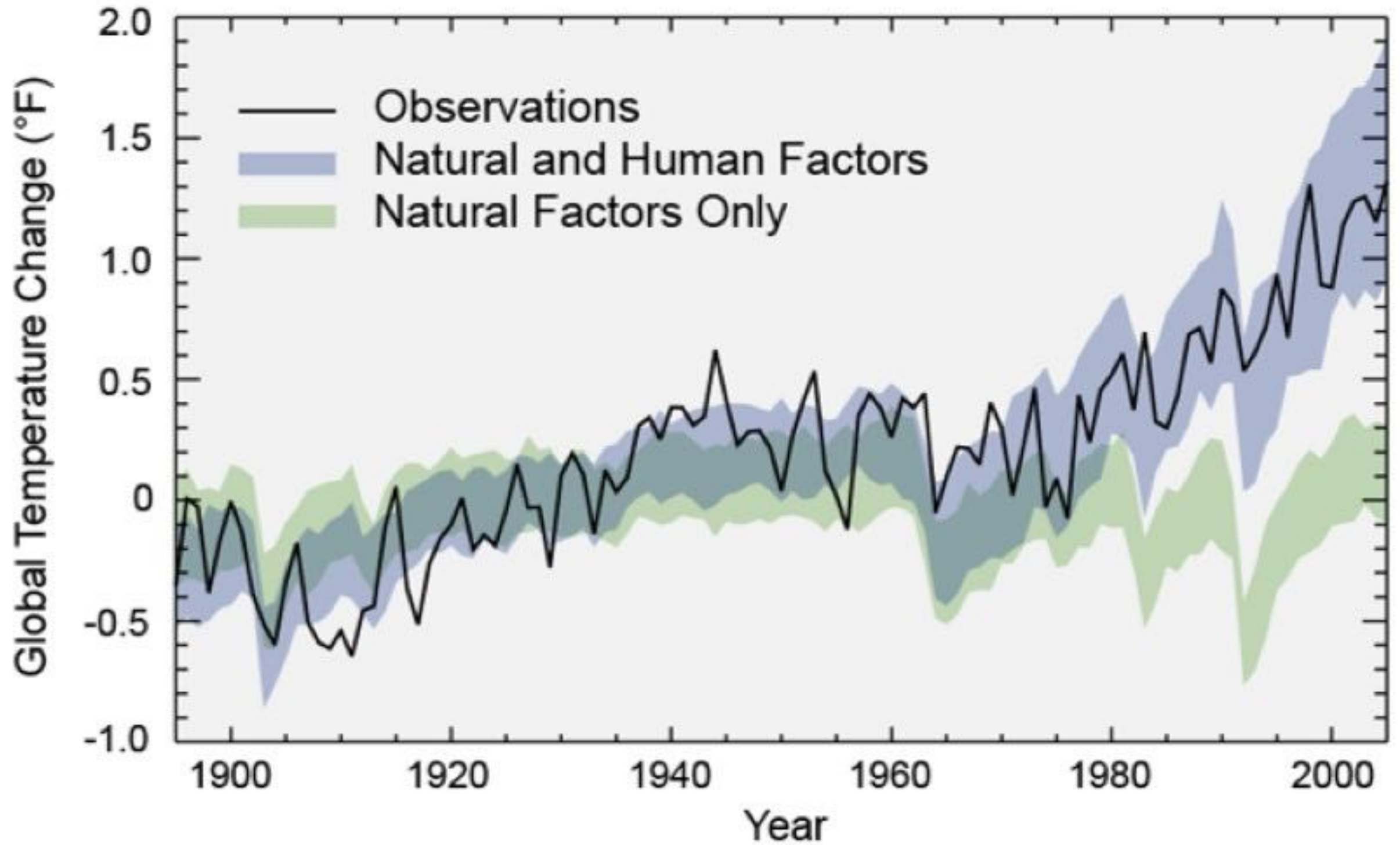


Climate not Weather

- We can tell from ice core samples that the Earth's climate has always changed due to natural causes.
- Factors such as atmospheric composition, volcanic activity, solar radiation, and so on can all affect long-term weather patterns.
- Humans are unique amongst the many varied species that inhabit the Earth in that we have made large-scale changes to the global system.
- We have removed woodlands, ploughed up soils, built vast mega-cities from concrete and burn coal and oil dredged up from beneath the Earth's surface.



Separating Human and Natural Influences on Climate



(Huber & Knutti, 2012)





Misplaced Carbon

- A large part of the problem is the influence of human beings on the carbon cycle - we tap into it and divert it from its 'natural' cycles and processes.
- Since the Industrial Revolution human activity has added vast quantities of carbon dioxide to the atmosphere.
- Carbon is also released from soils through ploughing and other agricultural activities.
- Damage caused by excess Carbon Dioxide in the atmosphere could be irreversible for at least 1,000 years (Solomon *et al.*, 2008).



Annual CO₂ emissions

Carbon dioxide (CO₂) emissions from the burning of fossil fuels for energy and cement production. Land use change is not included.

Our World
in Data

LINEAR

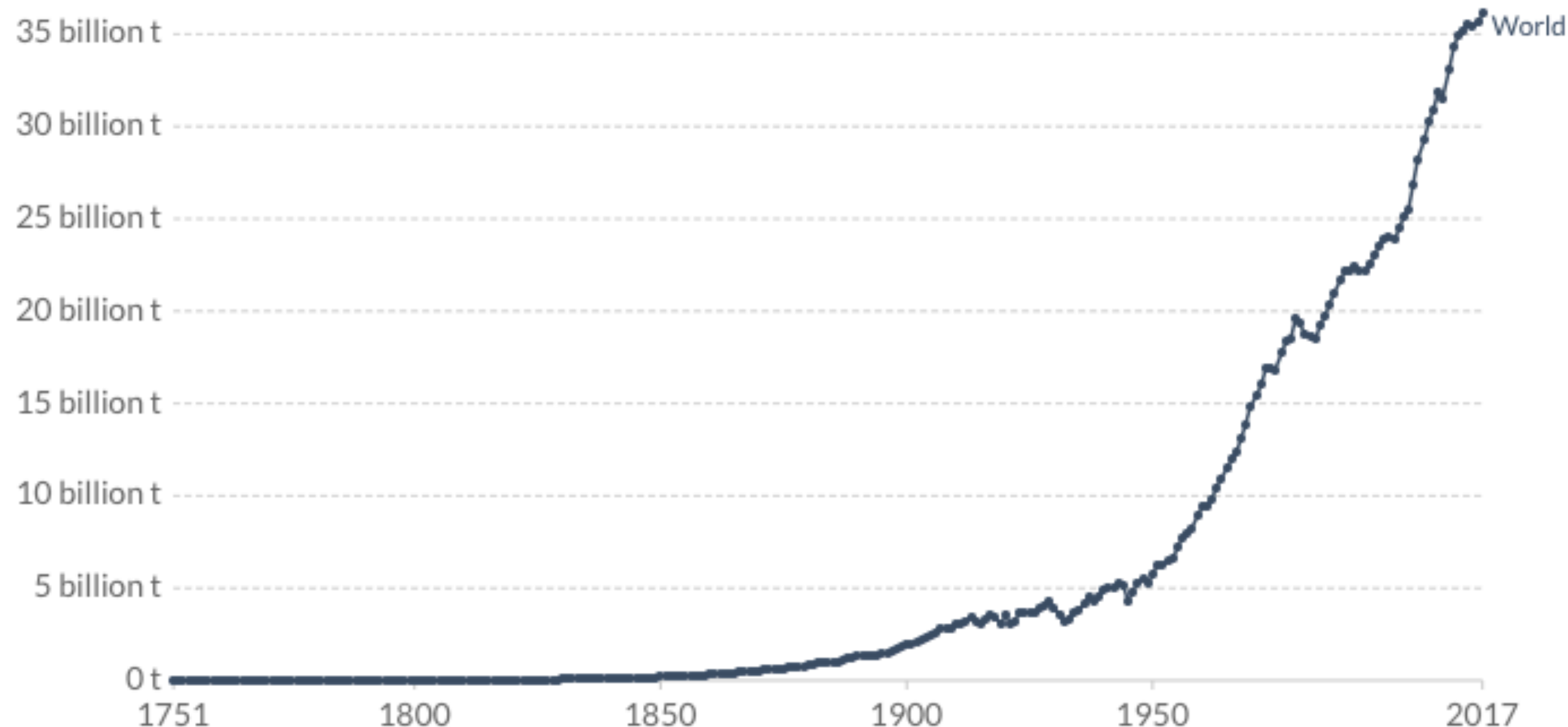
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Add country



Relative change



Source: Global Carbon Project; Carbon Dioxide Information Analysis Centre (CDIAC)

Note: CO₂ emissions are measured on a production basis, meaning they do not correct for emissions embedded in traded goods.

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1751



2018

CHART

MAP

TABLE

SOURCES



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Soil Depletion

- “Soil erosion is a major environmental and agricultural problem worldwide. Although erosion has occurred throughout the history of agriculture, it has intensified in recent years. Each year, 75 billion metric tons of soil are removed from the land by wind and water erosion, with most coming from agricultural land. The loss of soil degrades arable land and eventually renders it unproductive...” (Pimentel *et al.*, 1995).
- “Strategies to increase the soil carbon pool include soil restoration and woodland regeneration, no-till farming, cover crops, nutrient management, manuring and sludge application, improved grazing, water conservation and harvesting, efficient irrigation, agroforestry practices, and growing energy crops on spare lands” (Lal, 2004).



Thinking About Soil

"Soil is the ground/surface of the earth. It can be found almost everywhere and is in no short supply. It is one of the most common things used in farming and agriculture."

"Soil means dirt, crops and ploughing a field."

"Soil is literally my life because my family are farmers."

"Mud, dirt, filth, messy, worms, earth, wet, moist..."

"My family has an allotment so we use compost for our gardening. We have fresh vegetables and fruit."

"Soil is decomposed leaves and twigs which are decomposed by worms. Soil is vital to us...we use it to grow food which allows us to eat and live and thrive. Soil helps us to grow our healthy and unhealthy food. Soil allows people to have a living and a job selling their produce. Soil can be used to hide things and protect things. It is a home for animals..."

Biodiversity Loss

- In the 1980s there was a growing awareness of the rate at which species were being lost from ecosystems.
- New research on the role of keystone species and trophic cascades found that loss of species could “substantially alter the structure and functioning of whole ecosystems” (Cardinale *et al.*, 2012).
- 1990s and 2000s increasing research and activism concerning loss of biodiversity and conservation.



Biodiversity Loss

- Cardinale *et al.* summarise some of the key findings from the last 20 years of research into biodiversity:
- “There is now unequivocal evidence that biodiversity loss reduces the efficiency by which ecological communities capture biologically essential resources, produce biomass, decompose and recycle biologically essential nutrients...
- There is mounting evidence that biodiversity increases the stability of ecosystem functions through time...
- Diverse communities are more productive because (a) they contain key species that have a large influence on productivity, and (b) differences in functional traits among organisms increase total resource capture....
- Impacts of diversity loss on ecological processes might be sufficiently large to rival the impacts of many other global drivers of environmental change...” (pp. 2-5).



Non-Human Cultures

- Biodiversity is not just biomass!
- Evidence of **socially learned culture** has been found amongst ‘humans plus a handful of species of birds, one or two whales, and two species of fish’ (Laland & Hoppitt, 2003, p.151).
- “Bats have different song cultures and chatter about food, sleep, sex and other bats” (Willmer, 2020).
- “When you have pronounced cultural differences, losing populations is tragic because you’re losing these animal cultures that have been built up over many years...they may hold local solutions to specific problems or unique mating preferences not found anywhere” (Knörnschild in Willmer, 2020).
- Biodiversity is also **psychodiversity** - we will explore this in greater depth in a later seminar.



Anthropocene

- A new 'Geological Epoch' dominated by the influence of humankind on the environment.
- Lewis and Maslin (2015) argue that the anthropocene can be said to have begun in either 1610 or 1964 - the one we choose might have an influence on our optimism.
- 1610 - "...colonialism, global trade and coal brought about the Anthropocene. Broadly, this highlights social concerns, particularly the unequal power relationships between different groups of people, economic growth, the impacts of globalized trade, and our current reliance on fossil fuels. The onward effects of the arrival of Europeans in the Americas also highlights a long-term and large-scale example of human actions unleashing processes that are difficult to predict or manage. Choosing the bomb spike tells a story of an elite-driven technological development that threatens planet-wide destruction" (Lewis & Maslin, 2015, p. 177).
- 1964 - "...the 1963 Partial Test Ban Treaty and later agreements highlight the ability of people to collectively successfully manage a major global threat to humans and the environment" (Lewis & Maslin, 2015, p. 177).
- Donna Harraway - "I think our job is to make the Anthropocene as short/thin as possible and to cultivate with each other in every way imaginable epochs to come that can replenish refuge" (2015, p. 160).

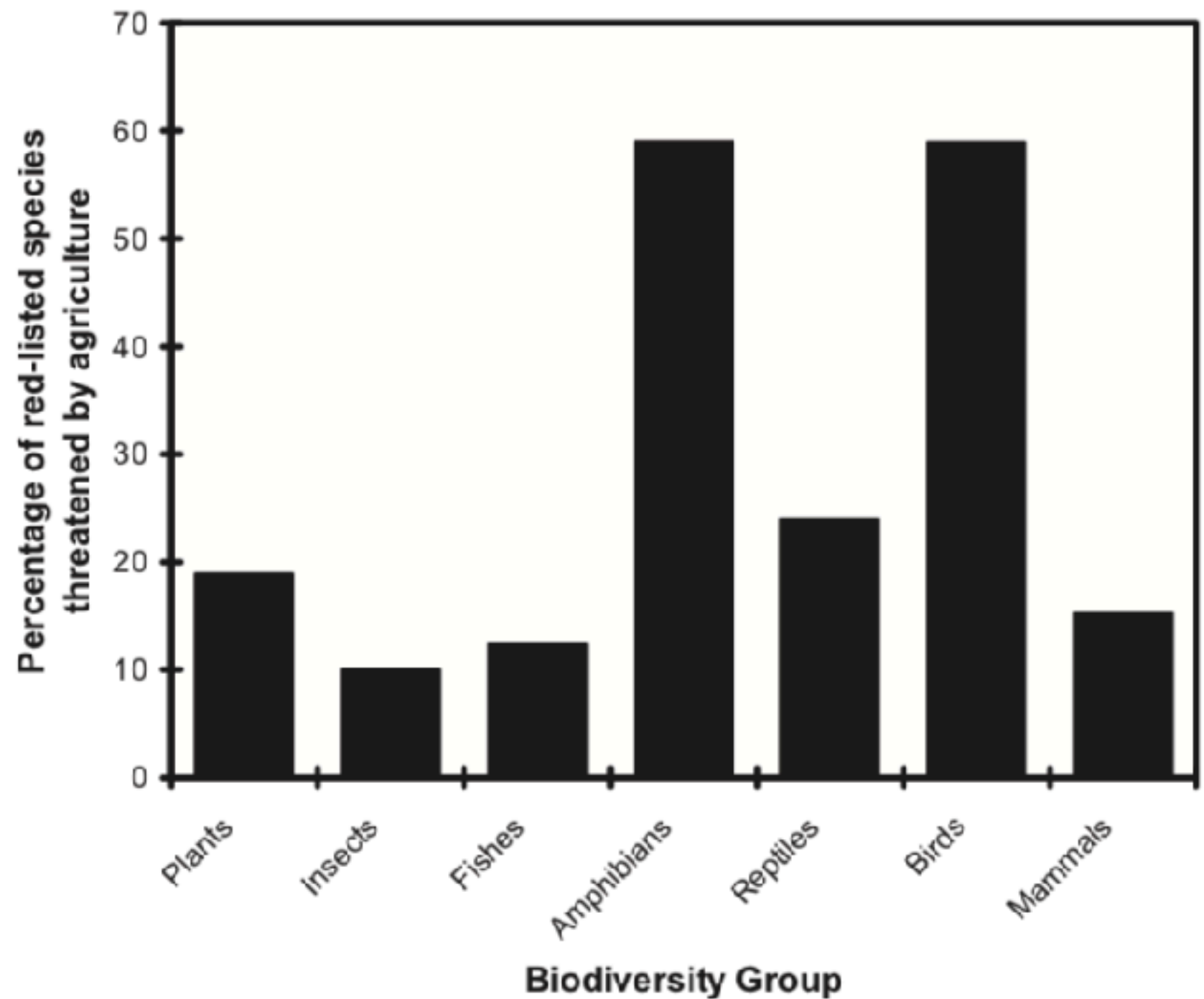


Agriculture

- Agriculture first appears in the Neolithic. Is this the beginning of the anthropocene?
- “The expansion and intensification of agriculture during the 20th century contributed to poverty alleviation and improved food security globally, but these benefits came at a cost to the environment...” (Norris, 2008, p. 2).
- Monoculture vs. Polyculture.



Figure 1 The percentage of red-listed species threatened by agriculture in a range of biodiversity groups. Data are from the World Conservation Union (IUCN) Red List database (<http://www.iucnredlist.org/search/search-basic>). Least concern (LC) species were excluded from the analysis. IUCN threat codes used to assess agricultural threats were 1.1, 6.2.1, 6.3.1, and 6.3.7.



Religion

- Historian Lynn White Jr. famously put forward the suggestion that it was ultimately the roots of the ecological crisis lie in religion, and religious ideas about the place of human beings in the cosmos.
- Argued that ‘Especially in its Western form Christianity is the most anthropocentric religion the world has seen’ (1967, p. 1205)
- “...no item in the physical creation had any purpose save to serve man’s purposes” (Ibid.)
- “The victory of Christianity over paganism was the greatest psychic revolution in the history of our culture” (Ibid.)



Religion

- “In Antiquity every tree, every spring, every stream, every hill had its own *genius loci*, its guardian spirit. These spirits were accessible to [humans], but were very unlike [the,]; centaurs, fauns, and mermaids show their ambivalence. Before one cut a tree, mined a mountain, or dammed a brook, it was important to placate the spirit in charge of that particular situation and to keep it placated. By destroying pagan animism, Christianity made it possible to exploit nature in a mood of indifference to the feelings of natural objects” (White Jr., 1967, pp. 1205).



Capitalism

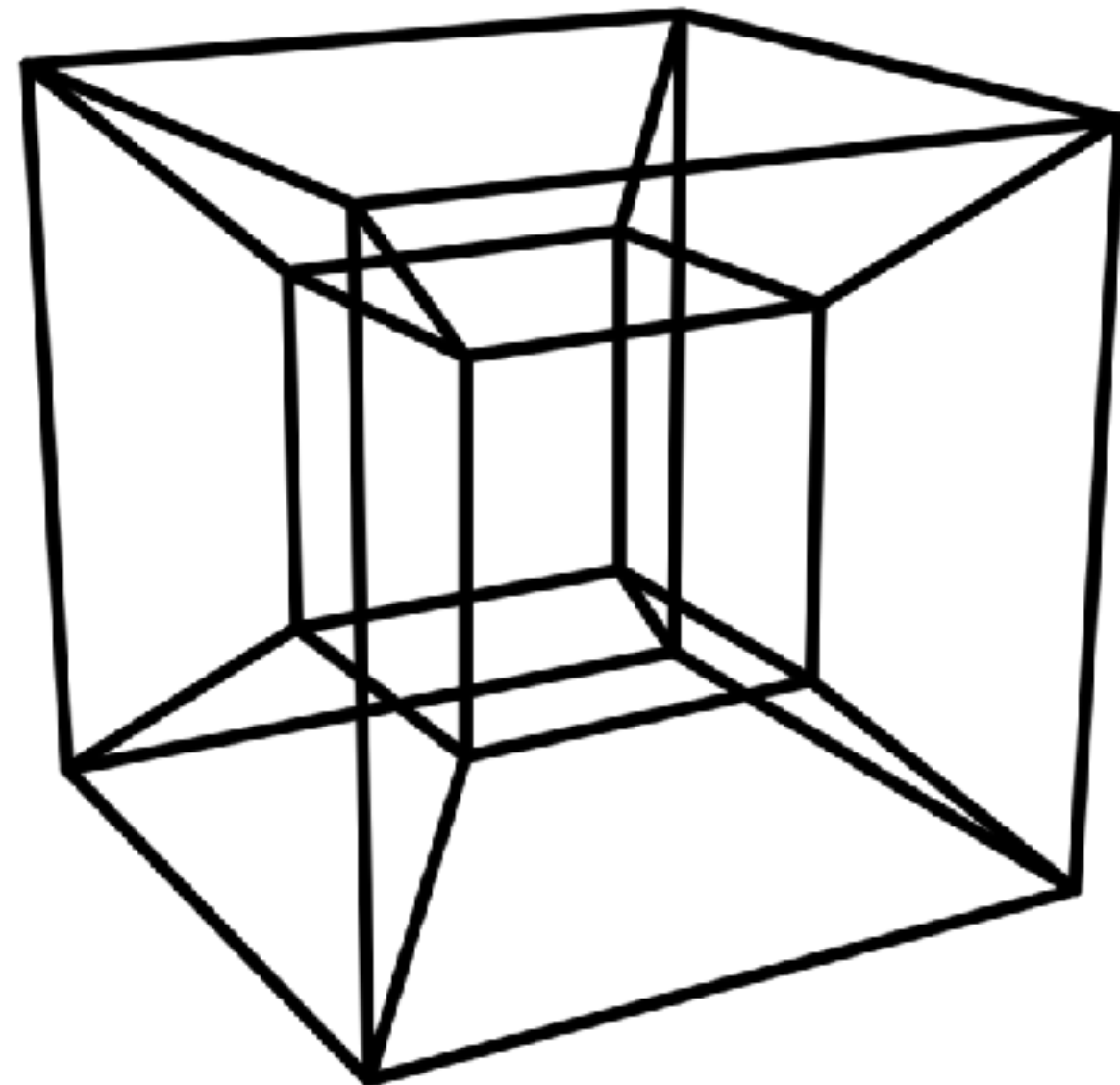
- There is a “... a longstanding environmentalist argument about the Industrial Revolution as the origin of ecological crisis. This ignores early capitalism’s environment-making revolution, greater than any watershed since the rise of agriculture and the first cities. While there is no question that environmental change accelerated sharply after 1850, and especially after 1945, it seems equally fruitless to explain these transformations without identifying how they fit into patterns of power, capital and nature established four centuries earlier” (Moore, 2017).



Hyperobjects

- Philosopher Timothy Morton:
- “Hyperobjects do not rot in our lifetimes. They do not burn without themselves burning (releasing radiation, dioxins, and so on). The ecological thought must think the future of these objects, these toxic things that appear almost more real than reality itself...”
- “With its apocalyptic visions and thousand-year itches, Christianity isn’t ready for hyper objects. Yet thinking about these materials does involve something like religion, because they transcend our personal death...Hyperobjects will outlast us all” (Morton, 2010, p. 130).
- The ecological crisis is a ‘hyperobject.’
- 3 part documentary on Radio 4 about our psychological relationship with the climate crisis:

<https://www.bbc.co.uk/programmes/m000cl66>



Conclusions

- The climate crisis is a ‘hyperobject’ - we don’t experience the totality of it, but we are inevitably and inextricably interwoven with it.
- ‘Small and Slow solutions’?
- Solutions to problems:
 - Habitat conservation and Re-wilding.
 - Changes to agricultural and industrial practices.
 - Agriculture and biodiversity enhancement.
 - Carbon sequestration, e.g. tree planting, soil building.
 - Reduction of Carbon emissions.
 - Transformation of lifestyle and behaviour.

Ecology and Spirituality: Can There be a Spiritual Response to the Ecological Crisis?



Responding to the Ecological Crisis

- There are a range of responses to the ecological crisis.
- Its immensity can make it seem very distant and far removed from any given local context (but not all).
- Like a hyper-object we can only experience parts of it.
- Political, economic, philosophical, scientific, ecological, spiritual...
- Each is a node on the hypercube.

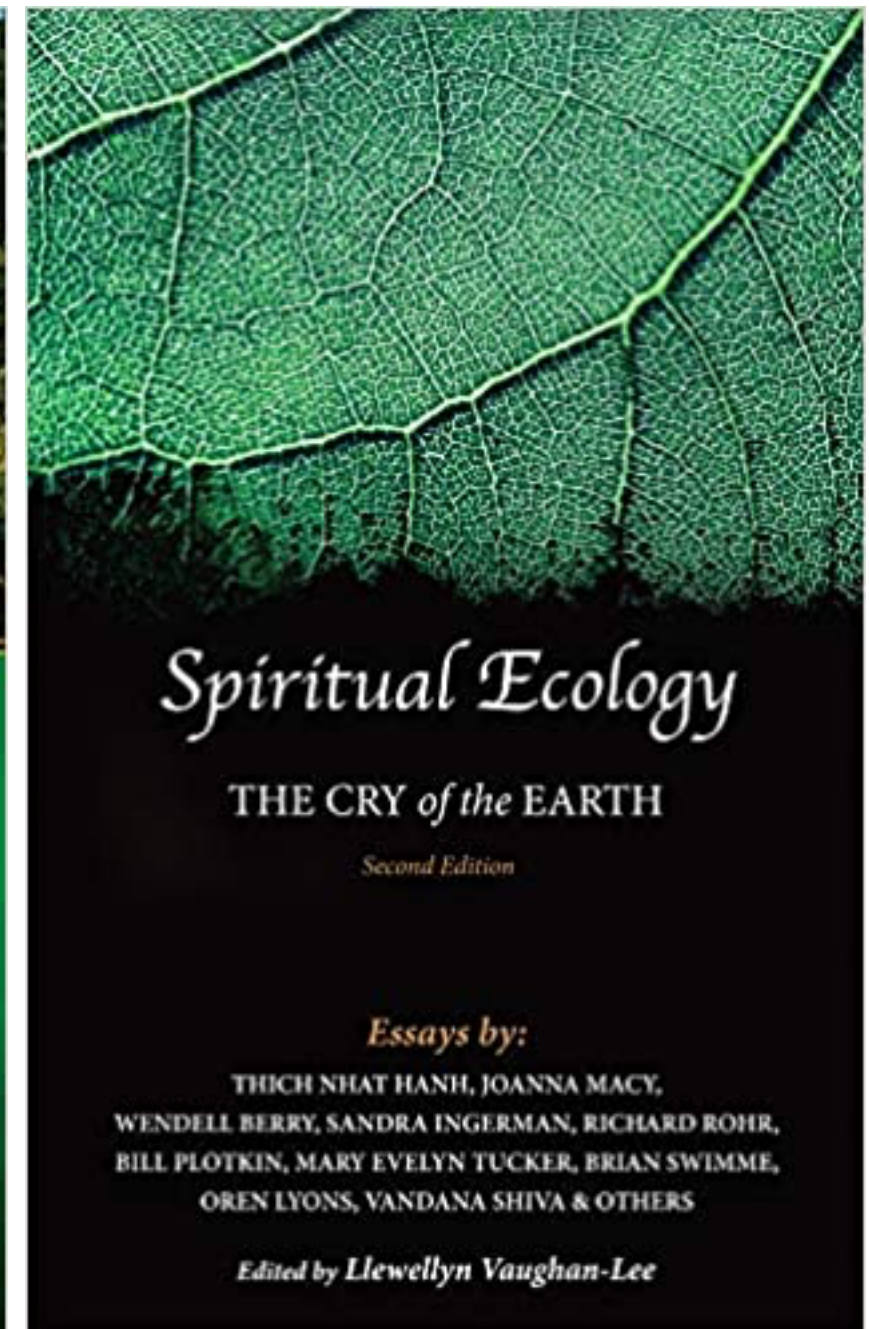
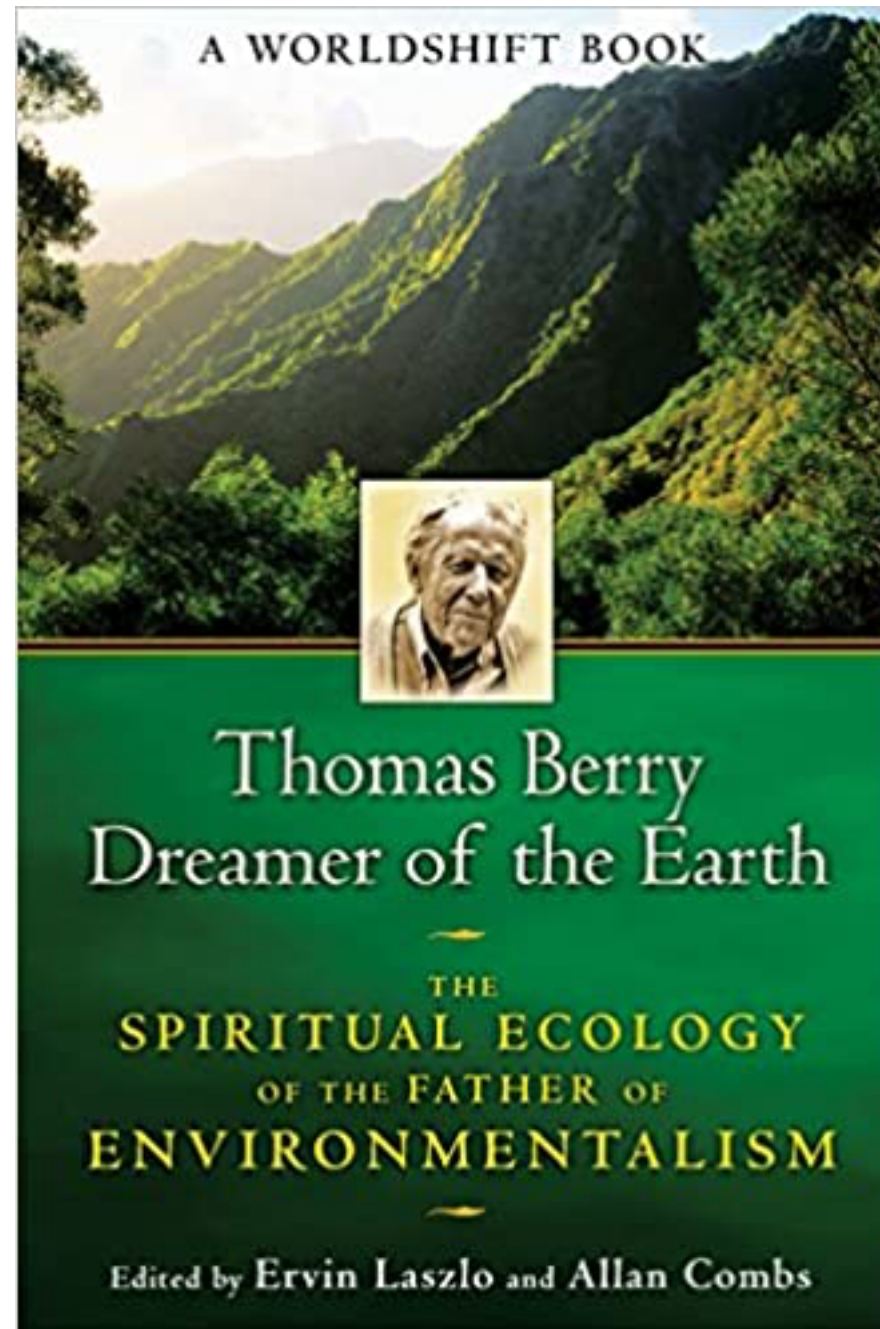
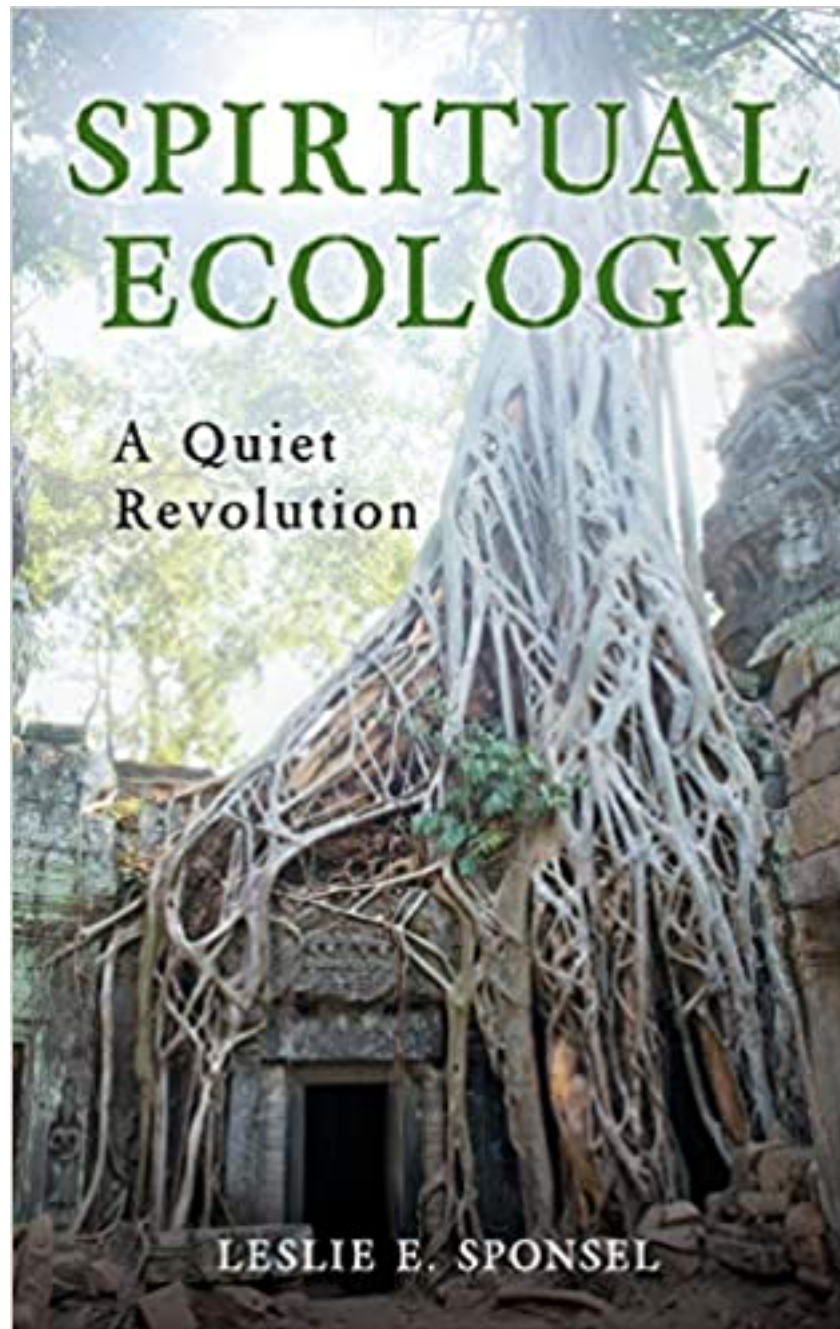


A Religious Response?

- “Both our present science and our present technology are so tinctured with orthodox Christian arrogance toward nature that no solution for our ecologic crisis can be expected from them alone. Since the roots of our trouble are so largely religious, the remedy must also be essentially religious, whether we call it that or not. We must rethink and refuel our nature and destiny’ (White Jr., 1967, p. 1207).
- From this perspective the transformation is a religious one.



There are many spiritual ecologies...







Laudato Si Centre



The 'eco brick' is an indication of the Centre's aims to be a place for practical action, inspired by faith, rooted in prayer and that gives a sense of the sacred for people of all faiths and none. People will have the opportunity to proactively engage with the pressing environmental issues facing our generation and the generations who follow.

Chthulucene

- “...we need a name for the dynamic ongoing sym-chthonic forces and powers of which people are a part, within which ongoingness is at stake...
- ...Maybe, but only maybe, and only with intense commitment and collaborative work and play with other terrans, flourishing for rich multispecies assemblages that include people will be possible. I am calling all this the Chthulucene—past, present, and to come” (Harraway, 2015, p. 160).





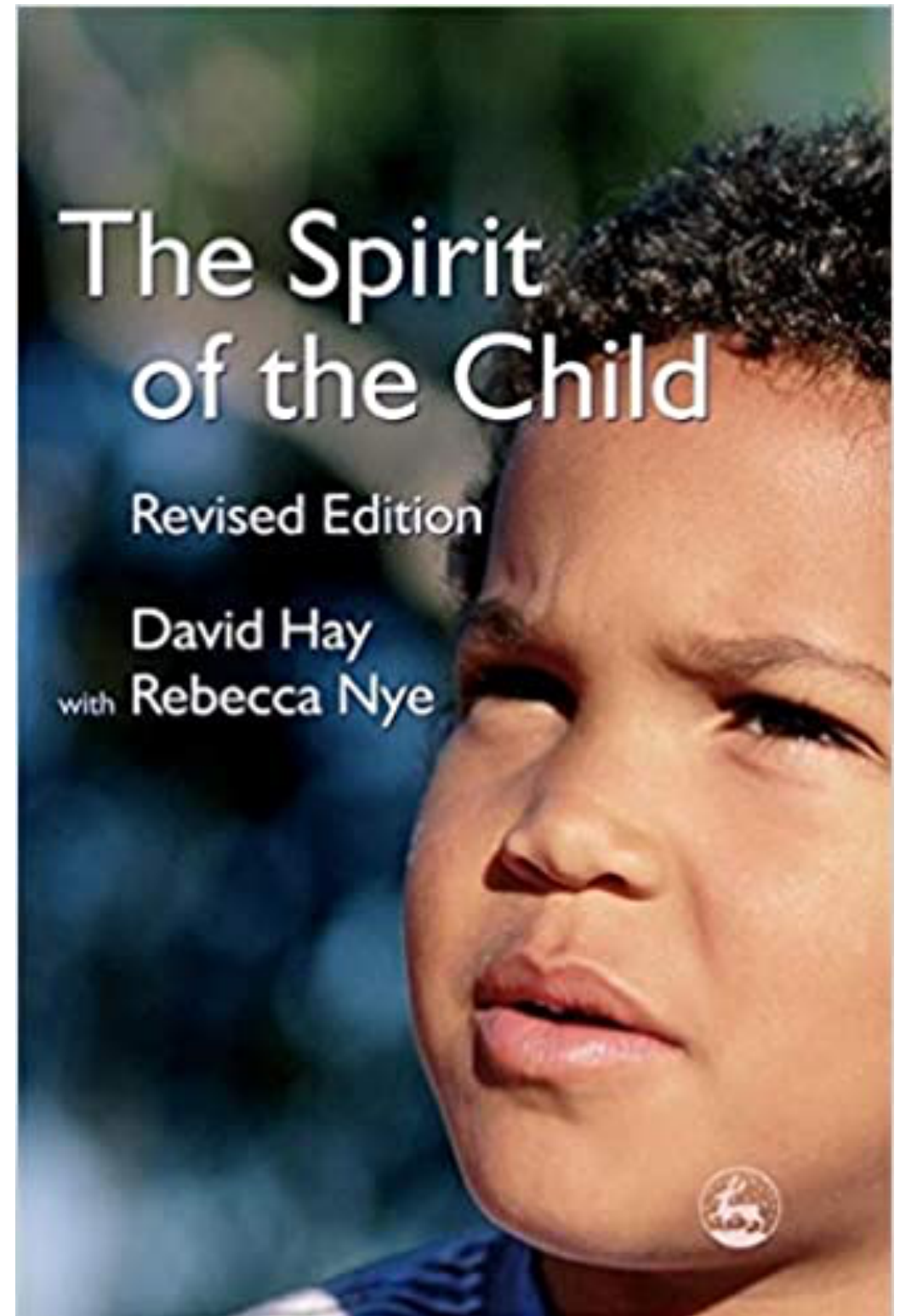
Chthulucene

- “These real and possible timespaces are not named after SF writer H.P. Lovecraft’s misogynist racial-nightmare monster Cthulhu (note spelling difference), but rather after the diverse earth-wide tentacular powers and forces and collected things with names like Naga, Gaia, Tangaroa (burst from water-full Papa), Terra, Haniyasuhime, Spider Woman, Pachamama, Oya, Gorgo, Raven, A'akuluujjusi, and many many more...
- “My” Chthulucene, even burdened with its problematic Greek-ish tendrils, entangles myriad temporalities and spatialities and myriad intra-active entities-in- assemblages—including the more-than-human, other-than-human, inhuman, and human-as- humus” (Harraway, 2015, p. 160).
- From the Anthropocene to the Chthulucene?



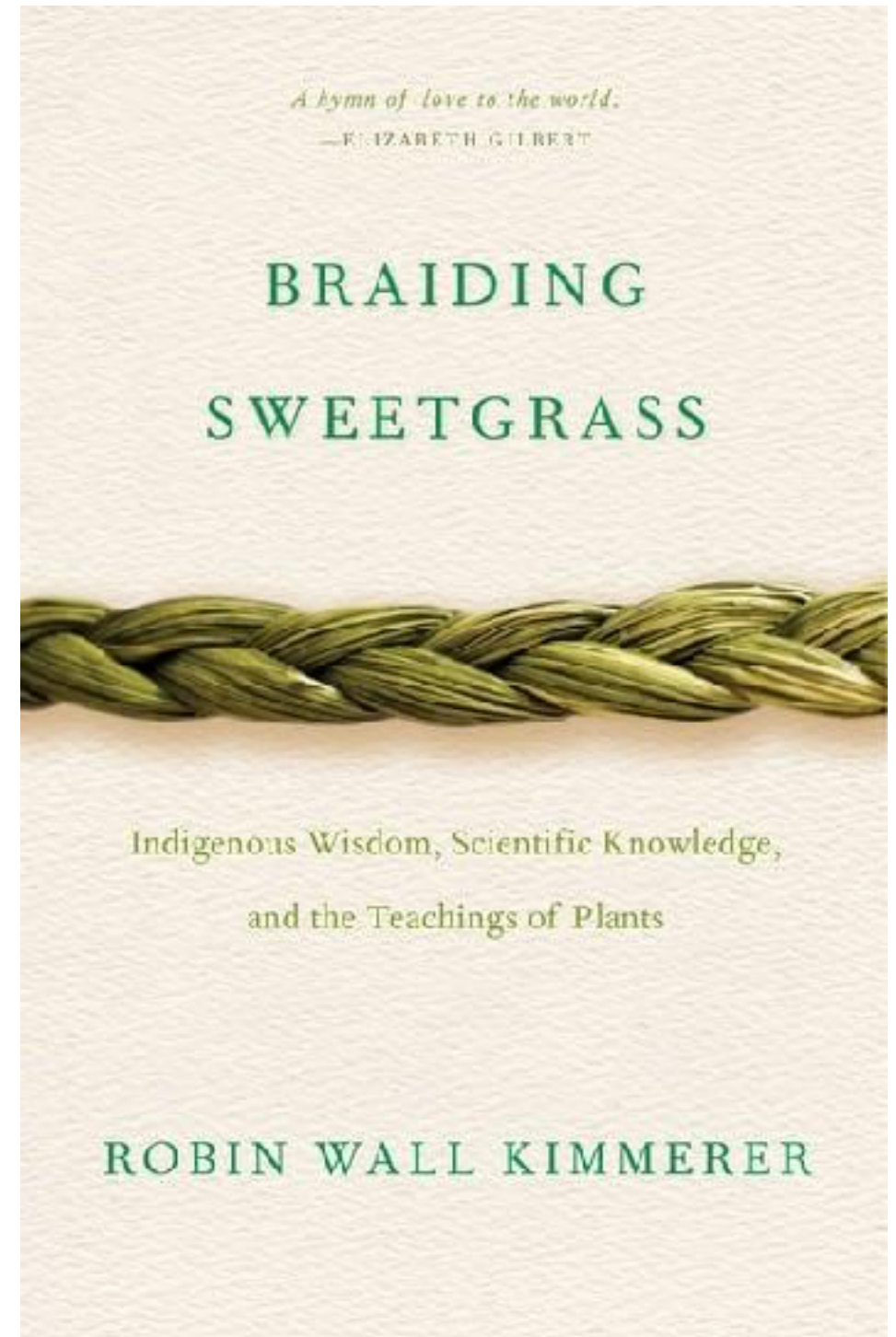
Personal Religion

- David Hay and Rebecca Nye conducted research into children's spirituality:
'...spirituality is the potential to be much more deeply aware of ourselves and our intimate relationship with everything that is not ourselves...' (2006, p. 22).
- By changing the nature of our 'intimate relationship with everything that is not ourselves' we might begin to change our behaviours.



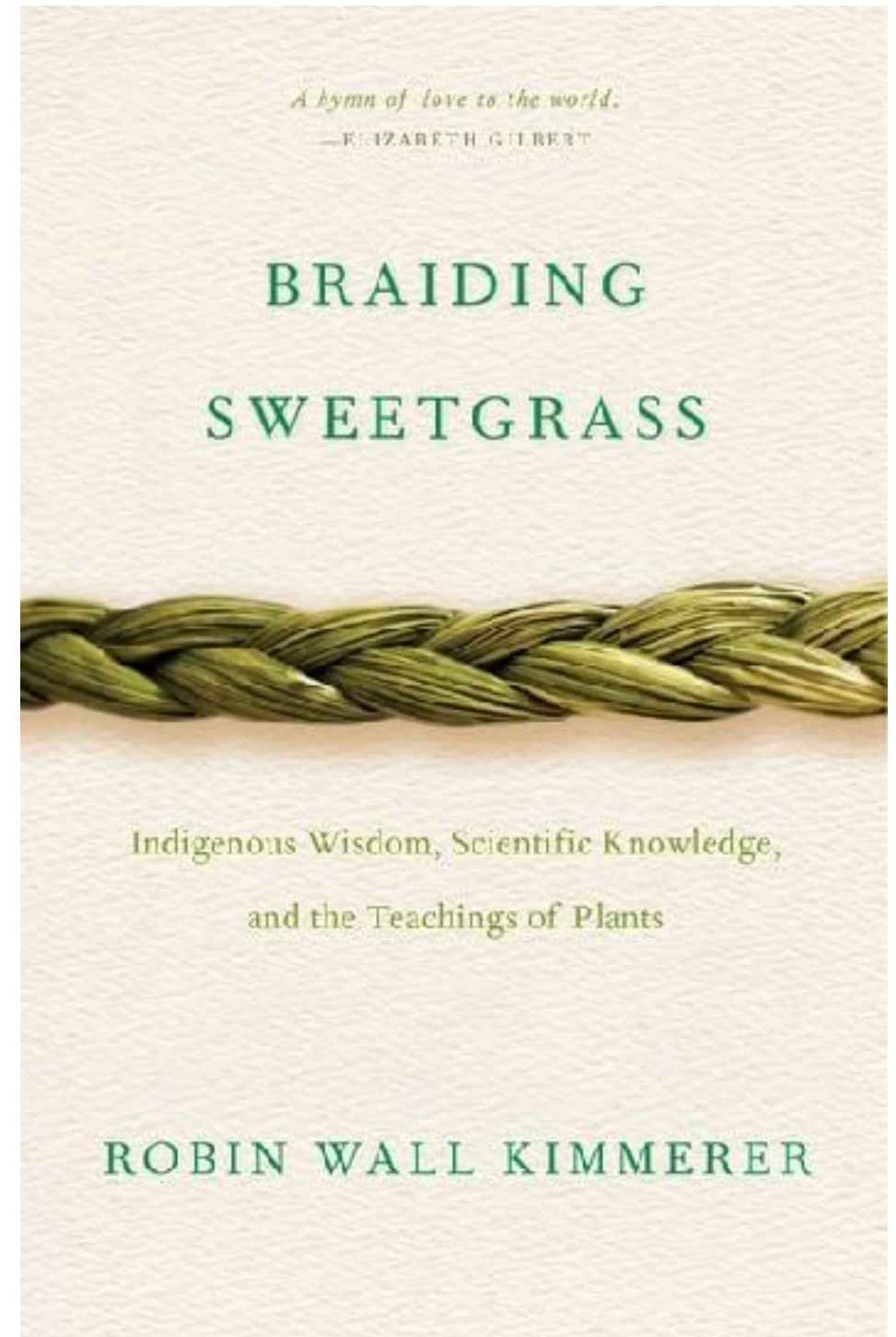
Spirituality and Practical Action

- A spiritual response alone will not be enough.
- Spiritual orientation must be combined with practical action.
- Robin Wall Kimmerer's "metaphor of braiding sweetgrass."
- Spiritual orientation and behaviour are intimately braided (all elements of life are).



Can there be a spiritual response?

- Yes, but it can't be 'just' a spiritual response!



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