European Environment Agency

Exiting the Anthropocene? Exploring fundamental change in our relationship with nature

The ways in which societies, institutions and citizens relate to and value nature have played a key role in the interconnected biodiversity, climate change, natural resource and health crises we face. This briefing explores how to reframe the relationships between humans and nature. It examines how holistically understanding humans' deep interconnection with other life forms and ecosystems could lead to new motivations to protect nature and accelerate the societal transformation we need to live well within the limits of the planet.

Key messages

Humans affect the Earth more than any other living beings or forces, leading to what some scholars have defined as the geological epoch 'the Anthropocene'. Human threats to natural ecosystems and human societies have progressively risen, with devastating consequences over recent decades.

Awareness of environmental challenges has grown significantly over the past century. However, institutional responses have been insufficient to protect nature. Even well-intended policies are often based on the divide between 'us', humans, and 'them', the other species. This thinking is intrinsically at the core of the Anthropocene and needs to be rethought.

Humans are deeply interconnected with other life forms and ecosystems. Concepts such as ‘strong sustainability’, ‘deep ecology’, ‘the Symbiocene’ and ‘the Chthulucene’ illustrate this point and provide inspiration for rethinking the relationship between humans and nature. Embracing a broad range of mindsets and ways of relating to nature may be essential for moving towards a more sustainable future.

Policies like the European Green Deal and the 8th Environment Action Programme make steps in the right direction. However, profound transformations in established mindsets and paradigms, such as consumerism, are likely to be necessary. Specifically, we should move from viewing nature as a source of capital to respecting its inherent value.

Our societies need to govern themselves in a way that aligns the needs and concerns of humans with other organisms that are currently ‘left behind’. We should switch from the ‘us and them’ mindset to a relational concept of ‘all of us’ to unlock new motivations to protect biodiversity, rooted in a wider sense of responsibility.

This briefing is part of the series ‘Narratives for change’, published by the EEA. The series explores the diversity of ideas needed to make our societies more sustainable and fulfil the ambitions of the European Green Deal.

Accelerating into the Anthropocene

The size of the human population and the intensity of human economic and technological activities massively impact the Earth’s biosphere and atmosphere. We change the climate; the chemical composition of the atmosphere, oceans and soil, and landscapes (Waters et al., 2016). All the while, we expand at the expense of other life forms. These changes are eroding the planet’s capacity to support life as we know it — and we are getting worryingly close to or even exceeding what some

consider ‘safe boundaries’ (Rockström et al., 2009; Steffen et al., 2015a; EEA/FOEN, 2020; Persson et al., 2022; Wang-Erlandsson et al., 2022).

The scale of change is so profound that for about a century, scientists have been proposing new concepts to describe the geological period in which we now live. They have suggested that we no longer live in the Holocene, but rather in ‘the Anthropozoic Era’, ‘the Noosphere’, ‘the Homogenocene’ and, more recently, the ‘Anthropocene’ (Crutzen and Stoermer, 2000).

While the term ‘the Anthropocene’ is relatively new, the underlying issue is well established. In the Western world, already in 1662, the English writer and gardener John Evelyn emphasised the need to take care of the Earth and its vegetation, soil, water and air (Evelyn, 1662). Moreover, the effect of combustion-produced carbon dioxide on the global climate — coined ‘the greenhouse effect’ — had already been described in the 19th century (e.g. Arrhenius, 1896). Then, 300 years after Evelyn (1662), Rachel Carson published her book Silent spring (Carson, 1962), which sparked public and political awareness of the environmental harms of industrial activities. A few years later, Club of Rome’s Limits to growth (Meadows et al., 1972) pointed to the likelihood of an overshoot of resources and a collapse in global human population and welfare under a ‘business-as-usual scenario’. Such estimates are coherent with recent observations (Turner, 2008, 2014; Herrington, 2021).

Despite these early concerns, humanity continued to move into the Anthropocene at increasing speed. In particular, the period since the 1950s — also known as the ‘Great Acceleration’ (Steffen et al., 2015b) — has seen unprecedented and accelerating human-induced global change. The destruction of natural habitats, widespread damage to ecosystems and the extinction of animals and plants have been scientifically documented beyond any doubt. The same is true for ongoing climate change and the substantial alteration in biogeochemical flows. Scientists incessantly repeat this message (EEA, 2019; IPBES, 2019; IPCC, 2022). Yet knowledge alone is not sufficient for action. The Great Acceleration continues (see Figure 1).

The scale of change is unprecedented. Scientists warn of a sixth mass extinction event that could lead to the disappearance of many life forms by the end of the century (Ripple et al., 2017). A recent estimate demonstrates the impact that humans have had on biodiversity: of total mammal biomass, humans account for 36% and our livestock accounts for 60%, with wild mammals accounting for only 4% (Bar-On et al., 2018). The Earth is experiencing an exceptionally rapid loss of biodiversity: 75% of terrestrial and 66% of marine environments are ‘severely altered’ by human actions (IPBES, 2019). The rapid decline in biodiversity is also inextricably connected with climate change. In the words of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Panel on Climate Change (IPCC), ‘they share underlying drivers, they interact and can have cascading and complex effects that impact people’s good quality of life and compromise societal goals’ (Pörtner et al., 2021).

Human activities are estimated to have caused global warming of approximately 1.2°C above pre-industrial levels, on average, leading to a rise in weather and climate extremes (IPCC, 2022). This

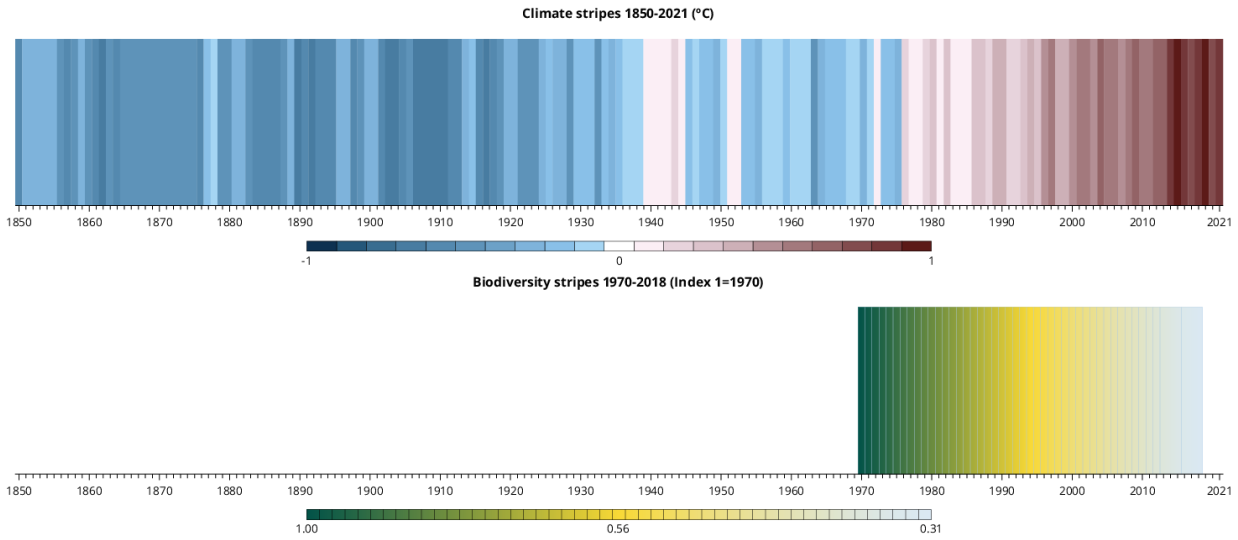
has pushed natural and human systems beyond their ability to adapt, with irreversible impacts (IPCC, 2022). Livelihoods, health, water, food and energy security are increasingly threatened by climate change (UNEP, 2019). With global warming expected to reach 1.5°C above pre-industrial levels in the short term, unavoidable increases in multiple climate hazards and risks to ecosystems and humans are expected (Armstrong Mckay et al., 2022; IPCC, 2022; Kemp et al., 2022). Concerned scientists have recently reiterated warnings about the unprecedented climate emergency and the urgent need for action (Ripple et al., 2022).

At the core of the Great Acceleration lies a set of multiple interacting factors, including techno-scientific advances and increases in living standards and life expectancy. This has made the human species incredibly efficient at exploiting nature and dramatically expanding its population (EEA, 2020). While an increasing human population used to be the main driver of environmental pressures, this changed at the turn of the millennium. Now, increasing consumption is the single most significant factor driving global environmental impacts (EEA, 2020; Spangenberg, 2022).

Yet historical and current responsibilities for cumulative planetary pressures are unevenly distributed depending on geography, culture, socio-economic development level, wealth and affluence. The history of Western countries is characterised by colonisation, appropriation and commodification (Moore, 2017, 2018; Hickel et al., 2021). Historically, these countries are also responsible for the highest contribution to greenhouse gas emissions, largely due to the industrial revolution fuelled by fossil resources (Hickel, 2020). Moreover, high-income nations were responsible for 74% of excess material used globally between 1970 and 2017 (Hickel et al., 2022). In 2015, on the global scale, the top 10% of income earners emitted more than twice the amount of carbon dioxide than the bottom 50% of income earners (Hubacek et al., 2017). This points to the issue of ‘climate justice’: top polluters are likely to be the least affected by climate change, while the poorest, lowest polluters are likely to be most vulnerable (OECD, 2021). In essence, a ‘relatively small and wealthy group is responsible for most resource claims and ecological damage — and hence for the existential threats faced most severely by impoverished populations’ (Rammelt et al., 2022).

Figure 1. Climate and biodiversity stripes

Publications



Note: (a) The global climate stripes use annual global average of near-surface temperatures expressed as the anomaly relative to the period 1961-1990 to show the progressive heating of the planet between 1850 and 2021. Shades of blue indicate cooler-than-average years, while red shows years that were hotter than average. (b) The global biodiversity stripes use the annual value of the global Living Planet Index to show the progressive loss of biodiversity between 1970 and 2018. Each stripe represents the value of the index for a given year. The chart shows a continued reduction in global biodiversity with a nearly 70 % decline of the index value in 2018 compared to 1970.

Sources: (a) Modified from (Hawkins, 2022) and based on HadCRUT5 data (Met Office Hadley Centre, 2022). (b) Modified from Richardson (2022) and based on the Living Planet Index database (LPI, 2022).

Explore different chart formats and data here

During the last few decades, it has become increasingly clear that there is no simple, quick fix to the challenges that humanity is faced with in the Anthropocene. The challenges are systemic and have to do with how individuals, societies and institutions relate to and act towards nature. In what follows, we ask what kinds of relationships humans of the Anthropocene foster with nature and how these relationships could change so to move into an epoch of sustainability.

Evolving institutional mindsets

The exploitation of nature is part of human history. The human species has developed skills,

knowledge and technology to resist and overcome natural forces and threats. In our dependence on nature, humans also identified an essential conflict of interest. As human civilisation expanded and developed, more space and resources were required, and other species were domesticated or destroyed. Yet there have been and still are societies and cultures where alienation from and the commodification of nature did not take place to the same extent.

In the Western world, during the 1800s and 1900s, environmental awareness gradually became institutionalised as **conservation**. While nature reserves had been declared as early as 1569 (in Switzerland), the US Congress made Yellowstone the world's first national park in 1872; Canada and European countries followed over the next decades (Holdgate, 2010). International institutions focusing on conservation started to emerge in the 20th century, alongside the birth of the multilateral system. For example, the International Union for Conservation of Nature was established in 1948 and the World Wildlife Fund was founded in 1961. With the Stockholm Declaration in 1972 (UN, 1973), the United Nations Environment Programme (UNEP) was established.

Conservation was the first institutional response to the alteration and destruction of nature caused by human expansion. Conservation is still a cornerstone of environmental governance, but its strong point is also its limitation: it considers the issue from the perspective of human, anthropocentric interest rather than the bio- or ecocentric concern for conserving 'pure' nature. Thus, if human health, survival or well-being are perceived to be at stake, conservation policies tend to be difficult to justify politically. At the same time, the history of conservation is filled with cases of human rights violations, with forced evictions and displacement of indigenous peoples and local communities in the name of marine and terrestrial conservation being reported worldwide (Tauli-Corpuz et al., 2018).

The Brundtland Commission and its report Our common future (UN, 1987) reconsidered the issue of environmental protection by emphasising the instrumental value of nature to humans. According to this report, nature is part of the global commons, as a result of the resources that it provides to us. For instance, rain forests should be protected because they absorb CO_2 emissions and are repositories of undiscovered medicines. The Brundtland report and the subsequent Earth Summit and Rio Declaration (UN, 1992a) marked a turning point for institutional mindsets in the Anthropocene. The dominant thinking changed from protecting nature against humans, as it were, to protecting nature to promote human development. This change made it politically possible to develop more ambitious international policies with respect to biodiversity (such as the Aichi Targets of the Convention on Biological Diversity) and sustainable development in general (notably the UN Millennium Development Goals and later the Sustainable Development Goals). This way of thinking has recently been challenged by the IPBES, which argues that, to address the biodiversity crisis and achieve Sustainable Development Goals, policymaking needs to emphasise the wide range of nature's values that go beyond market values (IPBES, 2022a; 2022b).

Since 1973, eight Environment Action Programmes (EAPs), setting out multiannual goals and an extensive body of environmental laws (or acquis), have been adopted by the EU. Conservation and restoration are currently the subject of renewed attention in EU policy. For instance, the EU

Biodiversity strategy states that ‘at least €20 billion a year should be unlocked for spending on nature’ (EC, 2020, p. 17), and that positive results are expected if that target can be reached. Likewise, the legal requirement for large-scale nature restoration set by the new EU Nature Restoration Law could lead to important, positive results. While these developments are encouraging, the situation is very serious and challenging: Europe is currently nowhere near its own goals for protecting, conserving, restoring and maintaining nature, despite its advanced legislation on the matter (EEA, 2019).

Both policy initiatives mentioned above justify protection and restoration by highlighting the variety of services that ecosystems and other species have to offer. However, they do not mention any intrinsic value of nature. Likewise, the European Green Deal considers nature as a form of capital — the aim being ‘to protect, conserve and enhance the EU’s natural capital’ — while acknowledging that natural capital goes beyond economic resources and extends to ecosystem services related to health and safety. The EU’s 8th EAP acknowledges the need for systemic change towards a well-being economy where growth is regenerative (EU, 2022). However, it still defines the objective of such change in terms of securing nature as a ‘healthy resource base’ from which to draw nature-based solutions.

The main limitation of ‘protecting nature to promote human development’ is that it runs into the problem of weak sustainability[1] (Cabeza Gutés, 1996). In other words, nature is seen as a form of capital that can be substituted by and traded for other forms of capital. In this way, the transformation into sustainability is delegated to the market, with economic logic as the main rationale for environmental policy. For example, if drug discoveries in biotechnology laboratories were to render conventional bioprospecting obsolete, then, according to this logic, the value of the rain forest would decrease, as there would be less need for its medicinal resources. It also means that the ‘unproductive’ part of nature that does not provide goods and services for human benefit is not considered ‘capital’, falling into the category of ‘superfluous biodiversity’, which is likely to remain unprotected (Spangenberg and Settele, 2016).

The pitfalls of this approach are very visible in the example of the ‘inclusive wealth index’[2] (UNEP, 2018). Despite the unprecedented and continued loss of natural capital per capita between 1992 and 2014, the aggregate value for inclusive wealth per capita still signals a positive trend in the same period. This indicates a severe flaw in the methodology, pointing at weak sustainability, which is now increasingly acknowledged (UNDP, 2020).

This debate is far from new yet is very central. The Convention on Biological Diversity (UN, 1992b) has already tried to deal with the limitations of weak sustainability by referring both to the inherent value of other species and to their value to humans. It did so in its first article by explicitly listing values that can be social and cultural but not necessarily economic. Yet when environmental goals and actions are justified in terms of human benefits, they become inscribed in a utilitarian logic and so can be easily set aside if higher benefits could be gained through the direct exploitation of natural resources. Furthermore, such valuation is mainly targeted towards offsetting the ‘symptoms’, rather than acting on the root causes of biodiversity and ecosystem degradation and loss themselves.

The UN General Assembly passed a resolution on 28 July 2022, recognising a clean, healthy and

sustainable environment as a human right. While not legally binding, such a resolution can serve as catalyst for action. Similarly, there is an ongoing discussion within the EU on corporate liability for environmental damage, the concept of ecocide[3] and its recognition in EU law (see Procedure 2020/2027(INI)).

Going even further, critical voices have called for more development of institutional responses to environmental and ecological challenges. Some argue for legislation that endows other non-human life forms with rights, and even an EU charter of fundamental rights of nature (EESC, 2019). The Global Alliance for the Rights of Nature[4] comprises hundreds of organisations across the world that argue for the legal rights of nature and corresponding legal duties for human societies. These movements are rooted in ideas of strong sustainability[5] and deep ecology, namely in the belief that nature, ecosystems and non-human and human species and individuals have irreplaceable and intrinsic values.

Inscribing inviolable rights of nature into law might be a promising strategy for enabling protection and conservation. Still, a mere declaration of such rights is not enough unless it is matched by a concomitant change in political values and practical means of enforcement. Policies in modern societies are made by and for humans, and non-anthropocentric justifications are vulnerable in our political culture (Latour, 1998). This fact reflects deeper cultural layers that understand nature as being in opposition to humans, layers that arguably characterise the Western world. As long as the relationship between humans and nature is considered a matter of ‘us and them’, we will remain locked into the ‘Great Acceleration’.

It is not ‘us and them’

The very idea of the Anthropocene has triggered several discourses about the epoch itself, and on the need to exit it and how (Heikkurinen et al., 2019). Exiting the Anthropocene by rethinking our relationship with nature, as suggested by Albrecht (2015), is arguably an appealing proposal for those concerned with climate change, ecological degradation and, ultimately, societal collapse. However, this may not resonate universally, as some have benefited far too much from the Anthropocene and the Great Acceleration, while others far too little.

From the perspective of environmental sustainability, the need for deep transformation is widely recognised. The United Nations Environment Programme (UNEP, 2021) highlights the need to transform humankind’s relationship with nature. In Europe, **systemic change** is now advocated for by the 8th EAP (EU, 2022).

> Only a system-wide transformation will achieve well-being for all within the Earth's capacity to support life, provide resources and absorb waste. This transformation will involve a fundamental change in the technological, economic and social organization of society, including world views, norms, values and governance (UNEP, 2021, p. 15).

Developments in science and philosophy can give inspiration for further institutional and political change. Conservation and weak and strong sustainability can all be seen as initial steps on the way out of the Anthropocene but still reflect its mindset: a dualist thinking that sets a sharp boundary between 'us' humans and 'them' non-humans. However, the limitations of this mindset are evident. Can 'we', humans, really consider ourselves independent from the 'non-humans'? Scientists and scholars have described the many ways in which humans, other species and the ecosystems are interdependent (Meynen, 2021; Oliver, 2020). From biological and psychological perspectives, individuality is an illusion (Oliver, 2020). While specificity and unicity matter, it is of outmost importance to acknowledge that we are **interconnected**. This begins with the human body, which is already a supraorganism in which thousands of species of symbionts (bacteria, archaea and fungi) play a role in maintaining human health (e.g. Morais et al., 2021).

Scaling up, all living organisms and their ecosystems are profoundly interconnected and interdependent in terms of matter and energy, for example, at the most basic level, through the nutrient cycles of the biosphere. Human health, other species' health and planetary health are intertwined (Meynen, 2021), an insight captured by the 'one health' concept (WHO, 2023). The biologists Lynn Margulis and James Lovelock even suggested that planet Earth could be viewed as a supra-organism in their Gaia hypothesis. While this hypothesis remains scientifically controversial, it has directed attention to the many finely regulated cycles and networks of the biosphere, and how human survival depends on ecosystem health.

Philosophy may help us overcome the distinction between 'us' and 'them' and thereby provide compelling reasons to protect nature and its biodiversity. Oriental philosophical schools and religions have long traditions of going beyond dualities such as 'us and them', and the line can be drawn from the contemporary Chinese concept of 'ecological civilisation' and all the way back to Daoist classics written more than 2,000 years ago (Doyle, 2021). Among more recent ideas, we find the vision of exiting the Anthropocene and entering the Symbiocene (Albrecht, 2015), an age in which humans base action on the understanding that we have symbiotic relationships with other species and the entire biosphere. Our current social and economic systems have so far prospered because they have established strong and stable patterns of exploiting other species and fellow human beings. However, the other species exploited are our symbionts. When harming others and the environment, we may ultimately harm ourselves (Table 1).

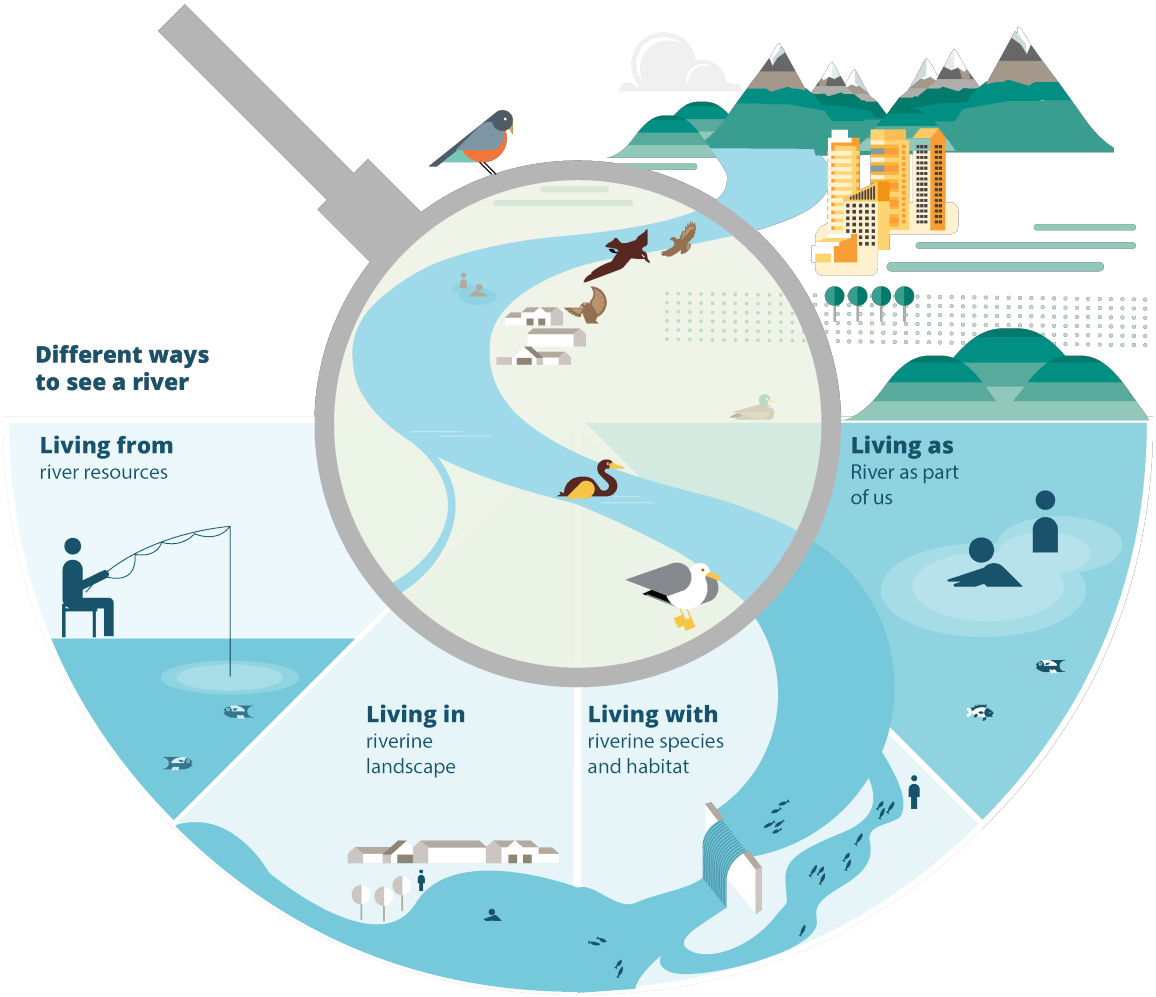
Table 1. Concepts that can help us to rethink the relationship between humans and nature

Concept	Content
Deep ecology (Næss, 1973)	A philosophy based on the view that all living beings have intrinsic value, regardless of their utility to humans.
Strong sustainability (Turner, 1993)	A concept in environmental economics/ecological economics that denotes that some natural resources or services are critical and cannot be substituted, duplicated or replaced. Instead, they have to be protected regardless of apparent economic opportunity cost.
Symbiocene (Albrecht, 2015)	A vision of a future world where humans realise that we are in symbiosis with all other species and the entire biosphere. When we harm others, we indirectly harm ourselves.
Chthulucene/tentacular thinking (Haraway, 2016)	A vision of a future world where thought and action are always defined by the questions: 'With whom am I interacting now?' and 'For whom am I responsible now?'.
Rights of nature (EESC, 2019)	An initiative for the legal recognition of rights to be held by non-human living beings and other parts of nature.
Interconnectedness (Oliver, 2020)	A sustainability science concept to denote that human (and other) individuals are connected to other beings in a myriad of ways. The idea of the atomistic, autonomous self is an illusion.

A similar vision is exiting the Anthropocene and entering the **Chthulucene**, the age of **tentacular thinking**. Humans do not live or act in isolation but through interactions and relationships or 'tentacles', metaphorically speaking. Donna Haraway's idea of the Chthulucene is an age in which thought and action are always defined by questions of with whom we are interacting and whom we are responsible for (Haraway, 2016). In the Chthulucene, humans realise that there is only one option for human survival, namely to 'stay with the trouble', as Haraway puts it, of taking responsibility for our interactions and working for multispecies flourishment.

Such philosophical ideas resonate well with the recent 'values assessment' published by the IPBES (2022a; 2022b). The assessment builds on the concept of 'nature's gifts' and acknowledges the existence of multiple and legitimate values and nature valuation practices. Specifically, the assessment notes that both people and societies have a number of different ways of framing human-nature relationships. Using the example of a river, the assessment highlights that people can perceive themselves as living from nature (i.e. where the river is valued for the natural resources and ecosystem services it provides); living in the landscape formed by the river and living with the other species that inhabit the riverine landscape; or as living as nature (i.e. where the river is perceived as sacred and a part of themselves).

Figure 2. Multiple frames for the 'river'

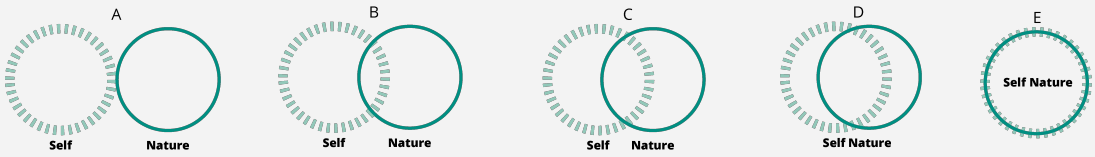


Source: Modified from IPBES (2022b).

Box 1. How connected to nature are you?

In his book The self delusion: the surprising science of how we are connected and why that matters (2020), Tom Oliver presents scientific evidence to show that the idea of an atomistic, autonomous human self is a highly simplified mental construct. Still, as individuals, we may differ in how we perceive our connectedness with nature. The figure below can serve as a point of departure for a conversation about how we position our individual selves vis-à-vis nature (Liefländer et al., 2013).

Figure 3. Which best describes your relationship with nature?



Source: Modified from Oliver et al. (2020) and Liefländer et al. (2013).

The philosopher Arne Næss — one of the founders of deep ecology — was highly influenced by the Indian principle of ahimsa, non-violence. Næss postulated that the development of a mature personality depends on being able to identify with others — first one's family, then other humans, but also animals and other living beings (Næss, 1995). This is what Næss called one's ecological self, not to be confused with the narrow **ego**. If this is so, the 'living as nature' 'life frame'[6] highlighted by IPBES, of oneness and identification, is a necessary ingredient in the development of what Næss called the ecological self and a mature personality. From this perspective, the opposition between self-interest and caring for others is misleading. Furthermore, caring for others may be beneficial for oneself because we are all interdependent. Self-interest, in this view, **includes** care for others.

Overcoming anthropocentrism would then not be a matter of embracing its antithesis. Rather, it would amount to caring for and protecting the symbiotic relationships of the supraorganisms on every

scale up to the planet itself. In Næss's words: 'Through identification they may come to see their own interest served by conservation, through genuine self-love, love of a widened and deepened self' (Næss, 1995). Empirical studies support this claim by showing a correlation between a sense of connectedness and pro-environmental/pro-social behaviours (Van der Linden, 2015, Mackay and Schmitt, 2019; Alcock et al., 2020; Richardson et al., 2020; Whitburn et al., 2020; Daryanto and Song, 2021).

Towards systemic change?

Regardless of its scientific status, the Anthropocene differs from previous geological epochs in that the strongest change agent (the human species) also has the capacity for self-awareness and conscious change.

It may not be possible or desirable to exit the Anthropocene deliberately, as there is no way back to humankind not being the ultimate force of change on the planet. There are no shortcuts out of the current climate and biodiversity crises and we must find dignified pathways within them. At the same time, there is no lack of knowledge about possible paths to 'bend the Great Acceleration trends' and make us live well within planetary boundaries (see for instance Dixson-Declève et al., 2022).

We are not by necessity destined to a Malthusian catastrophe[7] of growth and collapse. However, change is required in many areas, including to address issues like overconsumption, inequality, power asymmetries, vested interests and short-termism. Acknowledging and questioning the mindsets and paradigms that underpin our societies, economies and institutions is necessary. In the context of biodiversity, the global crisis is tightly linked to the way nature is valued in policymaking, which, unfortunately, has predominantly 'prioritised a narrow set of values at the expense of both nature and society' despite the diversity of nature's values (IPBES, 2022a).

The European Green Deal, along with the EU's commitment to the UN's 2030 Agenda and its Sustainable Development Goals, demonstrates an appreciation of the systemic nature of sustainability challenges, and generates unprecedent ambition and policy effort. However, the European Green Deal's full potential has yet to be realised.

Cultural, political and economic systems are co-produced and essentially engrained in societal mental models and paradigms. This is why change has to 'scale deep' (Riddell and Moore, 2015) and why deep innovation and deep societal involvement[8] Rommetveit et al., 2013) are called for in sustainability transitions and transformations (EEA, 2021a). While paradigmatic shifts are one of the strongest levers for system change, they are also the most resisted and difficult to achieve (Meadows, 2008).

This briefing explores the idea that a fundamental tenet of the systems to be changed is considering nature as 'them' and separate from and opposed to 'us' humans. This mindset makes it possible to

externalise, exploit and commodify nature to the extent that we destroy it. While policies like the 8th EAP call for systemic change, they have so far not challenged this tenet.

To the extent that systemic challenges and systemic change are governable, they call for all powers of governance to play a role — including government, markets and civil society, and their mutual interactions.

> Achieving the SDGs and progressing towards just and sustainable futures requires a shift in decision making to better recognise the values of nature, both at the level of institutions and individuals (IPBES, 2022b).

At the level of civil society, there are many societies and cultures where the commodification of nature did not take place to the same extent and where other life forms and elements of the biosphere have a different and higher status. Importantly, some citizens of modern, industrialised societies relate to nature in terms of belonging, kinship, stewardship and respect and can be a source of inspiration. For instance, the buen vivir movement, rooted in Latin American indigenous organisations, explores alternative models of development for a life with dignity and social and natural responsibility, without massive consumption and capital accumulation (Acosta and Abarca, 2018). Lifestyles such as 'simple living' (Pierce, 2000) and ideas of sufficiency or 'enoughness' (Hickel, 2017; Jungell-Michelsson and Heikkurinen, 2022) imagine human progress without economic growth (EEA, 2021b). At the same time, the practical implementation of such ideas often faces barriers. For example, the implementation of the rights of nature may become problematic even if enshrined in laws (e.g. in Bolivia) and constitutions (e.g. in Ecuador), as institutions and courts might be slow in reflecting such developments in their practices (Kauffman and Martin, 2017).

In modern capitalist societies, at the interface between civil society and the market, there is the particular construct of citizens as **consumers**, absolving a fundamental function in the treadmill of production underpinning economic growth (Gould et al., 2015; Dewandre and Gulyás, 2018). Consumption levels, patterns and lifestyles underpinned by affluent societies and individuals are also acknowledged to be among the main drivers of environmental pressures. Change in this respect is likely to be necessary too (see for example Akenji et al., 2021). Within the movements mentioned, non-consumerist lifestyles develop and flourish (see also EEA, 2021b). Still, they are a small minority. There is little point in trying to enforce policies grounded in other life frames if materialism and massive consumption still dominate hegemonic discourses and cultural norms.

In terms of governance, the challenges call for accepting a wider range of justifications for protecting nature, beyond anthropocentric utilitarian arguments. In the words of the IPBES, the excessive reliance on the life frame of living **from** nature has been the main culprit behind the massive degradation of ecosystems and biodiversity loss (IPBES, 2022a). This needs to change. There must be a better balance with other frames, such as living **in**, **with** and **as** nature, in assessing and

evaluating actions and in driving policies. Accordingly, there are even proposals of a charter for the fundamental legal rights of nature. Governance systems and policy instruments have a fundamental role to play. According to IPBES (Kelemen et al., 2022), governance systems and policy instruments can contribute to creating enabling conditions for systemic change by:

- diversifying the range of values and worldviews represented in decision making;
- establishing inclusive knowledge co-production initiatives with broader and more diverse engagement;
- institutionalising nature's values across decision-making scales;
- acknowledging the need for various levels of societal change.

Several policy instruments can support such change (see Kelemen et al., 2022). It seems unlikely, though, that such shifts in governance can be achieved by top-down approaches and independently from a cultural shift in policymaking. Policies may have to move into the unchartered space of discussing behaviours, lifestyles and systems of values. Governance itself has to become not only wise (Oliver et al., 2021) but truly participatory, symbiotic and tentacular. Our societies would need to be governed in a way that aligns with the needs and concerns of those who are currently 'left behind', humans and non-humans, and respects the Earth's carrying capacity. To realise the full ambitions of the European Green Deal and the vision of the 8th EAP, a change from considering 'us and them' to 'all of us' is essential. This change would create new motivations to protect biodiversity based on an expanded sense of responsibility.

Perhaps the key question is this: can we imagine a world in which social and economic practices are in symbiosis with nature — rather than just means to human ends?

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Notes

[1] Weak sustainability assumes that 'manufactured capital' can substitute 'natural capital'.

[2] The inclusive wealth index aggregates human capital, produced capital and natural capital, with the aim of monitoring progress.

[3] In June 2021, an international expert panel proposed adding ecocide as a new crime under international criminal law and defined it as ‘unlawful or wanton acts committed with knowledge that there is a substantial likelihood of severe and either widespread or long-term damage to the environment being caused by those acts’ (Stop Ecocide Foundation, 2021).

[4] https://www.garn.org/

[5] In contrast to weak sustainability, strong sustainability assumes that ‘human capital’ and ‘natural capital’ are complementary, but not interchangeable.

[6] Life frames of nature’s values are frames that illustrate the in which people conceptualise how nature matters. Life frames mediate between ways of being/living and the prioritization of different sets of broad and specific values (IPBES, 2023).

[7] A Malthusian catastrophe is an event that occurs when population growth outpaces agricultural production, causing famine or war, resulting in poverty and depopulation (Desrochers and Hoffbauers, 2009).

[8] Deep societal involvement indicates the need for engaging with members of society in the development of new ideas and new solutions, not just as passively receiving consumers but as citizens who participate, and through their involvement build new forms of agency. Deep involvement would mean that citizens and governments meet grand challenges through what they do and not only through what they buy (see Rommetveit et al., 2013).

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