

Boxes by scholars in ‘What can I do to help heal the environmental crisis?’

Box 1.1: In-the-blink-of-an eye we save humanity from itself, Dominick A. DellaSala

Don't it always seem to go
That you don't know what you've got
'Till it's gone

Joni Mitchell, *Big Yellow Taxi* (1970)

I was just 14 when *Big Yellow Taxi* struck an emotional chord in me. Nearly a half century later, these words matter more to our own survival than any time in human history. This May, carbon emissions hit an all-time high as temperature gauges near the Arctic Circle in northwest Russia recorded the unthinkable: 87° F when it's supposed to be in the 50s! Perhaps, even worse, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services released findings that 1 million species will soon go the way of the dodo, as humanity draws down more of its share of the planet's life-giving systems. This is a crisis of immense proportions and most of humanity really won't know what we got till it's gone.

Every single species on this planet is a freak of the Universe. We were born out of a cosmic explosion billions of years ago triggering swirling star-dust clouds and cosmic debris that eventually coalesced into this amazing and highly improbable (unique) blue-ball-of life.

With blatant disregard for the great Mystery in all this, we face an ultimatum.

Last year, the Alliance of World Scientists issued its second warning to humanity that we were on an unprecedented collision course with Nature. The Intergovernmental Panel on Climate Change issued its latest findings that we have just 12 years to drastically cut emissions or we will enter the never-been-seen before world of climate chaos. So, for argument's sake, and to be on the safer side, let's start the countdown at 10 years before the climate is baked in. That's a blink-of-an eye in a lifetime.

In crisis, there is always opportunity to heal, to rise up, to become a better person, to choose a different future, to be a better planet. We've all been there but it's time now for our species to rise up. To meet the challenge, I'm proposing a 'blink-of-an eye' campaign to save humanity from itself. A moonshot-scale about face to keep dinosaur carbon in the ground by breaking our addiction to fossil fuels, and to keep atmospheric carbon in forests and other carbon-dense ecosystems by protecting them from insatiable developers.

And we need to combine ecological with social justice movements. The 'Green New Deal', The 'Global Deal for Nature', 'Nature Needs Half', 'Half Earth' have each set ambitious targets. '#MeToo', 'Black Lives Matter', Indigenous Rights, LGBTQ and other social change movements show the next generation that we at least gave it our best shot.

Such bold action on climate is being led by the youth – 'Our Children's Trust' and Greta Thunberg - along with elders like the International Council of Thirteen Grandmothers and the Man Kind Project seeking to heal interpersonal and planetary wounds.

Carl Sagan prophetically wrote in *Contact*, ‘You're an interesting species. An interesting mix. You're **capable of such** beautiful dreams, and such horrible nightmares’. As a scientist and a loving parent, those words ring truer to me today than in 1970. I’m doing my part to make sure the beautiful dreams prevail over the horrible nightmares because it can all be gone in the-blink-of-an eye.

For more information:

<http://scientistswarning.forestry.oregonstate.edu/>; <https://www.ipbes.net/news/Media-Release-Global-Assessment>; <https://www.forestlegacies.org/>; <https://www.congress.gov/116/bills/hres109/BILLS-116hres109ih.pdf>; <https://www.leonardodicaprio.org/the-global-deal-for-nature/>; <https://www.half-earthproject.org/>;

Box 1.2: Sustainability needs equality, Richard Wilkinson and Kate Pickett

The climate breakdown caused by the current 1 degree C of global warming is already causing hundreds of thousands of deaths each year. With world carbon emissions continuing to rise, climate scientists fear we are heading for 4 or perhaps 5 degrees of warming by the time the present cohort of infants reach old age. And no one knows how far we are from much more widespread disaster, perhaps including runaway global warming and social and economic collapse.

To avoid inflicting appalling difficulties on the later lives of the children with us now, there are three components of a solution that we must pursue. First, we do of course need massive technical change – to renewable sources of power, to minimise the use of plastics, to abandon petrol and diesel vehicles, to making goods which can be repaired and recycled, etc. Second, we need taxes and subsidies to alter market choices and encourage people to eat much less meat, to use public transport, to replace flying with conferencing on-line, and so on. But third, the transformation to sustainability must be supported by institutional change.

We have been led into this crisis by structures which make almost everyone want to maximise their income and consumption and every business want to maximise their sales and profits. There could hardly be a worse place from which to start the transition to sustainability. The desire to maximise income and consumption leads almost inevitably to widespread popular opposition to environmental taxes. The Gilets Jaunes protests in France were an example. They started as a protest against a planned tax increase on motor vehicle fuel intended to reduce carbon emissions, but the protests were so strong and so extensive that the government of President Macron bowed to public pressure and withdrew them. For their part, corporations wanting to maximise profit will continue to attack climate science wherever it threatens their interests and will endlessly try to avoid making the changes which sustainability requires.

Unless we overcome these extraordinarily powerful and damaging forces we will fail to save the planet and ourselves. But there are powerful policy levers at our disposal. We have shown in our two most recent books [‘The Spirit Level’ (2009) and ‘The Inner Level’ (2019)] that reducing income differences between rich and poor substantially reduces consumerism. By making class and status less important it reduces the importance of money as the means of expressing self-worth. People in more equal societies are less likely to spend money on status goods. Less out for themselves, they are less likely to get into debt or to work longer hours. Community life strengthens and, as a result, people become more willing to act for the common good.

One of the best ways of reducing income differences and embedding greater equality into society is to increase economic democracy. We should legislate for substantial employee representation on company boards and incentivise the development of employee owned businesses and employee cooperatives. More democratic business models have many advantages: they reduce employee income differences, increase productivity and are more public spirited.

For more information:

<https://www.equalitytrust.org.uk/>

Wilkinson, R. and Pickett, K. (2010) *The Spirit Level: Why Equality is Better for Everyone*, London: Penguin;

Wilkinson R. and Pickett, K. (2019) *The Inner Level: How More Equal Societies Reduce Stress, Restore Sanity and Improve Everyone's Well-being*, London: Penguin.

Box 1.3: The Steady State Economy: The sustainable alternative to growth, Brian Czech

Economic growth is an increase in the production and consumption of goods and services in the aggregate. It entails increasing population times per capita consumption, higher throughput of materials and energy, and a growing ecological footprint. Economic growth is indicated by increasing gross domestic product (GDP)

Economic growth is distinguished from ‘economic development’, which refers to qualitative change independent of quantitative growth. For example, economic development may refer to the attainment of a more equitable distribution of wealth, or a sectoral readjustment reflecting the evolution of consumer preference or newer technology.

The size of an economy may undergo one of two trends: growth or recession. Otherwise it is stable, in which case it is a ‘steady state economy’. Theoretically and temporarily, a steady state economy may have a growing population with declining per capita consumption, or vice versa, but neither of these scenarios are sustainable in the long run. Therefore, ‘steady state economy’ connotes constant populations of people (and, therefore, ‘stocks’ of labor) and constant stocks of capital. It also has a constant rate of throughput; i.e. energy and materials used to produce goods and services.

Within a given technological framework these constant stocks will yield constant flows of goods and services. Technological progress may yield a more efficient ‘digestion’ of throughput, resulting in the production of more (or more highly valued) goods and services. However, there are limits to productive efficiency imposed by the laws of thermodynamics and therefore limits to the amount and value of goods and services that may be produced in a given ecosystem. In other words, there is a maximum size at which a steady state economy may exist. Conflicts with ecological integrity and environmental protection occur long before a steady state economy is maximized.

‘Constancy’ of population and capital stocks does not imply absolutely unchanging population and capital stocks at the finest level of measurement. Rather, “constant” implies mildly fluctuating in the short run but exhibiting a stable equilibrium in the long run. Long-run changes reflect evolutionary, geological, or astronomical processes that alter the carrying capacity of the earth for the human economy. Dramatic examples include atmosphere-altering volcanoes and massive meteorite collisions.

Just as economic growth is the predominant macroeconomic policy goal identified or implied by neoclassical economics, the steady state economy is the predominant macroeconomic policy goal identified or implied by ecological economics. To the extent that ecological economics is a normative transdisciplinary endeavor rather than a purely analytical framework, its three main concerns are sustainability, equity, and efficiency, each of which may be served via public policy. Neither economic growth nor economic recession are sustainable; therefore, the steady state economy remains the only sustainable prospect and the appropriate policy goal for the sake of sustainability.

For more information: Support for a steady state economy is gauged at the Center for the Advancement of the Steady State Economy, www.steadystate.org, which currently has 14,000 signatories. You too may choose to sign the position statement?

Box 2.1: Healing exceeding our powers? Holmes Rolston III

We cannot heal the environmental crisis without confronting how we face an unprecedented hinge point in the 45 million centuries of life on Earth. Our so-called wise species, *Homo sapiens*, is jeopardizing the future of this wonderland home planet.

We have to think big – bigger than humans have ever thought before. We have to wonder and wander our way through what might almost be impossible for us. Solving our emergency is not in our genes. We have to act on a larger scale than any of which our ancestors dreamed – saving ourselves as Earthlings on a planet we are pushing toward collapse.

The promise and the peril is the same thing: our enormous powers, multiplied by our genius ten thousand times over what our great grandfathers had – from muscle and blood to nuclear energy. These powers escalate our desires. Our evolutionary past did not give us many genetic controls on our desires for goods that were in short supply. We love sweets and fats, of which in Pleistocene times humans could seldom get enough. But now we grow fat. When we can consume, we love it, amass goods, and over-consume. We have the same desires as our ancestors, but suddenly have acquired vast amounts of power and race to satisfy these desires. ‘The faster a blind horse runs, the sooner it will perish’.

We congratulate ourselves. Humans are endowed with a remarkable mind, by far the most complex thing known, of virtually infinite complexity, capable of semantic and symbolic speech. We generate cumulative transmissible cultures, elaborating high orders of rational and emotional thought in science, philosophy, ethics, and religious faith. Humans alone ask who they are, where they are, and what they ought to do.

Such wonder can escalate the danger. Humans have gained vast powers for transforming their planet through agriculture, industry, and technology. By recent accounts human dominance is so extensive that Earth has entered a new age, the Anthropocene Epoch.

Enthusiasts advocate that humans ought to engineer Earth resourcefully for increasing human benefits, bringing ever-increasing human domination of the landscape. The Anthropocene is ‘humanity’s defining moment’ (American Geosciences Institute). We are ‘the God species’ (Mark Lynas, National Geographic). The technosphere supercedes the biosphere.

Think again. Does this fulfill human destiny or display human arrogance, failing to embrace our home planet in care and wonder? Ought not this sole moral species do something less self-interested than value all the produce of an evolutionary ecosystem only for the benefits they bring? Such an attitude hardly seems biologically informed, much less ethically adequate.

Yes, the future will be unprecedented. We must learn to manage ourselves as much as the planet. True, the future holds advancing technology. But equally: we do not want to live a de-natured life, on a de-natured planet. A good planet is hard to find.

A better hope is for a tapestry of cultural and natural values, not a trajectory further into the

Anthropocene. Keep nature in symbiosis with humans. Our future ought to be the Semi-Anthropocene, kept basically natural and entered full of cares for both humans and nature on this marvelous home planet. Is this beyond our powers?

Box 3.1: The most powerful thing we can do to fight climate change is break climate silence, John Cook

The science is clear on how to avoid the worst impacts of climate change. We (as in all of human society) need to reduce our greenhouse gas emissions to zero in this century. This involves completely transitioning our society from fossil-fuel based energy to renewable energy. What a huge, intimidating, global task! What can we as individuals possibly do to help solve this crisis?

There are many actions we can take to help solve climate change. We can change how we live, reduce our carbon footprint, and live cleaner, more efficient lives. These small actions contribute to reducing the amount of energy consumed. But actions to reduce our personal carbon footprint have a limited impact on driving the much-needed transition to renewable energy. To cause that transition, we need social and political momentum.

Consequently, I would argue that the most impactful action we can do to solve the environmental crisis is to simply open our mouths and talk about climate change. It is an unfortunate statistic that most of the public who are concerned about global warming fail to talk about it with their friends and family. The main reason for this self-silencing is pluralistic ignorance - the misconception that not many people agree with us. The climate-concerned are ignorant of the fact that they're a plurality - most of the public are on board with the science of climate change. But we erroneously think others disagree with us, and thus we fail to bring up the subject. Our silence unfortunately reinforces the misconception that few people care about climate change, adding to a reinforcing spiral of silence.

By talking about the issue with our friends and family, we build awareness and social momentum for climate action. If enough of us explain to our elected officials that we care about the climate change issue and vote accordingly, politicians will get the message that failing to act with meaningful climate policy runs the risk of them losing their job (which is the only thing we know for sure they care about).

We still need to change our personal lives and adopt pro-environmental behavior. Walking the walk makes our talk more powerful. But ultimately, the societal-level transition needed to mitigate climate change will only come if enough people voice their concern about this issue. We can end the spiral of silence by breaking climate silence.

For more information: www.skepticalscience.com

Box 3.2: The False Promise of Green Growth, Peter A. Victor

At a time when the environmental impacts of economic growth are becoming ever more widespread and worrisome, 'green growth' is promoted as the best way forward. Its many proponents contend that green growth offers ever-increasing levels of production and consumption while resource requirements and impacts on the environment are continuously reduced. Green growth has considerable political appeal because it appears to provide a way of avoiding very hard choices between the environment and the economy. Gross domestic production (GDP) can grow forever while resources are conserved, environmental damages decline, ecosystems flourish and all is well.

The concept of 'decoupling' is fundamental to green growth. It means reducing resources and pollutant emissions per unit of GDP fast enough to compensate for the effects of increases in GDP. Just how fast is fast enough depends on the problem at hand. For example, if GDP is to grow at 3 per cent per year for the next 35 years and greenhouse gas (GHG) emissions are to decline by 80 percent, then GHG emissions per unit of GDP will have to decline on average at over 7 per cent a year. This means that in only 35 years, GHGs emitted per dollar of GDP will have to be more than 90 per cent less than they are now. And if annual GDP growth is to be faster than 3 per cent as many would wish, then the rate of reduction in GHGs per unit of GDP will have to be even faster.

The promise of green growth is further undermined by the fact that environmental pollution and resource depletion are best understood, not as excessive flows, but as the accumulation of unwanted stocks and the decumulation of valuable ones. Unwanted stocks that are accumulating include GHGs in the atmosphere, radioactive wastes from nuclear power plants, and plastics deposited in the oceans. Valuable stocks in decline include rain forests, fisheries, and valuable minerals. This means that even if resource and/or environmental flows are decoupled from growth in GDP, decoupling rates that are too slow will increase unwanted stocks and reduce valuable ones with adverse, unpredictable, consequences.

These considerations are far from theoretical. There is plenty of evidence to show that decoupling at a pace anywhere close to what future economic growth will require, if it is to be green, is quite unprecedented. Even with the best will in the world it is hard to see how the extent and rapidity of decoupling that green growth requires will ever materialize.

A critical choice faces us today, especially those with high incomes. We can cling to the false promise of green growth in the hope that technology will see us through, or we can recognise that fundamental changes are needed in the way societies are organized, how economic output is shared, and in how we relate to others and to the rest of nature. We should reject the false promise of green growth and see how life for all can be improved without relying on economic growth.

For further information: Victor P. A. (2019) *Managing without Growth: Slower by Design, not Disaster*, Cheltenham, UK: Edward Elgar Publishing. Also see: www.pvictor.com

Box 4.1: How to Raise a Child to Heal a Wounded World, Erik Assadourian

The choice to have children on a rapidly changing planet is not one to make lightly. But for many people, one of the great joys of life is having a child, regardless of how bad things are going to get. As a sustainability researcher, lead author of *Earth Education: Rethinking Education on a Changing Planet*, and father of one 7 year old son, I have thought long about what one should teach children to be the leaders ready to guide the sustainability transition *and* resilient enough to adapt and survive as the planetary crisis unfolds.

First, having a child is the choice that has the single-most ecological impact of anything you do in your life. Ideally, keeping in mind that we need to reduce human population, and instead we're heading to 9.6 billion, you'll consider having only one. That will help solve the sustainability crisis more than nearly any other action you can take (and you can always adopt a second if you want a larger family). Once you have a child, raise her consciously, especially in the first two formative years of life. Feed her healthy, sustainable food. My wife and I kept our son, Ayhan, away from sweets and screens for his first two years. And since he never had them, he never knew what he was missing. For your own sanity that was worth it (two years free from nagging!), but it's also great for children's physical and mental development, and sets a path for healthier relationships with both of these treats.

At all ages, get your child outside and into nature—this could be a backyard, garden or pocket park if a nature reserve isn't reachable. My son started helping me garden and compost (in our four square meter urban yard) once he started walking, and we continue to garden together today. Ayhan also now spends his Tuesdays in the forest, with a group of other kids and nature mentors, learning ancestral skills and forming a deeper connection to Gaia than I had at that age. Forming that relationship is as essential as having a cerebral understanding of science behind the planetary crisis (which we work on through many hours of nature documentaries, readings, and stories).

Beyond ecological connection and understanding, it is essential that we raise our children to be strong moral leaders. Some countries, like Singapore, integrate moral education directly into school, but most countries don't. Talk about morality, doing good, manners, and responsibilities from an early age. Considering the incredibly difficult moral decisions all of us will be forced to make as things fall apart, building this foundation at a young age is paramount. As well, teach your child essential life skills—languages, how to cook, how to grow food, first aid, martial arts. All of these bring joy and opportunity today, and in the future, as societies simplify and consumer luxuries become scarce—will become even more valuable. Plus, while savings often evaporate in societal collapse, skills remain.

More than anything else, teach your child to be a leader in service to Earth. Use the knowledge, skills, and social emotional learning they have acquired to plant, protest, heal, rebuild, and guide humanity to a more sustainable, healthier, and more secure future. Invite them to find their way to do that from an early age. And reinforce, at all ages, that this service, more than anything else, is what makes a life worth living.

For further information: Worldwatch (2017) *EarthEd: Rethinking Education on a Changing Planet*, Washington: Island Press.

Box 4.2 How to Help Reverse Population Growth, Robert Engelman

You are one of some 7.8 billion human beings alive on the Earth today. That may make you feel small and powerless when thinking about the overwhelming pressure of humans and their activities on the planet. But influencing population size is easier than you think. And it's more than a matter of just being aware that 'everyone counts'. That's not intended as a pun on demographic math. But it is indeed the case that one thing we can all do is learn more about population change and what influences it.

Remember the power of exponential growth. Any child born becomes a potential essential link to literally millions of descendants over many generations. So if you are intentional about your own reproduction, and if you help others avoid pregnancies and births of children not intended, planned for or wanted by their parents, the beneficial demographic implications are unfathomably vast over long periods of time. Research demonstrate that there's really no other behavior in which you can engage with such powerful long-term benefit to the environment and the rest of life on earth.

So, let's start with asking whether you are in the age group where reproduction is possible. If so, be intentional about sex and reproduction. That is, don't go for either without considerable forethought. Incredibly, an estimated two out of five pregnancies are unintended, and the proportion is actually higher in developed countries than in developing ones. That estimate is based on surveys that require women to assert that their current or recent pregnancy was not planned. It's certainly conceivable - again, no pun intended - that the proportions are actually much higher. Either way, make sure that any pregnancy you have or are a partner to happens out of a desire to be a parent to a new human being, or perhaps two or more, for decades to come. This is probably the most important commitment you will make in your own life.

If you are not in the age of reproduction (or for any other reason you have no chance of pregnancy or partnership in one), there is still much you can do to help prevent unwanted pregnancies. Support sexual and reproductive health and rights, including the right to safe abortion. You can educate your own family, friends and other loved ones on the importance of healthy, intentional sexuality and reproduction. You can advocate that government at all levels facilitate removal of all barriers to the use of contraception and access to safe abortion. You can advocate for gender equality and an end to gender-based violence, so that no girl or woman anywhere will marry, have sex, or become pregnant against her will.

You don't have to stop with helping to prevent unintended pregnancy. Support the spread of comprehensive sexuality education and education generally. Nothing else is so powerful in reducing the desire to have large families. If enough of us combine all these steps, human population will soon retreat.

For more information:

Engelman, R. (2011) 'An End to Population Growth: Why Family Planning Is Key to a Sustainable Future', *Solutions Journal* 2 (3): 32-41, see: <https://www.thesolutionsjournal.com/article/an-end-to-population-growth-why-family-planning-is-key-to-a-sustainable-future/>

Engelman, R. (2016) 'Nine population strategies to stop short of 9 billion'. In *A Future Beyond Growth: Towards a Steady State Economy*; H. Washington and P. Twomey, eds. New York: Routledge.

Box 5.1: The Future of Ecological Economics, Joshua Farley

Mainstream economists have defined the economic problem as the allocation of resources in conditions of scarcity: how do we allocate finite economic resources of labor, capital, energy and raw materials to best satisfy the limitless wants and needs of inherently self-interested humans? Their answer is competitive markets that channel self-interest and greed towards the maximization of monetary value. Infinite human ingenuity and the profit motive will drive the innovation of new resources if we exhaust existing ones and of substitutes for the essential ecological functions we destroy in the process. Our insatiability demands endless economic growth. Harm to other species only matters if it reduces human welfare. This mindset has led to unprecedented destruction of global ecosystems and biodiversity as well as dire threats to human civilization and even survival.

Ecological economics arose in response to these challenges. It recognizes that the human system is an integral part of our finite global ecosystem. It is impossible to make something from nothing, do work without energy, or make nothing from something. We use fossil fuels to physically transform raw materials from nature into economic products and waste spewed back into the ecosystem. The raw materials we convert alternatively serve as the structural building blocks of ecosystems: when we remove them and dump our wastes, we degrade the capacity of ecosystems to generate ecological functions essential to the survival of humans and all other species. The economic problem is how to allocate the planet's finite resources between economic activities essential to human welfare and conservation to sustain the non-substitutable ecological functions upon which humans and the rest of nature depend.

The most serious ecological challenges we face are social dilemmas, 'a situation in which members of a group can gain by cooperating, but cooperation is costly, so each individual does better personally by not cooperating, no matter what the others do' (Gintis 2011). Competitive self-interest cannot solve these problems. An economic transition is required. So too is an energy transition, which serves to illustrate our problem. Our current economy is powered by fossil fuels. If I burn a barrel of oil, you cannot. Competition is unavoidable and private property rights ubiquitous. Aside from the existential threats they pose to humanity (!), fossil fuels are a good fit for the market economy. We must transition to alternative energy. No matter how much solar energy one country captures, it has no impact on the amount available to others.

Technologies for capturing solar energy improve through use. There is no need for competition. Private property rights to green technologies incentivize market production, but may price them out of the reach of poorer countries, who will continue to burn coal, making everyone worse off. It is not even possible to create private property rights to a stable climate, healthy ozone layer, or most ecological functions. Collective choice and cooperation are the only solutions. Humans are not inherently self-interested, but rather the most cooperative species to ever evolve (Wilson 2012). The future of ecological economics lies in recognizing that we should not seek competitive solutions to cooperation problems. Cooperation must define economic interactions with other humans as well as our interactions with the rest of nature. In the words of evolutionary biologist D.S. Wilson, 'the benefits of cooperation are like money in the bank earning compound interest' (Wilson et al 2013).

For more information:

<https://www.uvm.edu/gund>

Gintis, H. (2011) 'Gene-culture coevolution and the nature of human sociality'. *Philosophical transactions of the Royal Society of London. Series B, Biological sciences* **366**: 878-888.

Wilson, D.S., Ostrom, E., Cox, M.E. (2013) 'Generalizing the core design principles for the efficacy of groups'. *Journal of Economic Behavior & Organization* **90**, Supplement: S21-S32.

Wilson, E.O. (2012) *The Social Conquest of Earth*. New York: Liveright Publishing Corporation.

Box 5.2: Voluntary simplicity: Reimagining the good life beyond consumer culture, Samuel Alexander

Increasingly it is recognised that human economic activity is breaching planetary boundaries and exceeding sustainable limits to growth. There is no way all 7.7 billion people on Earth could consume resources like we do in the most developed regions of the world, especially when the global population is trending toward 10 billion by mid-century.

Furthermore, technology and free markets alone are not going to produce a sustainable way of life. We've been trying those strategies for decades, and our ecological impacts are only intensifying as efficiency gains in production are reinvested in more growth and more consumption, not reduced impacts. Any resolution to this 'limits to growth' predicament is necessarily going to involve high-impact consumers learning how to live well on far fewer resources. This is not only a deep cultural challenge. We must also create systems and structures that support lifestyles of material sufficiency, not material affluence.

Fortunately there is growing movement (or movements) of people exploring alternatives to consumerism, marching under banners like voluntary simplicity, downshifting, permaculture, and minimalism. These movements can be broadly understood to be made up of people who are resisting high-consumption lifestyles and who are seeking, in various ways, a lower consumption but higher quality of life alternative.

This living strategy typically involves transferring progressively more of one's time and energy away from materialistic sources of satisfaction (e.g. money, assets, possessions, etc.) toward non-materialistic sources of satisfaction (e.g. social relations, community or civic engagement, creative activity, home-based production, self-development, spiritual exploration, relaxation, etc.).

While the practices and values of voluntary simplicity take many forms, prominent simplicity theorist, David Shi (2007), has suggested that some of the primary attributes of the movement include: thoughtful frugality; minimising expenditure on consumer goods and services; a reverence and respect for nature (and its limits); a desire for increased self-sufficiency; a commitment to conscientious rather than conspicuous consumption; a privileging of creativity and contemplation over possessions; an aesthetic preference for minimalism and functionality; and a sense of responsibility for the just uses of the world's resources. In the words commonly attributed to Gandhi: 'Live simply so that others may simply live.'

Shi offers a concise definition of voluntary simplicity as 'enlightened material restraint'. Various and defended by its advocates and practitioners on personal, communitarian, humanitarian, and ecological grounds, the Voluntary Simplicity Movement is based on the assumption that human beings can live meaningful, free, happy, and infinitely diverse lives, while consuming no more than an equitable share of nature. One study suggests that as many as 200 million people around the world are beginning their journey toward a 'simpler way' of life (Alexander and Ussher 2012).

The Voluntary Simplicity Movement (or something like it) will almost certainly need to expand, organise, radicalise and politicise if anything resembling a post-growth or degrowth economy is to emerge through democratic processes. This highlights the political and macroeconomic significance of grassroots activity.

For more information:

Alexander, S. and Ussher, S. (2012) 'The Voluntary Simplicity Movement: A Multi-National Survey Analysis in Theoretical Context'. *Journal of Consumer Culture* **12** (1): 66.

Shi, D. (2007). *The Simple Life: Plain Living and High Thinking in American Culture*. Athens: University of Georgia Press.

Box 6.1: Sustainability paradoxes, Helen Kopnina

Sustainability bottlenecks, paradoxes or myths are found in the broad field of sustainability. Yet, few authors come up with a clear framework for sustainable solutions. The concept of sustainability – the way most of us use it today – emerged in the 1960s in response to concern about environmental degradation and social equity. Yet, sustainability is not always perceived in a progressive context. Sometimes, overwhelmed by the challenges of *unsustainability*, some of us have despaired at the possibility of addressing this – either because we feel individually powerless to change anything, or because of the lack of interest. Others in the community feel that sustainability challenges, such as overpopulation and overconsumption, are grossly exaggerated. And there is a group – to which particularly large corporations and their public relations belong – that have expressed their optimism about their own contribution to sustainability, assuming that no further effort is necessary.

In regard to eco-efficiency, the ‘Cradle to Cradle’ and ‘Circular Economy’ concepts have been suggested. Based on the notion of *industrial metabolisms*, William McDonough and Michael Braungart developed the notion of the Cradle to Cradle (C2C). They ask us to contemplate not just minimizing the damage, the way eco-efficiency does, but eliminating it all together. In this view, eco-efficiency simply serves to ‘slow the process of destruction’ and ‘makes a bad design last longer’. Instead, the C2C framework propagates a simple dictum: Waste equals Food. A cherry tree metaphor exemplifies the example of the C2C principle, with its ‘waste’ (blossoms and berries) either directly consumed by birds, or decomposing into food for soil, with nutrients flowing indefinitely in cycles of birth, decay and rebirth. Understanding these regenerative systems can allow engineers and designers to recognize that all materials can be designed as nutrients that flow through natural (biological) or designed (technological) metabolisms.

One of the contradictions in sustainability involves the desire to: 1) improve human health (resulting in population growth) and material well-being (resulting in increase in consumption); and; 2) to secure the carrying capacity of this planet (which is conditional on halting population and consumption). This is something of a ‘have your cake and eat it’ oxymoronic objective. While many policy-makers and members of civil society are aware of the symptoms of unsustainability, few of them have realized the core challenges of unsustainability. Few sustainability programs have addressed the root causes of poverty, part of which is population growth itself, and the global spread of unsustainable practices. While many have accepted poverty elevation and economic aid to developing countries as normative, few invest in family planning or attempt to halt production of ‘cradle to grave’ products. In order to achieve sustainability aims, public, corporate and government stakeholders need to learn to better understand not only challenges, but also the mechanisms underlying unsustainable practices. Once these challenges and mechanisms are understood, a more positivistic turn toward solutions becomes possible. This would help to heal the environmental crisis.

For more information: <https://www.leidenanthropologyblog.nl/articles/paradoxes-of-sustainability>

Box 7.1: ‘Wisdoms’ to enable change, Stuart B. Hill

There are many ‘wisdoms’ we can adopt to change both ourselves and the world:

- Act on ‘love’ vs ‘fear’.
- Plan and implement ‘small meaningful initiatives that you can guarantee to carry through to completion’ – and enable them to become ‘contagious’ (through publicity and communication) – and progress from such actions to the next meaningful actions.
- Engage with others in understanding, planning and action – we are a social species! – individual action is often subconsciously contaminated by fears and long-held ‘compensatory behaviours’, such as wanting to do things alone, to appear powerful, to compensate for adaptive historical disempowerment.
- Ask of all theory and practice – what is it in the service of? – before supporting or copying it.
- Collaborate across difference to achieve broadly shared goals – don’t end up isolated, alone in a ‘sandbox’.
- To achieve sustainable progressive change, focus (at least first) on enabling and collaborating with the ‘benign’ agendas of others vs. trying to impose on them your own ‘benign’ agendas.
- Focus on enabling the potential of people, society and nature to express itself – so that wellbeing, social justice and sustainability can emerge (in integrated, synergistic ways).
- Outcomes are only as good and sustainable as the people creating and implementing them – so start with the people.
- Celebrate publicly at every opportunity – to enable the good stuff to spread and become ‘contagious’.
- Use the media – let me repeat – use the media! – such ‘political’ communication is key to enabling change.
- Keep working on and implementing – especially with others – your (shared) benign visions (this takes ‘stickability’).
- Work sensitively with time and space, especially from the position of the ‘others’ (ask: who, what, which, where, when, how, why, if and if not?).
- See no ‘enemies’ – recognise such ‘triggers’ as indicators of woundedness, maldesign and mismanagement – everyone is always doing the best they can, given their potential, past experience and the present context – these are the three areas to work with when enabling ‘progressive’ change.
- Don’t get stuck in endless ‘measuring studies’ (‘monitoring our extinction’) – these are often designed to postpone change that is perceived as threatening to existing power privileges and structures.

For more information: See: <http://www.stuartbhill.com/>.

Box 8.1: Earth jurisprudence, Michelle Maloney

The term 'Earth jurisprudence' was coined by deep ecologist and 'geologian' Thomas Berry. In his book 'The Great Work: Our way into the Future', Berry critiques the underpinning governance structures of modern industrial society and proposes that the fundamental human establishments that control human affairs – law and government, economics, education and religion – are all anthropocentric, and have brought us to the ecological crisis we face today.

Berry calls for a new jurisprudence (philosophy of law), one that puts the community of life at the centre – as a foundation for human governance and an inspiration and guide for human activities.

Earth jurisprudence calls on us to situate ourselves within the interconnected community of life, rather than as separate from it. Recognition of human interconnectedness with nature is a prerequisite for ecological sustainability and should be recognised as the foundation of our legal system. Historically, the environmental conditions of civilizations have been altered by geographical, cultural and socio-economic changes. However, contemporary industrial civilisation has altered its environment to such a degree that its own existence has been placed in jeopardy.

The current legal system is human-centred and has been shaped to promote infinite economic growth and industrial development. This orientation effectively treats the environment as a resource that belongs to human beings and can be exploited for human benefit. Environmental law and other regulatory measures play an important role in curbing the excesses of this system. However, the current rate of environmental destruction demands a new approach to environmental protection.

To this end, Earth Jurisprudence seeks to catalyse a shift in law from human-centeredness to a recognition of our interconnectedness with nature. It promotes a number of key principles including: the intrinsic right of nature to exist and flourish, the need to create governance structures that enable human societies to fit within our ecological limits and the benefits of engaging with culturally diverse governance structures, including indigenous knowledge systems.

Earth Jurisprudence engages with a broad subject matter that includes (but is not limited to) legal theory, environmental law, economics, indigenous epistemologies, cosmology, science, religion and environmental philosophy. Innovative and creative work needs to occur in each of these areas if we are build a truly sustainable and mutually enhancing future society.

Today, 'Earth Laws' are emerging as a new constellation of ideas and principles, embedded in Earth jurisprudence and with specific expression in concepts such as: Rights of Nature, Ecocide and Governance for living within our ecological limits.

The Australian Earth Laws Alliance invites everyone to engage with a positive vision for the future of human governance and to play our part in transforming our relationship with the non-human world.

For further information: See: <https://www.earthlaws.org.au/> and <https://therightsofnature.org/>

Box 9.1: Earth spirituality, David Tacey

Many recognise that the world's major problems have spiritual elements that are not adequately acknowledged, partly because we don't know how to conduct public debate at that kind of level. The ecological problem is at bottom a spiritual problem, an issue about our lack of feeling for, and identification with, the world as part of our larger spiritual being. Here indigenous people are our guides, because they see the spiritual as integral to the whole of reality, and those of us who are non-indigenous are slowly being encouraged to do the same. To take indigenous wisdom seriously means overcoming some of our entrenched prejudices, including the Cartesian dualism that has been fundamental to how we view ourselves and the world.

The ecological emergency is forcing us to realise the detrimental effect of the dualism between humanity and nature that we have taken for granted. Instead of being part of nature we have seen ourselves as apart from it, lords or masters of creation. The objectification of nature, which has paralleled in some ways the objectification of women in patriarchal society, has brought a breakdown in the order of things. We have become all too familiar with the components of this breakdown: pollution, depletion of the ozone layer, loss of biodiversity, climate change and an increase in extreme weather events. Something is not right, and many of us feel this in our bones, even if we are unable to express it in holistic terms.

Even people without much romantic feeling for nature are saying things like: 'Gaia is angry'. There are disruptions going on in the natural world that are unprecedented, and part of our response to the disorder is to think of nature as a unified whole, and resort to phrases such as the 'anger of Gaia' to account for it. This is a good thing that has arisen from the crisis: we are starting to think in holistic terms about nature and the crisis is reawakening in us the ancient mythological bond with the world. This bond has been lost, and although it is too early to talk about a spiritual renaissance, I believe the ecological emergency will force us in this direction.

I am in favour of green politics and environmental activism, and offer my support whenever I can. But they do not go far enough, and many in the environmental movement are aware of this. There is something missing, which we are too embarrassed to admit, because we are supposed to be postmodern and beyond this ancient mystery called 'spirituality'. We need a cosmology, a spiritual vision, to back up and support our green politics and laws. Secular dictates and policies are not enough to bring about the transformation that is required. Something has to be activated in the soul which is beyond the ego, with its habit of caring for itself. The encapsulated condition has to be overcome, so that we can respond to a universal extension of spirit into the world.

For more information: Tacey, D. (2004) *The Spirituality Revolution: The Emergence of Contemporary Spirituality*, East Sussex, UK: Brunner-Routledge.

Box 10.1: Think globally, act locally: The mantra for a sustainable path, Colin Soskolne

The title of this box provides one answer to the question raised by this book. As a mantra, “Think globally, act locally” urges people to consider the health of the entire planet and to take action in their own communities and cities to mitigate harmful global changes that are rendering life-supporting ecosystems unsustainable. Long before governments began enforcing environmental laws, individuals were coming together to protect habitats and the organisms that live within them. These efforts are referred to as grassroots efforts. They occur on a local level and are primarily run by volunteers and helpers. While this mantra originally began at the grassroots level, it is now a global concept of great importance. It is not only volunteers who take the environment into consideration; it is corporations, government officials, the education system, and local communities.

Unless we embrace these approaches and transition into more local futures, ever-widening disparities will continue to create increasing social dis-ease, leading to a greater burden of preventable morbidity and premature mortality. Current trajectories under the *status quo* of business-as-usual favor the rich becoming richer and the poor relatively poorer, with both categories growing in number. Too small a number of middle-class in a community is, if history bears repeating, a formula destined to lead to a major conflagration. Would it not be wise to work toward reducing this widening gulf and thus prevent a conflagration? Preventing harm is, after all, the mission of public health.

Radical action against the *status quo* is identified by Chris Hedges as our obligation in his 2015 book *Wages of Rebellion: The Moral Imperative of Revolt*. Hedges' message is clear: popular uprisings in the United States and around the world are inevitable in the face of environmental destruction and wealth polarization. Under his view of “environmental destruction”, we include global trends to ever worsening eco-toxicity, population growth, and, in particular, to climate change and global heating.

Unless we begin to value life in all of its forms as embodied in *The Earth Charter* — an ethical framework anchored in global values for building a just, sustainable, and peaceful global society in the 21st century, our destiny is one of grave disruptions to life as we know it and, likely, to more extensive extinctions, including that of the human species. *The Earth Charter* seeks to inspire in all people a new sense of global interdependence and shared responsibility for the well-being of the whole human family, the greater community of life, and future generations. It is a vision of hope and a call to action. It is a 4-page document that provides, in some 59 languages, a clear path forward. It provides the foundational values and ethical framework to help humanity transition to a sustainable path, individually and collectively.

For further information:

<https://www.globalresearch.ca/the-localization-movement-creating-a-viable-local-economy-challenging-the-new-world-order/5371155>

https://www.localfutures.org/?link_id=36&can_id=f84d543de871068b92097cb2b3bf68eb&source=email-prevent-climate-chaos-stop-insane-trade-now&email_referrer=email_515283&email_subject=prevent-climate-chaos-stop-insane-trade-now

<http://earthcharter.org/virtual-library2/the-earth-charter-text/>

Box 11.1: Nature Needs Half – Vision and Practice; Science and Ethic, Vance Martin

Nature Needs Half (NNH) is both an aspirational vision and a common-sense, practical approach to living on an increasingly crowded planet. It is a real ‘infrastructure’ programme to protect and respect the wild nature supports all life. Its goal is to ensure that enough wild areas of land and water are protected and interconnected to maintain nature’s life-supporting systems and the diversity of life on Earth, to support human health and prosperity, and to secure a bountiful, beautiful legacy of resilient, wild nature.

NNH is science. Earth-systems experts agree on the correlation between the size of a natural area and its ability to maintain high-functioning biological processes that affect local and wider planetary systems. Depending on the type and location of the specific ecosystem or area of land or water, this threshold is roughly half of the original, pre-industrial extent. Below this threshold, nature struggles to produce critical eco-system services – in plain terms, ‘life support’.

NNH is an ethic. Traditional cultures around the world are based on an ethic of reciprocity, of respecting and giving back to the Earth that supports us. In more formal religious teachings -- such as Buddhism, The Society of Friends (Quakers), and others – a guiding principle is that of ‘Right Relationship’, through which one aligns personal behavior to honor all life.

NNH is also a metric to inform a much-needed, new model of human development. The good news is that NNH is as achievable as it is necessary - a global vision that can be achieved at all scales.

North America has numerous examples. One of the oldest is Yellowstone to Yukon (Y2Y), where a diverse team of conservationists, ranchers, planners, and wildlife lovers are creating a massive ecological corridor from the southern edge of the Yellowstone region in Northwest Wyoming to the Northern Yukon. Across Canada’s Boreal north, one of the greatest forests in the world is the subject of both the highly destructive tar sands petroleum production operation of the Canadian government, and the location of massive conservation efforts by a wide range of players. First Nations are active in creating huge parks, such as the Nahanni National Park, expanded a few years ago to now be one of the 10 largest national parks in the world, at over 30,050 km² (11,602 sq mi).

Nature Needs Half can be applied at all scales, jurisdictions, and ownership regimes. Boulder County, northwest of Denver, Colorado (USA), is 62% protected; the Municipality of Hong Kong is 41% protected; the nation of Bhutan is 52% protected and connected; the Pacific Oceanscape is a consortium of 15 Island Nations protecting 40 million sq kms of South Pacific oceans; and there are more.

Nothing less than bold vision and committed action at all levels is the formula to transform the juggernaut of exploitive human development. This will not be achieved by an organization, rather by a social movement that demands and directs the political will to do this. We can live with the Earth much better than we can simply live on it.

For more information: See: <https://natureneedshalf.org/>; <https://www.half-earthproject.org/>

Box 11.2: The politics of healing: Restoring ecological and civic commons, Ernest J. Yanarella

The politics of healing our broken planet, and increasingly fractured and polarized Western democracies, involves more than practicing the rights and duties of liberal citizenship. It also demands that an enlightened and activist mode of citizen action go beyond the activities of conventional politics—especially at a time when our ecological and civic commons are under threat by forces of corporate irresponsibility, political and economic self-interest, and narrow-minded and anti-scientific distortion. Nothing less is needed than the renewal of mass movements for political education, the mobilization of the courage to foster popular support for innovative strategies of resistance, and affirmative collective action. This requires the regeneration of hope in our democratic politics, and the concomitant refusal to give in to fatalism and despair.

In the realm of public policy we need to make changes, such as the rehabilitation of public understanding and trust in science, and a new willingness of politicians and unafraid citizens to imagine big and bold policies and programs - like the Green New Deal. Such policies need to equal the magnitude of the inchoate environmental problems on the horizon (unsustainable processes, ‘global weirding’, ecological scarcities). These policies must involve the scaling back of the bloated expenditures of national defense to reflect our true requirements for national security. In this restructured world order, our moral-political leadership will be founded upon collective security, international bodies, and the search for peaceful solutions to the underlying causes of terror, regional tensions, and other conflicts fueled in large measure by the U.S. and the West’s contributions to the global arms bazaar.

In the process of expanding the realm of citizen action and social movements in politics, a worldview recognizing the entwinement of human beings within our more encompassing ecosystem must lead the way to the re-enchantment of nature as humans’ ‘organic and inorganic body’. This recuperation of nature as partner and creative force will lead to a remembrance that what we do to nature (deplete it and despoil it) we do to ourselves and our bodies (triggering physical and psychological dis-ease, and stunting our wonder and imagination). From the new sciences spawned by ecology, we are learning how multi-and inter-disciplinary perspectives on facets of nature all have more wondrous roles in the sustenance of life on our planet. This will lead prescient researchers to reconsider the body-nature-cosmos insights of religious and philosophical traditions of the East (Daoism, Buddhism, Confucianism).

The politics of healing then is not only grounded in new political ideas, new tactics and strategies for promoting change, and new technologies of power and mobilization of mass action. It incorporates the courage to transcend conventional ways of doing political organizing, engaging in aggregating social interests, and generating winning coalitions of voters. It strives to design public policies ambitious enough to fit the size of the environmental challenge we face. It calls for laying the groundwork for a transformative politics based upon a new worldview reweaving nature and human beings. This prompts us to raise our sights, free our creativity and imagination, and assemble those collective means to restore our ecological and civic commons—the true and only route to the politics of healing (Reid and Taylor 2010).

For more information: Reid, H. G. and Taylor, B. (2010) *Recovering the Commons: Democracy, Place, and Global Justice*. Champaign-Urbana, IL: University of Illinois Press.

Box 11.3: Hearing nature's chorus: Ecodemocracy as a moral necessity and a key solution to the eco-crisis, Joe Gray

Across the planet, each hour of every day, countless decisions are made by humans that have a bearing on the health and fate of non-humans, the majority constituents of the Earth community. That these decisions are, on the whole, made without serious regard for non-human interests is evidenced by the ongoing mass extinction event – the overwhelming tragedy of modern society. A once-vibrant ecosphere is being homogenized, and there is needless suffering on an appalling scale. From the perspective of all but the most short-termist celebrant of human supremacy, bad decisions clearly outweigh the good ones. There is no shortage of headlines that highlight life's grim trajectory, yet humans are still failing to sufficiently internalize the needs of non-humans to act in a way that heeds the broad interests present in the ecosphere. In all political contexts, democracy as currently practised betrays a large majority of Earth's inhabitants.

The continuing growth of the aviation industry and big agriculture's rape of the ecosphere provide obvious example outcomes of morally delinquent decision-making. But even among better-meaning enterprises, such as ecological research, so rarely is explicit recognition given to the interests of non-humans. Furthermore, biological conservation itself is now tending towards serving human interests above those of the at-risk species it was conceived to serve.

What can be done? A major alternative to anthropocentric fairness-based decision-making is ecocentric democracy, or 'ecodemocracy', which considers the breadth of interests. As in traditional democracy, the decisions reached will not suit all parties, but since they will be made only after listening to the full chorus of voices, they will have honoured the moral standing of humans and non-humans alike. There is little doubt that such decisions would push the ecosphere back towards its formerly vibrant state. In practical terms, representation of non-human interests can be achieved by, for instance, the appointment of human proxies. Dissenting political theorists might say that non-humans cannot be brought into the ring of stakeholders because they cannot understand fairness-based decision-making, and that the appointment of proxies is inappropriate because non-humans lack the ability to object to the way in which they are represented. But should not qualification for representation come from the possibility of being subjected to an unethical outcome, not the ability to understand ethics? And, countering the second challenge, how difficult would it be to appoint independent watchers to help ensure that the proxies are adequately representing their designated interests?

Ecodemocracy will only flourish with a concomitant shift in society towards an ecocentric value system. At the same time, it is one powerful means of helping effect this change.

How does the 'rights of nature' fit in? Enhancing the legal standing of non-humans will go some way to adequately representing their interests, but there is a need for a more fundamental shift in the way that society behaves. Non-human interests need to be represented not just through legal levers but in all political, administrative, and informal decision-making systems.

Further information: visit GENIE at <https://ecodemocracy.net/>.

Conclusion box: A Return to Integrity, Kathleen Dean Moore and Michael P. Nelson

Let us grant that people want others to think well of them, and more important, that we want to think well of ourselves. So either we do what we believe is right, or we don't, in which case we tell stories to convince ourselves that what might look wrong is in fact right. Self-justification is a human imperative: often we would rather feel physical pain than feel moral shame.

This is significant.

It helps explain efforts to 'normalize' behaviors that will shock our progeny. Such life-withering, self-destructive acts as reducing ancient forests to toilet paper, killing and selling the last of countless species, sickening children, poisoning fields of food, and – most significant for our time – marketing fossil fuels at such a rate that the consequent global warming threatens the stability of life on earth – all these must become *business-as-usual*, how things are done by normal, honorable people.

And we need to convince ourselves not only that this is *how* things are done, but how they *ought* to be done. Economies invent, or (perhaps more accurately) empower, the ethics they need. A consequentialist ethic is particularly well-suited for the cynical *ad hoc* justifications required by extractive capitalism. An act is right, the consequentialist says, if the value gained (usually human happiness) outweighs the value lost, considering both the quality and quantity of the value. Mining out oil and salmon and forests is fine, then, if the value of the happiness gained from profit outweighs the value lost, which it will, assuming there is no inherent value in minerals or fish or trees. Poisoning workers is fine, if the value of the coal or strawberries or soybeans to investors and consumers outweighs the workers' suffering and medical costs. Altering the climate and imperiling the very existence of future generations can be justified, if the value of future happiness is discounted, compared to our own present satisfaction.

But this kind of reasoning cooks the books, inflating the gains, discounting the losses. It leads people into moral peril, yes. But it also leads many people to want some better measure of their self-worth, a measure that takes account of their deeply-held convictions, the moral squirming they feel when they hurt a child (even for the sake of greater good), or approve a war (even for stable oil supplies), or recklessly burn fossil fuels (even when it's the only way to get to work). It's an intolerable situation, doing what we know is wrong because some skewed calculus or craven politician tells us it's right and anyway, we don't have any choice.

In this context, the venerable ideal of *moral integrity* is useful and healing. Integrity, from *integer*, wholeness: a matching between what one does and what one thinks is right. To act lovingly toward the Earth, because we love it. To live simply, because we don't believe in taking more than our fair share. To forswear practices harmful to the future, because we're not the kind of people who wreck a place before they leave it. A life built on integrity doesn't require excuses or tortured justifications or shame. What it *does* require is courage, truth-telling, and self-respect.

For further information: See: <http://www.earthisland.org/journal/index.php/articles/entry/why-we-wont-quit-the-climate-fight/>, and <https://static1.squarespace.com/static/5c3e38fd4cde7af964606022/t/5c60d24b9140b743f6497ab1/1549849164314/Moral+Ground+Nelson.pdf>

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Erik Assadourian is a Senior Fellow with the Worldwatch Institute. During his 17 years with Worldwatch, Erik directed *two editions of Vital Signs* and five editions of *State of the World*, including the 2017 edition: *EarthEd: Rethinking Education on a Changing Planet*, the 2013 edition: *Is Sustainability Still Possible?* and the 2010 edition: *Transforming Cultures: From Consumerism to Sustainability*. Erik also designed *Catan: Oil Springs*, an eco-educational scenario for the popular board game *The Settlers of Catan*. He is also an adjunct professor of Environmental Studies at Goucher College. Erik spends half of each day homeschooling his son.

John Cook is a research assistant professor at the Center for Climate Change Communication at George Mason University. His research focus is understanding and countering misinformation about climate change. In 2007, he founded Skeptical Science, a website which won the 2011 Australian Museum Eureka Prize for the Advancement of Climate Change Knowledge and 2016 Friend of the Planet Award from the National Center for Science Education. John co-authored the college textbooks *Climate Change: Examining the Facts* and *Climate Change Science: A Modern Synthesis* and the book *Climate Change Denial: Heads in the Sand* (with co-author Hayden Washington).

Brian Czech is the executive director of the Center for the Advancement of the Steady State Economy (www.steadystate.org). Czech served in the headquarters of the U.S. Fish and Wildlife Service from 1999-2017 and as a visiting professor in Virginia Tech’s National Capitol Region during most of that period. He is the author of three books: *Supply Shock*, *Shoveling Fuel for a Runaway Train*, and *The Endangered Species Act: History, Conservation Biology, and Public Policy*. Czech has a B.S. from the University of Wisconsin, an M.S. from the University of Washington, and a Ph.D. from the University of Arizona.

Dominick A. DellaSala is President and Chief Scientist of the Geos Institute in Ashland, Oregon and former President of the Society for Conservation Biology, North America. He is an internationally renowned author of over 200 technical papers and books on forest ecology, endangered species, conservation biology, and climate change. Dominick has given keynote talks ranging from academic conferences to the United Nations Earth Summit. He has been featured in hundreds of news stories and documentaries, testified in the US congress, cofounded organizations, and has received conservation leadership and book writing awards. He is on the editorial board of Elsevier, co-editor of the *Encyclopedia of the Anthropocene* and *The World’s Biomes*, and editor of scientific journals. Dominick is motivated by his work to leave a living planet for his daughters, grandkids and all that follow.

Robert Engelman is a writer affiliated with the Population Institute and the Worldwatch Institute in the USA. From 2014 through 2016 Engelman directed Worldwatch's Family Planning and Environmental Sustainability Assessment project. Earlier he served as President of Worldwatch, an environmental think tank. As a journalist in the late 20th century Engelman reported on science, health and the environment, as well as politics and international affairs, for the Associated Press and numerous daily newspapers. He has written articles for *Scientific American*, *Nature*, and *Science*, numerous book chapters, and is author of the book *More: Population, Nature, and What Women Want* (2008, Island Press).

Joshua Farley is an ecological economist, Professor in Community Development & Applied Economics, Fellow at the Gund Institute for Ecological Economics at the University of Vermont, and member of the Lab de Sistemas Silvopastoris e Restauração Ecológica (silvopastoral systems and ecological restoration lab) at the Universidade Federal de Santa Catarina. His broad research interests focus on the design of economic institutions capable of balancing what is biophysically possible with what is socially, psychologically and ethically desirable. His most recent research focuses on agroecology, farmer livelihoods and ecosystem services in Brazil's Atlantic Forest; the economics of essential resources; and redesigning financial and monetary systems for a just and sustainable economy. He has conducted problem-based courses in ecological economics on six continents. He is co-author with Herman Daly of 'Ecological Economics, Principles and Applications, 2nd ed' from Island Press (2010).

Joe Gray is a field naturalist and eco-activist who lives in the east of England. He has an MSc in Forestry from Bangor University and an MA in Zoology from the University of Cambridge. Joe is a Fellow and trustee of the British Naturalists' Association and a Fellow of the Royal Entomological Society, and in his spare time he serves as county recorder for a group on insects known as terrestrial Heteroptera. He is a co-founder of the recently formed Global Ecocentric Network for Implementing Ecodemocracy (GENIE; <https://ecodemocracy.net/>). Joe is also a co-founder and associate editor of *The Ecological Citizen* journal and a knowledge advisor on ecological ethics for the United Nations' Harmony with Nature programme.

Stuart Hill is Emeritus Professor and Foundation Chair of Social Ecology in the School of Education at Western Sydney University. He has published over 350 papers and reports. His latest books are *Ecological Pioneers: A Social History of Australian Ecological Thought and Action* (with Dr Martin Mulligan; Cambridge UP, 2001), *Learning for Sustainable Living: Psychology of Ecological Transformation* (with Dr Werner Sattmann-Frese; Lulu, 2008) and *Social Ecology: Applying Ecological Understanding to our Lives and our Planet* (with Dr David Wright and Dr Catherine Camden-Pratt; Hawthorn, 2011). Stuart recently received a Lifetime Achievement "Leadership for Sustainability Award" from Australia's Centre for Sustainability Leadership.

Helen Kopnina (Ph.D. Cambridge University, 2002) is currently employed at The Hague University of Applied Science (HHS) in The Netherlands, coordinating Sustainable Business program and conducting research within three main areas: environmental sustainability, environmental education and biological conservation. Helen is the author of over ninety peer reviewed articles and (co)author and (co)editor of fifteen books.

Michelle Maloney is a lawyer who specializes in Earth jurisprudence and Earth-centred law and governance. She is the Co-Founder and National Convenor of the Australian Earth Laws Alliance, and designs and manages AELA programs and events, including the Australian Peoples' Tribunal for

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Vance G. Martin is an expert in international nature conservation and wilderness protection. Martin specializes in bridging the interests of people and nature through culture, communications, science, and policy. President of the WILD Foundation since 1983 - an international organization dedicated to protecting wilderness, connecting wild nature to people, and to communicating the values of wilderness and its benefits for human communities - he has worked in 80+ nations, lived in many countries, and founded/served on the boards of numerous organizations. He is also founder and Co-Chair of the Wilderness Specialist Group of the World Commission on Protected Areas (WCPA/IUCN).

Kathleen Dean Moore is the former Distinguished Professor of Philosophy at Oregon State University, Kathleen Dean Moore now writes and speaks full-time about the moral urgency of climate action. She is the author of 'Great Tide Rising: Toward Courage and Moral Clarity in a Time of Planetary Change', and co-editor of 'Moral Ground: Ethical Action for a Planet in Peril' and 'Witness: The Human-Rights Impacts of Fracking and Climate Change' (forthcoming). Her newest work is 'The Extinction Variations (Meadowlarks)', a music/spoken-word collaboration with concert pianist Rachelle McCabe, performed in the US, UK, and Canada. See: www.riverwalking.com and www.musicandclimateaction.com.

Michael Paul Nelson holds the Ruth H. Spaniol Chair of Renewable Resources and is Professor of Environmental Ethics and Philosophy at Oregon State University. He also serves as the Lead Principal Investigator for the HJ Andrews Long-Term Ecological Research Program in Oregon's Cascade Mountains and as the Philosopher in Residence for the Isle Royale Wolf-Moose Project. An intensely interdisciplinary scholar, he is the author and editor of many articles and books at the interface of environmental ethics, ecology, conservation, and social science, including 'Moral Ground: Ethical Action for a Planet in Peril', an award-winning book co-edited with Kathleen Dean Moore. You can see more of Michael's work at www.michaelpnelson.com.

Kate Pickett FRSA is a British epidemiologist who is Professor of Epidemiology in the Department of Health Sciences at the University of York and was a National Institute for Health Research Career Scientist from 2007-2012. She co-authored (with Richard G. Wilkinson) *The Spirit Level: Why More Equal Societies Almost Always Do Better* and is a co-founder of The Equality Trust. Pickett was awarded a 2013 Silver Rose Award from Solidar for championing equality and the 2014 Charles Cully Memorial Medal by the Irish Cancer Society.

Holmes Rolston, III, is University Distinguished Professor and Professor of Philosophy, Emeritus at Colorado State University. He has written: *Three Big Bangs: Matter-Energy, Life, Mind; Genes, Genesis and God; Philosophy Gone Wild; Environmental Ethics; Science and Religion: A Critical Survey*, and *Conserving Natural Value*. Rolston was laureate for the 2003 Templeton Prize in Religion and gave the Gifford Lectures at Edinburgh in 1997-1998. He has spoken as distinguished lecturer on all seven continents, and is featured in Joy A. Palmer Cooper and David E. Cooper, eds., *Key Thinkers on the Environment*, 2018. See: https://en.wikipedia.org/wiki/Holmes_Rolston_III and <https://mountainscholar.org/handle/10217/100484>.

Colin L. Soskolne, PhD, hails from South Africa. His award-winning PhD is from the University of Pennsylvania, USA. With over 350 peer-reviewed publications, his academic career was one of innovative teaching and research focusing on occupational, environmental and global health. After 28 years as Professor of Epidemiology at the University of Alberta, Edmonton, Canada, he retired as Professor emeritus in 2013. Among other contributions, he led WHO's 1999 *Global Ecological Integrity and 'Sustainable Development': Cornerstones of Public Health*, edited *Sustaining Life on Earth: Environmental and Human Health through Global Governance*, and established the academic arm of the University's *Office of Sustainability* (www.colinsoskolne.com).

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