

Why ecocentrism is the key pathway to sustainability

Ecocentrism is the broadest term for worldviews that recognize intrinsic value in all lifeforms and ecosystems themselves, including their abiotic components. Anthropocentrism, in contrast, values other lifeforms and ecosystems insofar as they are valuable for human well-being, preferences and interests. Herein, the authors examine the roots of ecocentrism and discuss its mixed history of international recognition. They argue that non-human nature has intrinsic value irrespective of human preferences or valuation, and they refute the claim that ecocentrism is misanthropic. They then summarize four key examples from the academic literature in which anthropocentrism fails to provide an ethic adequate for respecting and protecting planet Earth and its inhabitants. The authors conclude that ecocentrism is essential for solving our unprecedented environmental crisis, arguing its importance from four perspectives: ethical, evolutionary, spiritual and ecological. They contend that a social transformation towards ecocentrism is not only an ethical but a practical imperative, and they urge support for ecocentric understanding and practices.

Ecocentrism finds inherent (intrinsic) value in all of nature. It takes a much wider view of the world than does anthropocentrism, which sees individual humans and the human species as more valuable than all other organisms. Ecocentrism is the broadest of worldviews, but there are related worldviews (that might be called ‘intermediate varieties’ (Curry, 2011: 57). Ecocentrism goes beyond biocentrism (ethics that sees inherent value to all *living* things) by including environmental systems as wholes, and their abiotic aspects. It also goes beyond zoocentrism (seeing value in animals) on account of explicitly including flora and the ecological contexts for organisms.

While other scholars may differ, we see ecocentrism as the umbrella that includes biocentrism and zoocentrism, because all three of these worldviews value the non-human, with ecocentrism having the widest vision. Given that life relies on geology and geomorphology to sustain it, and that ‘geodiversity’ also has intrinsic value (Gray, 2013), the broader concept ‘ecocentrism’ seems the more inclusive value (Curry, 2011) and hence most appropriate.

Historical roots of ecocentrism

In a sense, ecocentrism has been with humanity since we evolved; it underpins what can be called the ‘old’ sustainability (Washington, 2015). Many indigenous cultures around the world speak of lore and (in Australia) ‘law’ that reflects an ecocentric view of the world (Knudtson and Suzuki, 1992). Ecologist Aldo Leopold (1949: 203–4) provided a classic example of the notion in what he called ‘The Land Ethic’:

The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals [...] A land ethic of course cannot prevent the alteration, management, and use of these ‘resources,’ but it does affirm their right to continued existence, and, at least in spots, their continued existence in a natural state.

Arne Naess (1973) coined the term ‘Deep Ecology’ for similar sentiments, later articulating the notion in Principle 1 of the Deep Ecology Platform (Devall and Sessions, 1985: 69):

The well-being of non-human life on Earth has value in itself. This value is independent

Haydn Washington, Bron Taylor, Helen Kopnina, Paul Cryer and John J Piccolo

About the authors
See following page.

Citation

Washington H, Taylor B, Kopnina H, Cryer P and Piccolo JJ (2017) Why ecocentrism is the key pathway to sustainability. *The Ecological Citizen* 1: 35–41.

Keywords

Anthropocentrism; ecological ethics; geodiversity; intrinsic value; worldviews

of any instrumental usefulness for limited human purposes.

In terms of ecocentrism helping to solve the environmental crisis, Stan Rowe (1994) argued:

It seems to me that the only promising universal belief-system is Ecocentrism, defined as a value-shift from *Homo sapiens* to planet earth: Ecosphere. A scientific rationale backs the value-shift. All organisms are evolved from Earth, sustained by Earth. Thus Earth, not organism, is the metaphor for Life. Earth not humanity is the Life-center, the creativity-center. Earth is the whole of which we are subservient parts. Such a fundamental philosophy gives ecological awareness and sensitivity an enfolding, material focus.

Acknowledgment of intrinsic value internationally

The intrinsic value of nature has had a mixed history in terms of international recognition. The Stockholm Declaration of 1972 (see <https://is.gd/89WDc2>) noted that 'natural resources' must be safeguarded for future human generations. The World Conservation Strategy (International Union for Conservation of Nature and Natural Resources, 1980) also took an anthropocentric approach, with three objectives:

- maintaining essential ecological processes for human survival;
- preserving genetic diversity for the protection of human industries that use living resources;
- ensuring the sustainable utilization of species and ecosystems for rural communities and human industries.

In contrast, the *World Charter for Nature* in 1982 was underpinned by strong ecocentric principles, stipulating that humanity and culture are part of nature: "Every form of life is unique, warranting respect regardless of its worth to man, and, to accord other organisms such recognition, man must be guided by a moral code of action" (United Nations, 1982: preamble). Whilst the inherent nature of the *Charter of*

the United Nations means that it is not itself binding, it does have "the character of a proclamation directed to states for their observance" (Wood, 1985: 982).

The World Commission on Environment and Development (WCED, 1987a: 45), in *Our Common Future*, argued that development "must not endanger the natural systems that support life on Earth: the atmosphere, the waters, the soils, and living beings." It also (in a little-noticed passage) expressed the view that nature has intrinsic value (WCED, 1987a: 57):

[T]he case for the conservation of nature should not rest only with development goals. It is part of our moral obligation to other living beings and future generations.

However, the Tokyo Declaration that accompanied *Our Common Future* had Principle 1 to "increase growth" while Principle 3 was to "conserve and enhance the resource base" for humans (WCED, 1987b). The Rio Declaration (see <https://is.gd/TjJVAS>) from the Earth Summit of 1992, similarly, had Principle 1 stating: "Human beings are at the centre of concerns for sustainable development."

The *Earth Charter* was finalized in 2000 (www.earthcharter.org) and was proposed for United Nations endorsement at the *World Summit on Sustainable Development* (WSSD) in Johannesburg, South Africa, in 2002. It strongly advanced an ecocentric worldview, urging in Principle 1a that we:

Recognize that all beings are interdependent and every form of life has value regardless of its worth to human beings.

This visionary document expresses compassion for humanity *and* nature as a whole, and urges justice for both. It is probably the best international document we have to help demystify sustainability (Soskolne, 2008; Washington, 2015).¹ Although it was mentioned positively in some speeches at the WSSD, the final Johannesburg Declaration (see <https://is.gd/VeoLnq>) did not endorse the *Earth Charter*. Likewise, *The Future We Want*, an

About the authors

Haydn Washington is an environmental scientist, writer and activist based at the PANGAEA Research Centre, UNSW, Sydney, NSW, Australia.

Bron Taylor is Professor of Religion, Nature and Environmental Ethics at the University of Florida, Gainesville, FL, USA, and a Fellow of the Rachel Carson Center for Environment and Society, Munich, Germany.

Helen Kopnina is an environmental anthropologist at Leiden University, Leiden, and The Hague University of Applied Science, The Hague, the Netherlands.

Paul Cryer is a conservationist for the Applied Ecology Unit, African Conservation Trust, Hillcrest, South Africa.

John J Piccolo is Associate Professor in the Department of Environmental and Life Sciences, Karlstad University, Sweden.

output of the Rio+20 Earth Summit, also failed to endorse the intrinsic value of nature (see <https://is.gd/vh5KQo>). However, Point 39 did recognize that many people do have such moral sentiments (our emphasis):

We recognize that the planet Earth and its ecosystems are our home and that Mother Earth is a common expression in a number of countries and regions and we note that some countries recognize *the rights of nature* in the context of the promotion of sustainable development. We are convinced that in order to achieve a just balance among the economic, social and environment needs of present and future generations, it is necessary to promote harmony with nature.

This passage was in part in recognition that, in 2008, Ecuador enshrined rights of nature as a part of its new Constitution (see <https://is.gd/5kBr9d>):

Nature or Pachamama, where life is reproduced and exists, has the right to exist, persist, maintain itself and regenerate its vital cycles, structure, functions and its processes in evolution.

In concert, in December 2010, Bolivia passed its own constitutional reforms, including the Law of the Rights of Mother Earth (see <https://is.gd/j423Hk>). It defined Mother Earth as “a collective subject of public interest” and declared both Mother Earth and life-systems (which combine human communities and ecosystems) as titleholders of inherent rights specified in the law. Such positive and visionary constitutional reform is an example for all nations. By contrast, however, the United Nations’ Sustainable Development Goals that were passed in 2015 failed to mention ecocentrism or the intrinsic value of nature, or to acknowledge the rights of nature (Kopnina, 2016).

We can see above that there is a mixed history of support for ecocentrism (and the intrinsic value of nature). This likely reflects the problem of the dominance

of an anthropocentric approach in government thinking and, indeed, the anthropocentrism prevalent among the world’s religious traditions (Taylor *et al.*, 2016). It highlights *the need for academics to speak in support of ecocentrism*.

Intrinsic value free from human valuation

We maintain that nature and life on Earth are *inherently good*. That is to say nature has intrinsic value, irrespective of whether humans are the ones valuing it. It is true that, as far as we know at present, we humans are the only species that reflects on and *applies* moral values. However, we can also understand that elements of the ecosphere have co-evolved to form the wondrous complexity of the web of life – and contend that nature has value, whether humans perceive this or not. As philosopher Holmes Rolston (2002: 118–20) put it:

Some values are already there, discovered not generated by the valuer because the first project here is really the natural object, nature’s project; the principal projecting is nature creating formed integrity. [...] The theory of anthropogenic intrinsic value needs to give place to a theory of autonomous intrinsic value. [...] Those who value wild nature, having discovered the intrinsic natural values that we have been defending, wish to preserve natural processes as well as natural products. Humans can and ought to see outside their own sector and affirm non-anthropogenic, non-cultural values. [...] At the same time, only humans have conscience. That conscience emerges for the building of culture to relate humans to other humans with justice and love, but it also emerges—so environmental ethicists are now arguing—for the relating of humans to nature, to the larger community of life on the planet. That relationship, governed by conscience (and also by pragmatic self-interest), requires a harmonious blending of nature and culture, where this is possible. The same conscience also generates a duty that respects wild nature at some times and places for values present there independently of humans.

“We maintain that nature and life on Earth is *inherently* good. That is to say nature has intrinsic value, irrespective of whether humans are the ones valuing it.”

“Ecocentrists overwhelmingly support inter-human justice; however, they also support inter-species justice, or *ecojustice*, for the non-human world.”

The theory of autonomous intrinsic value of nature frees humanity from its anthropocentric obsession that it is all about *our* valuing. It states clearly that nature has intrinsic value, whether or not humans perceive and acknowledge this.

Is ecocentrism anti-human?

Ecocentrism has been labelled ‘anti-human’ (Smith, 2014), or as contrary to concerns for social justice. We reject this contention and agree with Stan Rowe (1994):

Ecocentrism is not an argument that all organisms have equivalent value. It is not an anti-human argument nor a put-down of those seeking social justice. It does not deny that myriad important homocentric problems exist. But it stands aside from these smaller, short-term issues in order to consider Ecological Reality. Reflecting on the ecological status of all organisms, it comprehends the Ecosphere as a Being that transcends in importance any one single species, even the self-named sapient one.

Ecocentrists overwhelmingly support inter-human justice; however, they also support inter-species justice, or *ecojustice*, for the non-human world (Baxter, 2005). Just as environmental systems involve many interrelationships, we think environmental and social systems are entwined, and so social and *ecojustice* concerns are (and must be) as well (Washington, 2015).

Strength of anthropocentrism in academia

Anthropocentrism is the prevalent ideology in most societies around the world, and it also permeates academia and domestic and international governance. Four brief examples are given in [Box 1](#).

The cases presented are but a few of the many possible examples of how anthropocentrism continues to be the world’s dominant ideology, even in venues where ecological sustainability is a stated goal. We contend, however, that a fully sustainable future is highly unlikely

Box 1. Examples of how anthropocentrism permeates academia and governance.

Ecosystem services

The influential term ‘ecosystem services’ was defined by the Millennium Ecosystem Assessment (MEA Board, 2005) as “the benefits people obtain from ecosystems.” With this anthropocentric definition, nature’s services are for humanity alone. Of course, nature provides services (habitat, nutrients and energy) to all species, and these too must be maintained (Washington, 2013).

Strong sustainability

Mainstream economists (e.g. Solow, 1993) have argued for ‘weak’ sustainability, where human capital (skills in society) and built capital can be substituted for natural capital (another expression for ecosystem services). In this view it is permissible to destroy natural areas and biodiversity as long as we pass on money, skills and buildings to future generations. ‘Strong’ sustainability goes further and requires that natural capital stocks be ‘held constant’ independently of human-made capital (Daly and Cobb, 1994). Although ‘strong’ is an improvement over ‘weak’ sustainability, it remains anthropocentric because it is only focused on minimum biophysical requirements for human survival (Wackernagel and Rees, 1996; Washington, 2015).

Education for sustainable development

The United Nations and UNESCO promote ‘education for sustainable development’ (ESD; <https://is.gd/j2zmuc>), but both

organizations consistently prioritize human rights and ignore the question of whether nature also has rights. The UNESCO 2014 ‘Roadmap’ for ESD (<https://is.gd/ryk7K8>), for example, failed to consider worldviews, ethics or ecocentrism. Critics have observed that ESD has remained anthropocentric and have argued the approach promotes an industrial worldview antithetical to a holistic understanding of sustainability (Orr, 1994; Spring, 2004). Kopnina (2012) concluded that, at present, ESD actually undermines efforts to educate citizens about the importance of valuing and protecting the environment.

New conservation approach

Advocates of a ‘new conservation’ approach have argued that human well-being should be at the forefront of conservation efforts (Marris, 2011; Kareiva et al., 2012). It pursues economic development, poverty alleviation and corporate partnerships as substitutes for mainstream conservation tools such as protected areas (Soulé, 2013: 895). Miller et al. (2014) have compellingly argued that this anthropocentric approach is based on a “human exceptionalism” that distorts ecological science while prioritizing capitalist development over ecosystem and societal health. Doak et al. (2015) similarly conclude that new conservation is all about human interests, not nature’s. Batavia and Nelson (2016) make a compelling argument for the ethical view that nature has intrinsic value, and conclude that new conservation’s endorsement of anthropocentrism is highly suspect.

without an ecocentric value shift that recognizes the intrinsic value of nature and a corresponding Earth jurisprudence. Hence *the need for academics to speak out in support of ecocentrism*.

Why ecocentrism is an essential solution

We believe that ecocentrism, through its recognition of humanity's duties towards nature, is central to solving our unprecedented environmental crisis. Its importance is for multiple reasons, as described below.

In ethical terms

Ecocentrism expands the moral community (and ethics) from being just about ourselves. It means we are not concerned *only* with humanity; we extend respect and care to all life, and indeed to terrestrial and aquatic ecosystems themselves. Ecocentric care for life has been an important theme for many individuals and some societies for millennia. There is no philosophically or scientifically sound justification why moral concern should not be extended to all of the ecosphere, both its biotic and abiotic components.

In evolutionary terms

Ecocentrism reflects the fact that *Homo sapiens* evolved out of the ecosphere's rich web of life – a legacy stretching back an almost unimaginable 3.5 billion years. There is no logical dividing line (temporally or taxonomically) that can define where or when intrinsic value began (Piccolo, 2017). Other species literally are our cousins and relatives (close and distant) – a biological kinship that many have recognized as conferring moral responsibilities towards all species. So does the recognition that we are a part of nature, not apart from nature; this erodes notions of human supremacy (Crist, 2012; Taylor, 2013).

In spiritual terms

Ecocentrism has generally been at variance with the predominant religions in the world, which have tended to offer escape from mortality and relief from the suffering

that human life naturally involves. History and science also note that many people and some societies have developed ecocentric moral sentiments, and that these have been ecologically and socially adaptive. In short, the role that religion and spirituality plays in environmental behaviours has been complicated and mixed (Taylor, 2005). There is evidence, however, that ecocentric values (often buttressed by, if not directly rooted in, scientific understandings of ecosystem complexity) are increasingly being fused into nature-based, ecocentric spiritualities, in many cases innovatively so (Taylor, 2010). With such spiritualities, even people who are entirely naturalistic in their worldviews often speak of the Earth and its ecosystems as sacred and thus worthy of reverent care and defence.

In ecological terms

Ecocentrism reminds us that the ecosphere and all life is interdependent and that both humans and non-humans are absolutely dependent on the ecosystem processes that nature provides (Washington, 2013). An anthropocentric conservation ethic alone is wholly inadequate for conserving biodiversity. Ecocentrism is rooted in an evolutionary understanding that reminds us that we are latecomers to what Leopold (1949) evocatively called “the odyssey of evolution” (in his musing ‘On a Monument to the Pigeon’). This understanding also reminds us that every species and every organism living today got here through the same long struggle for existence. This logically leads both to empathy for our fellow inhabitants (who have, like us, managed to make it so far) and to humility, because in this process we are no different from the others. And ecology teaches humility in another way, because from it we recognize that we do not know everything about the world's ecosystems, and never will. This leads quite naturally to a precautionary approach towards all the systems that constitute the ecosphere, so that where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing remedial action.

“Ecology teaches humility in another way, because from it we recognize that we do not know everything about the world's ecosystems, and never will.”

The role of science

Western scientific thought corroborates an ecocentric worldview through the understanding it gives to us of eco-evolutionary processes; from this we rediscover our evolutionary heritage and our ecological dependence on nature. This understanding may originally have come through reductionist methods, but these have also contributed to an awareness of complex interconnectedness. This aligns the science of ecocentricity very closely to belief systems of those indigenous peoples (and others) who have in various ways come to see themselves as part of a sacred world. Indeed, many Western scientists have recognized there has been a scientific method to many non-Western societies, involving close observation of organisms and ecological systems and their effects. This has led to increasing interest in traditional ecological knowledge and efforts to fuse such knowledge with Western scientific understandings (Berkes, 2008). Many of those involved in these cross-cultural discussions have come to a deeper respect for the knowledge systems and ecocentric moral sentiments of those with whom they are intellectually (and sometimes practically) engaged.

Conclusion

We conclude that an ecocentric worldview follows naturally from our evolution-derived, empathetic and aesthetic capacities, which, when combined with our rational abilities, have enabled us over

time to increasingly understand the way we (and the rest of the living world) came to be. And this has enabled us to see that, indeed, we are part of nature, embedded in a beautiful and wondrous living world, the only place in the universe where we know for sure that life exists. Surely, if anything is worthy of respect, even reverence, it is life itself on our own home planet. We maintain that a transformation towards an ecocentric worldview, and corresponding value systems, is a necessary path towards the flourishing of life on Earth, including that of our own species. ■

Acknowledgement

The authors would like to thank the peer reviewers, whose comments added to the article.

Notes

- ¹ Although not an international statement, *A Manifesto for Earth*, written by Mosquin and Rowe (2004), also argued strongly for ecocentrism: <https://is.gd/n7glt2> (accessed March 2017).

References

- Batavia C and Nelson MP (2016) Heroes or thieves? The ethical grounds for lingering concerns about new conservation. *Journal of Environmental Studies and Sciences* doi: 10.1007/s13412-016-0399-0.
- Baxter B (2005) *A Theory of Ecological Justice*. Routledge, New York, NY, USA.
- Berkes F (2008) *Sacred Ecology: Traditional ecological knowledge and resource management* (2nd edition). Routledge, New York, NY, USA.
- Crist E (2012) Abundant Earth and the population question. In: Cafaro P and Crist E, eds. *Life on the Brink: Environmentalists confront overpopulation*. University of Georgia Press, Athens, GA, USA: 141–53.

If you support what you read in this article,
please sign the Statement of Commitment to
Ecocentrism, written by the same authors

Sign the Statement now: <http://is.gd/ecocentrism>

- Curry P (2011) *Ecological Ethics: An introduction* (2nd edition). Polity Press, Cambridge, UK.
- Daly H and Cobb J (1994) *For the Common Good: Redirecting the economy toward community, the environment, and a sustainable future*. Beacon Press, Boston, MA, USA.
- Devall B and Sessions G (1985) *Deep Ecology: Living as if nature mattered*. Gibbs Smith, Layton, UT, USA.
- Doak D, Bakker VJ, Goldstein BE and Hale B (2015) What is the future of conservation? In: Wuerthner G, Crist E and Butler T, eds. *Protecting the Wild: Parks and wilderness, the foundation for conservation*. Island Press, Washington, DC, USA: 27–35.
- Gray M (2013) *Geodiversity: Valuing and conserving abiotic nature* (2nd edition). John Wiley & Sons, Hoboken, NJ, USA.
- International Union for Conservation of Nature and Natural Resources (1980) *World Conservation Strategy: Living resource conservation for sustainable development*. Available at <https://is.gd/NzzGT4> (accessed March 2017).
- Kareiva P, Marvier M and Lalasz R (2012) *Conservation in the Anthropocene: Beyond solitude and fragility*. Available at <https://is.gd/YokXWI> (accessed March 2017).
- Knudtson P and Suzuki D (1992) *Wisdom of the Elders*. Allen and Unwin, Sydney, NSW, Australia.
- Kopnina H (2012) Education for sustainable development (ESD): The turn away from ‘environment’ in environmental education? *Environmental Education Research* **18**: 699–717.
- Kopnina H (2016) Half the earth for people (or more)? Addressing ethical questions in conservation. *Biological Conservation* **203**: 176–85.
- Leopold A (1949) *A Sand County Almanac: With other essays on conservation from Round River*. Random House, New York, NY, USA.
- Marris E (2011) *Rambunctious Garden: Saving nature in a post-wild world*. Bloomsbury Publishing, New York, NY, USA.
- Millennium Ecosystem Assessment Board (2005) *Living Beyond Our Means: Natural assets and human well-being*. United Nations Environment Programme. Available at <https://is.gd/AKtaKU> (accessed March 2017).
- Miller B, Soulé M and Terborgh J (2014) ‘New conservation’ or surrender to development? *Animal Conservation* **17**: 509–15.
- Mosquin T and Rowe S (2004) A Manifesto for Earth. *Biodiversity* **5**: 3–9.
- Naess A (1973) The shallow and the deep, long-range ecology movement: a summary. *Inquiry*: 95–100.
- Orr D (1994) *Earth in Mind: On education, environment, and the human prospect*. Island Press, Washington, DC, USA.
- Piccolo JJ (2017) Intrinsic value in nature: Objective good or simply half of an unhelpful dichotomy? *Journal for Nature Conservation* **37**: 8–11.
- Rolston H III (2002) Naturalizing Callicott. In: Ouderkirk W and Hill J, eds. *Land, Value, Community: Callicott and environmental philosophy*. State University of New York Press, Albany, NY, USA.
- Rowe JS (1994) *Ecocentrism and Traditional Ecological Knowledge*. Available at <https://is.gd/rkSgP5> (accessed March 2017).
- Smith W (2014) *The War on Humans*. Discovery Institute Press, Seattle, WA, USA.
- Solow R (1993) Sustainability: An economist’s perspective. In: Dorfman R and Dorfman N, eds. *Economics of the Environment: Selected readings* (3rd edition). Norton, New York, NY, USA: 179–87.
- Soskolne C (2008) Preface. In: Soskolne C, ed. *Sustaining Life on Earth: Environmental and human health through global governance*. Lexington Books, New York, NY, USA.
- Soulé M (2013) The “new conservation”. *Conservation Biology* **27**: 895–7.
- Spring J (2004) *How Educational Ideologies are Shaping Global Society: Intergovernmental organizations, NGOs, and the decline of the nation-state*. Lawrence Erlbaum Associates, Mahwah, NJ, USA.
- Taylor B, ed (2005) *The Encyclopedia of Religion and Nature*. Continuum International, London, UK.
- Taylor B (2010) *Dark Green Religion: Nature spirituality and the planetary future*. University of California Press, Oakland, CA, USA.
- Taylor B (2013) “It’s not all about us”: Reflections on the state of American environmental history. *Journal of American History* **100**: 140–4.
- Taylor B, Van Wieren G and Zaleha B (2016) The greening of religion hypothesis (part two): Assessing the data from Lynn White, Jr, to Pope Francis. *Journal for the Study of Religion, Nature and Culture* **10**: 306–78.
- United Nations (1982) *World Charter for Nature* (resolution adopted by the General Assembly on 28 October 1982). Available at <https://is.gd/zXyZrB> (accessed March 2017).
- Wackernagel M and Rees W (1996) *Our Ecological Footprint: Reducing human impact on the Earth*. New Society Publishers, Gabriola Island, BC, Canada.
- Washington H (2013) *Human Dependence on Nature: How to help solve the environmental crisis*. Routledge, London, UK.
- Washington H (2015) *Demystifying Sustainability: Towards real solutions*. Routledge, London, UK.
- Wood HW (1985) The United Nations World Charter for Nature: The developing nations’ initiative to establish protections for the environment. *Ecology Law Quarterly* **12**: 977–96.
- World Commission on Environment and Development (1987a) *Our Common Future*. Oxford University Press, Oxford, UK.
- World Commission on Environment and Development (1987b) *Tokyo Declaration*. Available at <https://is.gd/eZZdoh> (accessed March 2017).

“We maintain that a transformation towards an ecocentric worldview, and corresponding value systems, is a necessary path towards the flourishing of life on Earth, including that of our own species.”
