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Environmental Humanists Respond to the World Scientists' Warning to Humanity



Apocalypse Then, Now—and Future?

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by Bron Taylor



Abstract

Since *The Limits to Growth* study in 1972 scores of studies have concluded that, without a dramatic reduction in human numbers and per-capita consumption and thus ecosystem destruction, and absent concomitant transformation of technological, economic, political, and value systems, widespread collapse of Earth's socioecological systems will commence and accelerate during the 21st century. Although apocalyptic end-of-the-world-as-we-know-it expectations are historically longstanding and typically entangled with religious beliefs such expectations are now firmly grounded in the sciences. The apocalyptic imagination, whether traditionally religious or fueled by science typically avers that after the envisioned cataclysm a better existence is possible (if not certain), at least for the survivors (who are sometimes assumed to be the religiously devout). Science-based apocalypticism, however, increasingly projects an utterly bleak, biologically and socially impoverished future. Nevertheless, it remains possible that apocalyptic sciences and the imaginaries they have kindled, including as expressed by environmental humanities scholars and amplified by the voices (speaking metaphorically) of Earth's suffering organisms and ecosystems, will precipitate a new era of cooperation and innovation and thus, not only avert widespread socioecological collapse, but kindle ecotopian visions futures.

Keywords: Millennialism, Apocalypticism, eco-collapse, scientific-apocalypticism, biodiversity



About the Author

Bron Taylor is Professor of Religion and Environmental Ethics at the University of Florida. An interdisciplinary environmental studies scholar, he explores through the lenses of the sciences and humanities the complex relationships and influences among worldviews, values, ideologies, and socioecological systems. His books include *Dark Green Religion: Nature Spirituality and the Planetary Future* (2010), *Avatar and Nature Spirituality* (2013), and *Ecological Resistance Movements* (1995). He is also editor of the award-winning *Encyclopedia of Religion and Nature* (2005) and in 2017, received a Lifetime Achievement award from the International Society for the Study of Religion, Nature and Culture. See also www.brontaylor.com.

Apocalypse Then, Now—and Future?

Bron Taylor

At 6:01 a.m. on February 1971 I was shaken awake by an *extreme* 6.5 magnitude earthquake near my home in Southern California. For a few moments, I thought this could be my end. For sixty-four others, it was.

Then 15 years old and largely emancipated from adult supervision I had drifted into the Jesus movement. Its teachers taught that, according to biblical prophesies, within a generation of Israel's establishment as a nation in 1948, a period of great tribulation and suffering would occur, after which Jesus would return and usher in God's kingdom. Moreover, God was warning through earthquakes, pestilences, wars, and other cataclysms that his judgment was drawing nigh, so we better be ready for the End Times.¹ Like many evangelical Christians I found these teachings compelling. In college, however, I began taking a more scholarly approach to such world-endism.

Such beliefs scholars have variously labeled apocalypticism (because the world as we know it would end through some cataclysm) and/or millennialism (which typically involves an expectation that some divine or supernatural being, beings, or forces, would end the existing world because of the moral and spiritual failings of human beings or a subset of them). Millennialism also typically offers hope, namely, that the supernatural agent(s) would usher in a new and better world after the cataclysm, or at least, rescue the faithful.

I also learned that Millennialism is ubiquitous in the history of religion; that millennial sects have emerged within and beyond the world's predominant religions; that millennial expectations are often fueled by natural disasters and political instability, and that they are resilient even when the expected timeframes are passed.² After studying such phenomena in depth I concluded that these sorts of religious understandings are at best misguided, at worst delusional, and at least of no Earthly good.

As I left behind such understandings I was drawn personally and intellectually to religious movements that were promoting social justice and civil rights including “liberation theology,” which had been resisting plutocratic, authoritarian, and violent regimes around the world.³ I was confounded, however, that these religious movements ignored the ways that anthropogenic environmental change intensified inequality and eroded the possibility of progressive societal transformations.⁴

In part due to this lacunae, in the late 1980s I began intensive study of the radical environmental movements that were deploying civil disobedience and sabotage to thwart environmental degradation and anthropogenic extinctions.⁵ In contrast to the liberation theologians, these activists were animated by spiritualities of belonging and connection to nature and a concomitant conviction that all living beings had value apart from any usefulness to humankind; in the parlance of contemporary environmental ethics, they were advancing “biocentric” or “ecocentric” ethics, sentiments also known as “deep ecology” (Taylor and Zimmerman 2005). Although my objective was to understand radical environmentalism through historical and ethnographic methods, the movement also became a muse as I tried to work out my environmental ethics and social philosophy.

I had sympathy for the ecocentric moral sentiments of these activists (Taylor 2019, Taylor et al. 2020). I also found compelling much of their criticisms of contemporary growth-obsessed industrial-consumer societies. While considering environmental degradation to be a serious problem, however, I was skeptical of the view common among these activists that humankind was so degrading Earth’s life support systems that, barring a radical change of consciousness and behaviors, ecosystems and the civilizations that depend upon them would collapse. Some of these activists, moreover, thought that the sooner this collapse came the better, because the survivors might finally learn their planetary manners and establish sustainable and equitable societies. Although this was a cataclysm with no divine agent responsible, radical environmental apocalypticism reminded me of the Christian millennialism that I had earlier rejected.

There was, however, a key difference: the radical environmentalists claimed that they were grounding their apocalypticism in science. And because there was a profound religious dimension to radical environmentalism I noted that, indeed, this was the first time a religious apocalypticism was grounded in science, or at least, in a particular reading of it. This made it impossible for me to dismiss their claims out of hand, so I set out to critically evaluate these claims.

Before I encountered radical environmentalism, I had already read some of what could be called the eco-apocalyptic classics, such as Paul Ehrlich’s *The Population Bomb* (1968) and *The End of Affluence* (1974) and Garrett Hardin’s “The Tragedy of the

Commons” (1968) and “Lifeboat Ethics” (1974, cf. 1993). Plunging into the study of radical environmentalism deepened my understanding of the long entanglement of science, spirituality, and environmental apocalypticism, most notably by Alexander von Humboldt (1845, cf. Wulf 2015), George Perkins Marsh ([1864] 2003), Henry David Thoreau ([1862] 2000), John Muir (1997; cf. Fox 1992), Aldo Leopold (2013), Rachel Carson (2018), William Catton (1980) and Bill McKibben (1989). New ecological sciences, especially island biogeography and conservation biology (Soulé and Wilcox 1980; Quammen 1996; MacArthur and Wilson 2001; Meine, Soulé, and Reed 2006) were also influencing scientifically-inclined radical as well as mainstream environmentalists. Social scientists also contributed to the eco-apocalyptic genre by linking social instability and even genocide to environmental scarcity rooted in anthropogenic environmental degradation (Homer-Dixon 1991, 1993, 1994, 1998). Observing such trends, I argued that, for the first time in the history of religion, apocalyptic expectation was being rooted in science (Taylor 1991, 1994, 2008; Globus and Taylor 2009).

Since Earth Day in 1970, a growing number of influential scientific reports, most commissioned by the United Nations or its affiliated agencies, have contributed to increasing alarm about Earth’s socioecological systems, including most significantly:

- A 1972 study commissioned by the Club of Rome titled *The Limits to Growth*, which drew on innovative computer modeling of the interactions of environmental and social systems (Meadows 1972). The researchers concluded that, without dramatic international action to curb increases in human numbers and per-capita consumption, environmental degradation would cause widespread collapse of socioecological systems during the 21st century. Subsequent research demonstrated the report’s remarkable prescience (Meadows et al. 2004; Turner 2008).
- Also in 1972, the UN sponsored Conference on the Human Environment (UNCHE) was held in Stockholm. It introduced the notion of “sustainable development” and noted the many obstacles to it.
- In 1987, *Our Common Future* (WCED 1987) was published. Better known as the “Brundtland Report” after Gro Harlem Brundtland, the Norwegian Prime Minister who orchestrated the research, the study catapulted the notion of “sustainable development” into international political discourse and stressed that urgent action was needed toward that end.
- In 1988, the Intergovernmental Panel on Climate Change (IPCC) was established under UN auspices. Its reports have warned, with increasing urgency, of catastrophic consequences if anthropogenic climate warming is not limited.

- In 1992, the Conference on Environment and Development was held in Rio de Janeiro. Popularly known as the Rio Earth Summit, its delegates adopted “Agenda 21,” a strategy to promote sustainable development, as well as a Convention on Biological Diversity, which was eventually ratified by 30 nations. Subsequent and regular research reports from the Convention’s “Conference of the Parties” meetings have documented biodiversity erosion and proposed ameliorative responses (CBD 2020; UNEP 2018).
- In 2002, the second “Earth Summit” was held in Johannesburg and titled the “World Summit on Sustainable Development.” It failed, however, to secure commitments by the nations to prevent further global warming, which triggered despair among those who had hoped for an effective global response.
- In 2005, the UN published the Millennium Ecosystem Assessment (MEAP 2005). It warned that without dramatic changes, the “ecosystems services” provided by nature, and upon which human societies and sustainable development goals depend, would continue to dramatically erode.
- In 2012, efforts taking place under the Convention on Biological Diversity were intensified with the establishment of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES 2020). The IPBES seeks to make science-based recommendations to slow the erosion of Earth’s biodiversity.
- In 2012 a third “Earth Summit” titled “The United Nations Conference on Sustainable Development” was held in Rio de Janeiro. Although the UN had declared 2011 through 2020 a Decade on Biodiversity,⁶ Rio+20, as the summit was popularly known, was an abject failure.
- In 2019 the IPBES issued a major report concluding that within a few decades a million species were likely to become extinct, with a concomitant dramatic increase in malnutrition and social instability (IPBES et al. 2019).

The reports commissioned under the UN umbrella are consensus-driven, constrained by political considerations and they are, therefore, conservatively expressed. Indeed, contrary to the claims of some, “scientists are biased not toward alarmism but rather the reverse: toward cautious estimates, where we define caution as erring on the side of less rather than more alarming predictions” (Brysse et al. 2013, 327). The “extremely careful” approach taken by the IPCC, for example, as climate scientist James Hansen (2007) observed, “makes the IPCC conclusions authoritative and widely accepted. It is probably a necessary characteristic, given that the IPCC document is produced as a

consensus among most nations in the world and represents the views of thousands of scientists” (5).

Nevertheless, many scientists are distraught at their failure to convince the public of the dangers posed by anthropogenic climate change. This has led to a number of grave “warnings to humanity” issued by scientists who are unconstrained by working under the aforementioned international bodies’ research efforts: the first in 1992 by the Union of Concerned Scientists (UCS 1992), a second in 2017 with over 15,000 signatories (Ripple et al. 2017), which was followed three years later by a warning of a “climate emergency” (Ripple et al. 2020). Scientists and historians have aptly called the dramatic increase in environmental degradation since the mid-20th century the “great acceleration” (McNeill and Engelke 2014; Homer-Dixon et al. 2015) and scores of popular articles and books have sought to bring to wider publics understandings that humankind is precipitating a “sixth great extinction” (Kolbert 2014; Ceballos et al. 2017, 2020). Even the authors of the aforementioned international reports have been expressing their concerns in increasingly forceful ways. Nevertheless, the ameliorative action that has been taken is too anemic (rarely with any hard targets or enforcement mechanisms) to prevent the destructive dynamics that scientists have documented and projected. Indeed, many scientists believe, in a way that coheres with the early modeling in *Limits to Growth*, that a time of chaos, anarchy, and suffering is already unfolding, will spread widely, threatening civilization itself (Catton 1980; Diamond 2005; Kaplan 2000; Lovelock 2006).

With other contributors to this issue of *Ecocene*, I have been invited to reflect on the recent warnings to humanity about the accelerating environmental crisis. In their letter of invitation our editors suggested that the humanities scholars may be able to influence environmental politics “not just by amplifying the warning messages of scientists but by emphasizing the often-neglected cultural dimensions of social-ecological crises [and thus] sow transformative seeds of change.”

This is a tall order.

To consider such possibilities, it may be instructive to look back at the types and histories of apocalypticism.

The traditionally religious forms, with their expectation of the end of the existing world and some new and better form of existence afterward, always face a challenge when the ending and new beginning does not come as expected. At that point, some devotees abandon their faith while others re-interpret the expectation and maintain it. As many studies have shown, religious apocalypticism is remarkably resilient even in the face of disconfirming evidence (Festinger, Riecken, and Schachter 1956; Kyle 1998).

What about Environmental Apocalypticism?

Although eco-apocalypticism is grounded in science, our species has proven to be remarkably adept at ignoring its warnings. One reason for this is that so many people are firmly rooted in religious worldviews in which a divine being or beings are in control of environmental systems, which makes it difficult to believe that human beings could destroy the world (Taylor 2016; Taylor, Van Wieren, and Zaleha 2016). Among the other reasons are the pressing demands many face for survival itself; the distractions of eros and consumer culture; the failure of educational systems to teach evolution and the environmental sciences; the deceptions promulgated by those individuals and groups whose privileges would be reduced were we to respond adequately to our environmental predicaments; the authoritarians and plutocrats for whom maintaining power and privilege are their foremost priorities; and ideologies that contend that human wellbeing depends on increasing economic growth.

If it is true that the best predictor of future behavior is past behavior, then it is difficult to be optimistic when considering the possibility of an effective human response.

Nevertheless, the destructive dynamics that are unfolding are increasingly difficult to deny, which could spur action. Survey data show that increasing proportions of the human community, kindled in part by intensifying storms, floods, fires and so forth, are coming to understand the threats posed by anthropogenic climate change (Milfont, Wilson, and Sibley 2017; Goldberg et al. 2019). There are, moreover, many examples wherein people cooperate, sometimes in heroic ways, in response to environmental and other disasters (Solnit 2009). Moreover, visionaries continue to propose dramatic changes that could make a difference, such as setting aside half of Earth's ecosystems as nature reserves (Dinerstein et al. 2017).

Perhaps it is with such possibilities in mind that the scholars focusing on adaptation and resilience warned that we were already breaching several of the “planetary boundaries” or indicators of “safe spaces” that are needed for flourishing human societies (Rockström et al. 2009; Steffen et al. 2015)—while also arguing that there is still time for “behavioral changes, technological innovations, new governance arrangements, and transformed social values” (Steffen et al. 2018) to avert the collapse of Earth's socioecological systems.

Just as there are limits to Earth's carrying capacity, however, there is strong evidence that humankind is unwilling or unable to grasp and respond to the acceleration of negative anthropogenic environmental degradation. Unfortunately, recent research has provided further evidence that coheres with earlier works linking environmental extremes, resource scarcity, and now climate change, to social

instability and violence (Homer-Dixon et al. 2015; Hsiang, Burke, and Miguel 2013; Hsiang, Meng, and Cane 2011). This includes how extreme environmental change exacerbates longstanding ethnic and social fissures (Schleussner et al. 2016), leading even the US Department of Defense to understand climate change as a threat to national security (DOD 2015).

Many scholars recognize that “catastrophic and existential risks” (Currie and Ó hÉigeartaigh 2018) inhere to the collapse of ecosystems (Kareiva and Carranza 2018, cf. Rees 2003). Equally important, however, are analyses of what Homer-Dixon (2000) has called “the ingenuity gap,” which includes the failure of international institutions to create the governance structures and mechanisms that are needed to ameliorate the well-documented dangers of anthropogenic environmental change (Walker et al. 2009). In this light it appears the human story is approaching a “hothouse earth” crescendo that “would likely cause serious disruptions to ecosystems, society, and economies” and even threaten “the habitability of the planet for humans” (Steffen et al. 2018, 8252).

For these reasons, despite my reticence about being pulled back into an apocalyptic worldview, I have come to think that the *Limits to Growth* researchers were, unfortunately, all too prescient: The 21st century is far more likely to inaugurate a dystopian than ecotopian era.

And yet, perhaps as the apocalyptic imagination often suggests, through calamity and suffering, and against long odds, a positive future may yet emerge.

One such vision I found during the 1990s on a movement bumper sticker when studying radical environmentalism: “There’s hope but not for us.”⁷ When one leaves behind the idea that the survival of our species is of paramount importance, quite obviously, it is possible to look at many things differently, including the survival of human societies. Such a perspective can be found in the Voluntary Human Extinction Movement with its slogan, “live long and die out!”⁸ Underlying VHEMT’s slogan is an ethical claim: that if our species cannot learn its planetary manners and allow the rest of the living world to flourish, we ought to do the right thing and depart gracefully.

But there is within this subculture another kind of vision, one that does not expect our species to voluntarily restrain its numbers and its voracious appetite for the natural world but rather, thinks that after the collapse of techno-industrial civilization, new possibilities might arise. Perhaps at this point we might come to see ourselves, as Aldo Leopold (1949, 204) evocatively put it, not as conquerors but as plain members and citizens of the biotic community. As the writer Edward Abbey ([1978] 1988) once put his own version of such a post-collapse vision:

A house built on greed will not endure. Whether it's called capitalism or socialism makes little difference . . . both are self-destroying. Even without the accident of a nuclear war, I predict that the military-industrial state will disappear from the surface of the earth within a century. That belief is the basis of my inherent optimism, the source of my hope for the coming restoration of a higher civilization: scattered human populations modest in number that live by fishing, hunting, food gathering, small scale farming and ranching, that gather once a year in the ruins of abandoned cities for great festivals of moral, spiritual, artistic and intellectual renewal, a people for whom the wilderness is not a playground but their natural native home. (28)

Whether this is a hopeful vision will be in the eye of the beholder; so will its likelihood. What does seem likely, however, is that the future will increasingly reflect what the original *Limits* researchers feared would begin to unfold in the 21st century, namely, the collapse of the unsustainable socioecological systems that our species has constructed.

It remains possible that the combined voices of scientifically literate scholars, as well as (to speak metaphorically) of the Earth's suffering organisms and strained ecosystems, will precipitate a new era of cooperation and innovation, and thus, the changes needed to avert such a collapse and usher in sustainable socioecological systems. If the ecotopia is to eventually come, it might well be that apocalyptic sciences, and the imaginaries and actions they have kindled, will have contributed to that future.

Notes

¹ See, e.g., Lindsey (1970) and LaHey and Jenkins (1995); for a scholarly analysis see Shuck (2009).

² An edited volume by Wessinger (2009) provides the best overview.

³ See Cone (2020 [1970]), Boff (1978), Gutiérrez (1973), Bonino (1975), and Segundo (1976).

⁴ Reuther (1975) added women and Earth to those deserving liberation. Later Boff (1995) connected the liberation of the Earth and the poor, which influenced the environmentalism of Pope Francis I (2015).

⁵ Taylor 1991, 1995a, 1995b, 2005a, 2005b, 2008.

⁶ <https://www.cbd.int/2011-2020/>.

⁷ The slogan was adapted from Franz Kafka who was reflecting not on humankind but on those who shared his Jewish heritage.

⁸ <http://www.vhgmt.org/>.

References

- Abbey, Edward. [1978] 1988. *One Life at a Time, Please*. New York: Henry Holt.
- Boff, Leonardo. 1978. *Jesus Christ Liberator: A Critical Christology for Our Time*. Maryknoll, N.Y.: Orbis.
- . 1995. *Ecology & Liberation: The Emergence of a New Paradigm*. Maryknoll, NY: Orbis.
- Bonino, Miguez. 1975. *Doing Theology in a Revolutionary Situation*. Philadelphia: Fortress.
- Brysse, Keynyn, Naomi Oreskes, Jessica O'Reilly, and Michael Oppenheimer. 2013. "Climate Change Prediction: Erring on the Side of Least Drama?" *Global Environmental Change* 23 (1): 327–37.
- Carson, Rachel. 2018. *Silent Spring & Other Writings on the Environment*, edited by Sandra Steingraber, New York: The Library of America.
- Catton, William. 1980. *Overshoot: The Ecological Basis of Revolutionary Change*. University of Illinois Press.
- CBD (Convention on Biological Diversity). 2020. "History of the Convention: Introduction" *Convention on Biological Diversity*, May 11. <https://www.cbd.int/History/>.
- Ceballos, Gerardo, Paul Ehrlich, and Rodolfo Dirzo. 2017. "Biological Annihilation via the Ongoing Sixth Mass Extinction Signaled by Vertebrate Population Losses and Declines." *PNAS* 114 (30): E6089–E6096. <https://doi.org/10.1073/pnas.1704949114>.
- Ceballos, Gerardo, Paul Ehrlich, and Peter Raven. 2020. "Vertebrates on the Brink as Indicators of Biological Annihilation and the Sixth Mass Extinction, Proceedings of the National Academy of Sciences" *PNAS* 117 (24): 13596–13602. <https://doi.org/10.1073/pnas.1922686117>.
- Cone, James. [1970] 2020. *A Black Theology of Liberation*. Fiftieth anniversary ed. New York: Orbis.
- Currie, Adrian, and Seán Ó hÉigeartaigh. 2018. "Working Together to Face Humanity's Greatest Threats: Introduction to the Future of Research on Catastrophic and Existential Risk." *Futures* 102 (September): 1–5. <https://doi.org/10.1016/j.futures.2018.07.003>.
- Diamond, Jared. 2005. *Collapse: How Societies Choose to Fail or Succeed*. New York: Viking.
- Dinerstein, Eric, David Olson, Anup Joshi, et al. 2017. "An Ecoregion-Based Approach to Protecting Half the Terrestrial Realm." *BioScience* 67 (6): 534–45. <https://doi.org/10.1093/biosci/bix014>.
- DOD (United States Department of Defense). 2015. "National Security Implications of Climate-Related Risks and a Changing Climate." *U.S. Department of State*, July 23. <https://archive.defense.gov/pubs/150724-congressional-report-on-national-implications-of-climate-change.pdf>.
- Ehrlich, Paul. 1968. *The Population Bomb*. New York: Ballentine.
- . 1974. *The End of Affluence*. New York: Ballentine.
- Festinger, Leon, Henry Riecken, and Stanley Schachter. 1956. *When Prophecy Fails*. University of Minnesota Press.
- Fox, Warwick. 1992. "Intellectual Origins of the Depth Theme in the Philosophy of Arne Naess." *The Trumpeter* 9 (2): 68–73.
- Francis. 2015. *Laudato Si': On Care for Our Common Home*. Vatican: Libreria Editrice Vaticana. http://www.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html.
- Globus, Robin, and Bron Taylor. 2009. "Environmental Millennialism." In *Oxford Handbook on Millennialism*, edited by Catherine Wessinger, 628–46. Oxford University Press.

- Goldberg, Matthew, Sander van der Linden, Edward Maibach, et al. 2019. "Discussing Global Warming Leads to Greater Acceptance of Climate Science." *Proceedings of the National Academy of Sciences* 116 (30): 14804–05. <https://doi.org/10.1073/pnas.1906589116>.
- Gutiérrez, Gustavo. 1973. *A Theology of Liberation: History, Politics, and Salvation*. New York: Orbis.
- Hansen, James E. 2007. "Scientific Reticence and Sea Level Rise." *Environmental Research Letters* 2 (2): 1–6. <https://doi.org/10.1088/1748-9326/2/2/024002>.
- Hardin, Garrett. 1968. "The Tragedy of the Commons." *Science* 162 (3859): 1243–48.
- . 1974. "Living on a Lifeboat." *BioScience* 24 (10): 561–68.
- . 1993. *Living within Limits*. New York: Oxford University Press.
- Homer-Dixon, Thomas F. 1991. "On the Threshold: Environmental Changes as Causes of Acute Conflict." *International Security* 16 (2): 76–116.
- . 1994. "Across the Threshold: Empirical Evidence on Environmental Scarcities as Causes of Violent Conflict." *International Security* 19 (1): 5–40.
- . 2000. *The Ingenuity Gap*. New York: Knopf.
- Homer-Dixon, Thomas, Jeffrey Boutwell, and George Rathjens. 1993. "Environmental Change and Violent Conflict." *Scientific American* 268 (2): 38–45.
- Homer-Dixon, Thomas, and Jessica Blitt, eds. 1998. *Ecoviolence: Links among Environment, Population, and Security*. Lanham, Maryland: Rowman & Littlefield.
- Homer-Dixon, Thomas, Brian Walker, Reinette Biggs, et al. 2015. "Synchronous Failure: The Emerging Causal Architecture of Global Crisis." *Ecology and Society* 20 (3): 6. <http://doi.org/10.5751/ES-07681-200306>.
- Hsiang, Solomon, Marshall Burke, and Edward Miguel. 2013. "Quantifying the Influence of Climate on Human Conflict." *Science* 341 (6151): 1235367. doi:10.1126/science.1235367.
- Hsiang, Solomon, Kyle Meng, and Mark Cane. 2011. "Civil Conflicts are Associated with the Global Climate." *Nature* 476 (7361): 438–41. <https://doi.org/10.1038/nature10311>.
- Humboldt, Alexander von. 1845. *Cosmos: A Survey of the General Physical History of the Universe*. New York: Harper & Brothers.
- IPBES. 2020. "History of the Establishment of the IPBES." IPBES. <https://ipbes.net/history-establishment>.
- IPBES. 2019. "Summary for Policymakers of the Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services," edited by S. Díaz, J. Settele, E. Brondízio, H., et al. https://ipbes.net/sites/default/files/inline/files/ipbes_global_assessment_report_summary_for_policymakers.pdf
- Kaplan, Robert D. 2000. *The Coming Anarchy: Shattering the Dreams of the Post Cold War*. New York: Random House.
- Kareiva, Peter, and Valerie Carranza. 2018. "Existential Risk Due to Ecosystem Collapse: Nature Strikes Back." *Futures* 102 (September): 39–50. <https://doi.org/10.1016/j.futures.2018.01.001>.
- Kolbert, Elizabeth. 2016. *The Sixth Extinction: An Unusual History*. New York: Henry Holt.
- Kyle, Richard. 1998. *The Last Days Are Here Again: A History of the End Times*. Grand Rapids, Michigan: Baker Books.
- Leopold, Aldo. [1949] 2013. *A Sand County Almanac & Other Writings on Ecology and Conservation*, edited by Curt Meine. New York: Library of America.
- Lindsey, Hal. 1970. *The Late Great Planet Earth*. Grand Rapids: Zondervan.

- Lovelock, James. 2006. *The Revenge of Gaia: Earth's Climate Crisis and the Fate of Humanity*. New York: Basic Books.
- MacArthur, Robert H., and Edward O. Wilson. 2001. *The Theory of Island Biogeography*. Princeton University Press.
- Marsh, George Perkins. [1864] 2003. *Man and Nature*, edited by David Lowenthal. *Weyerhaeuser Environmental Classics* (Washington University Press). Original edition, Scribner, Armstrong.
- McKibben, Bill. 1989. *The End of Nature*. New York: Random House.
- McNeill, John Robert, and Peter Engelke. 2014. *The Great Acceleration: An Environmental History of the Anthropocene since 1945*. Cambridge, Massachusetts: The Belknap Press.
- Meadows, Donella H. 1972. *Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind*. New York: Universe.
- Meadows, Donella H., Jørgen Randers, and Dennis L. Meadows. 2004. *The Limits to Growth: The 30-Year Update* (White River Junction, Vermont: Chelsea Green Publishing Company).
- MEAP (Millennium Ecosystem Assessment Program). 2005. *Ecosystems and Human Well-Being: Synthesis*. Washington, DC: Island Press.
- Meine, Curt, Michael Soulé, and Noss. Reed. 2006. "A Mission-Driven Discipline: The Growth of Conservation Biology." *Conservation Biology* 20 (3): 631–51.
- Milfont, Taciano L., Marc S. Wilson, and Chris G. Sibley. 2017. "The Public's Belief in Climate Change and its Human Cause are Increasing over Time." *PLOS ONE* 12 (3): e0174246. doi: 10.1371/journal.pone.0174246.
- Muir, John. 1997. *John Muir: Nature Writings*, edited by William Cronon. New York: Library of America.
- Quammen, David. 1996. *Song of the Dodo: Island Biogeography in an Age of Extinctions*. New York: Scribner.
- Rees, Martin J. 2003. *Our Final Hour: A Scientist's Warning How Terror, Error, and Environmental Disaster Threaten Humankind's Future in This Century on Earth and Beyond*. New York: Basic Books.
- Reuther, Rosemary. 1975. *New Woman/New Earth: Sexist Ideologies and Human Liberation*. New York: Seabury.
- Ripple, William J, Christopher Wolf, Thomas M. Newsome, Mauro Galetti, Mohammed Alamgir, Eileen Crist, I. Mahmoud, and William F. Laurance. 2017. "World Scientists' Warning to Humanity: A Second Notice." *BioScience* 67, no. 12 (December): 1026–28. <https://doi.org/10.1093/biosci/bix125>.
- Ripple, William J., Christopher Wolf, Thomas M Newsome, Phoebe Barnard, and William R. Moomaw. 2020. "World Scientists' Warning of a Climate Emergency." *BioScience* 70, no. 1 (January): 8–12. <https://doi.org/10.1093/biosci/biz088>.
- Rockström, Johan, Will Steffen, Kevin Noone, Åsa Persson, F. Stuart Chapin, Eric F. Lambin, Timothy M. Lenton et al. 2009. "A Safe Operating Space for Humanity." *Nature* 461 (7263): 472–75. <https://doi.org/10.1038/461472a>.
- Schleussner, Carl-Friedrich, Jonathan F. Donges, Reik V. Donner, and Hans Joachim Schellnhuber. 2016. "Armed-Conflict Risks Enhanced by Climate-Related Disasters in Ethnically Fractionalized Countries." *Proceedings of the National Academy of Sciences* 113 (33): 9216–9221. <https://doi.org/10.1073/pnas.1601611113>.
- Segundo, Juan Luis. 1976. *Liberation of Theology*. Maryknoll, N.Y.: Orbis Books.
- Shuck, Glenn W. 2009. "Christian Dispensationalism." In *Oxford Handbook on Millennialism*, edited by Catherine Wessinger, 515–28. Oxford: Oxford University Press.

- Solnit, Rebecca. 2009. *A Paradise Built in Hell: The Extraordinary Communities That Arise in Disasters*. New York: Viking.
- Soulé, Michael, and Bruce A. Wilcox, eds. 1980. *Conservation Biology: An Evolutionary-Ecological Perspective*. Sunderland: Sinauer.
- Steffen, Will, Katherine Richardson, Johan Rockström, Sarah E. Cornell, Ingo Fetzer, Elena M. Bennett, Reinette Biggs et al. 2015. “Planetary Boundaries: Guiding Human Development on a Changing Planet.” *Science* 347 (6223): 1259855. <https://doi.org/10.1126/science.1259855>.
- Steffen, Will, Johan Rockström, Katherine Richardson, Timothy M. Lenton, Carl Folke, Diana Liverman, Colin P. Summerhayes et al. 2018. “Trajectories of the Earth System in the Anthropocene.” *Proceedings of the National Academy of Sciences* 115 (33): 8252–59. <https://doi.org/10.1073/pnas.1810141115>.
- Taylor, Bron. 1991. “The Religion and Politics of Earth First!” *The Ecologist* 21 (6): 258–66.
- Taylor, Bron. 1994. “Earth First!’s Religious Radicalism.” In *Ecological Prospects: Scientific, Religious, and Aesthetic Perspectives*, edited by Christopher Key Chapple, 185–209. State University of New York Press.
- Taylor, Bron, ed. 1995a. *Ecological Resistance Movements: The Global Emergence of Radical and Popular Environmentalism*. State University of New York Press.
- Taylor, Bron. 1995b. “Resacralizing Earth: Pagan Environmentalism and the Restoration of Turtle Island.” In *American Sacred Space*, edited by David Chidester and Edward T. Linenthal, 97–151. Bloomington: Indiana University Press.
- . 2005a. “Earth First! And the Earth Liberation Front.” In *Encyclopedia of Religion and Nature*, edited by Bron Taylor, 518–24. London and New York: Continuum.
- . 2005b. “Radical Environmentalism.” In *Encyclopedia of Religion and Nature*, edited by Bron Taylor, 1326–35. London and New York: Continuum.
- . 2008. “The Tributaries of Radical Environmentalism.” *Journal of Radicalism* 2 (1): 27–61.
- . 2010. *Dark Green Religion: Nature Spirituality and the Planetary Future*. University of California Press.
- . 2016. “The Greening of Religion Hypothesis (Part One): From Lynn White, Jr. And Claims That Religions Can Promote Environmentally Destructive Attitudes and Behaviors to Assertions They Are Becoming Environmentally Friendly.” *Journal for the Study of Religion, Nature and Culture* 10 (3): 268–305. <https://doi.org/10.1558/jsrnc.v10i3.29010>.
- . 2019. “An Ecocentric Journey.” *The Ecological Citizen* 2 (Suppl A): 6–10.
- Taylor, Bron, Guillaume Chapron, Helen Kopnina, Ewa Orlikowska, Joe Gray, and John Piccolo. 2020. “The Need for Ecocentrism in Biodiversity Conservation.” *Conservation Biology* (May 18). <https://doi.org/10.1111/cobi.13541>
- Taylor, Bron, Gretel Van Wieren, and Bernard Daley Zaleha. 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 (3): 306–78. <https://doi.org/10.1558/jsrnc.v10i3.29011>.
- Taylor, Bron, and Michael Zimmerman. 2005. “Deep Ecology.” In *Encyclopedia of Religion and Nature*, edited by Bron Taylor, 456–60. London & New York: Continuum.
- Thoreau, Henry David. 1862. “Walking.” *The Atlantic*. Accessed July 12, 2007. <http://www.theatlantic.com/doc/186206/thoreau-walking>.
- Thoreau, Henry David. 2000. *Walden and Other Writings*, edited by Brooks Atkinson. New York: Modern Library.

- Turner, Graham M. 2008. "A Comparison of the Limits to Growth with 30 Years of Reality." *Global Environmental Change* 18 (3): 397–411.
- UCS (Union of Concerned Scientists). 1992. "World Scientists' Warning to Humanity." July 16. <https://www.ucsusa.org/about/1992-world-scientists.html>.
- UNEP. 2018. "More Needs to Be Done to Protect Biodiversity." *UN Environment*. <https://www.unenvironment.org/news-and-stories/story/more-needs-be-done-protect-biodiversity>.
- Walker, Brian, Scott Barrett, Stephen Polasky, Victor Galaz, Carl Folke, Gustav Engström, Frank Ackerman et al. 2009. "Looming Global-Scale Failures and Missing Institutions." *Science* 325 (5946): 1345–46. <https://doi.org/10.1126/science.1175325>.
- WCED (World Commission on Environment and Development). 1987. *Our Common Future*. <http://www.un-documents.net/wced-ocf.htm>.
- Wessinger, Catherine, ed. 2009. *Oxford Handbook on Millennialism*. Oxford: Oxford University Press.
- Wulf, Andrea. 2015. *The Invention of Nature: Alexander von Humboldt's New World*. New York: Knopf.