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Anthropocentrism

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Introduction

Anthropocentrism refers to a human-centered, or "anthropocentric," point of view. In philosophy, anthropocentrism can refer to the point of view that humans are the only, or primary, holders of moral standing. Anthropocentric value systems thus see nature in terms of its value to humans; while such a view might be seen most clearly in advocacy for the sustainable use of natural resources, even arguments that advocate for the preservation of nature on the grounds that pure nature enhances the human spirit must also be seen as anthropocentric. Alternative, non-anthropocentric or anti-anthropocentric views include ecocentrism, biocentrism, and similar framings. The articles assembled here look at the question of anthropocentrism from a variety of points of view, proceeding from an investigation of the roots of modern anthropocentrism in Western philosophy and religion, and looking at the implications for anthropocentric thinking of the Darwinian revolution and the emergence of environmentalism. Questions of anthropocentrism and its alternatives emerge in part from the nature/culture divide, a fault line of Western philosophy and environmental thought. These categories differ significantly in other cultural settings, and discussions of anthropocentrism and its alternatives would take on a much-different character outside the confines of "Western" thought.

General Overviews

While anthropocentrism has received attention as a subject worthy of full-length treatments, in many cases overviews are written with an eye toward a specific framing of an environmental or other problem, such as, for instance, animal rights. Many of the following texts, which serve as overviews, also appear elsewhere in this article. These works include, for instance, Barry and Frankland 2002, an encyclopedia offering useful articles on anthropocentrism and closely related topics. Classic book-length overviews of the subject, such as Nash 1989 and Leiss 1972, have more recently been joined by new overviews such as Steiner 2010 and edited collections such as Boddice 2011.

Barry, John, and E. Gene Frankland, eds. 2002. *International encyclopedia of environmental politics*. London and New York: Routledge.

See entries on anthropocentrism, ecocentrism, and environmental ethics.

Boddice, Rob, ed. 2011. *Anthropocentrism: Humans, animals, environments*. *Human-Animal Studies*, 1573-4226 12. Leiden, The Netherlands, and Boston: Brill.

A series of recent analyses seeking to understand what is meant by "human" when humanity is defined against "animals," the volume is wide ranging and provides an overview of current issues in the study of anthropocentrism.

Leiss, William. 1972. *The domination of nature*. New York: George Braziller.

A survey of the idea of human domination over nature. Republished as recently as 1994 (Montreal: McGill-Queen's Univ. Press).

Nash, Roderick Frazier. 1989. *The rights of nature: A history of environmental ethics*. *History of American Thought and Culture*. Madison: Univ. of Wisconsin Press.

A historical survey of the emerging field of environmental ethics, tracing genealogies of the field and also of its central concepts.

including anthropocentrism and alternatives to anthropocentrism.

Steiner, Gary. 2010. *Anthropocentrism and its discontents: The moral status of animals in the history of Western philosophy*. Pittsburgh, PA: Univ. of Pittsburgh Press.

A review of anthropocentrism in Western philosophy, from the perspective of animal rights.

Classical Antiquity and the Western Canon

The canonical works of Western science, philosophy, and the humanities have devoted considerable attention to the question of the human place in nature, and by extension to the question of anthropocentrism. In his overview, Gary Steiner finds that the “dominant view” in the history of Western philosophy is one of anthropocentrism. Notions about humankind’s superiority over other beings on earth are clearly evident in such cosmological orderings as the *scala naturae* or “Great Chain of Being” of classical Antiquity, which placed humankind within an ordered hierarchy ranging from “lower” life forms to the supernatural. Thus, Aristotle, in his *Politics*, asserts that “we may infer that, after the birth of animals, plants exist for their sake, and that the other animals exist for the sake of man . . . Now if nature makes nothing incomplete, and nothing in vain, the inference must be that she has made all animals for the sake of man” (Aristotle in Steiner 2010). The articles in this section present overviews of the role of anthropocentrism in Western thought, as is the case for Leiss 1972, Passmore 1980, Steiner 2010, and Wolloch 2006, and examine specific orderings of humans within nature, for instance in Lovejoy 1936, Renehan 1981, and Sedley 1991. Also included is Cohen 1985, a work on scientific revolutions that builds on Kuhn’s earlier work and provides a useful analysis of the Copernican revolution. The “Copernican” shift in understanding, from a geocentric to a heliocentric worldview, was, quite literally, a shift from an anthropocentric view of the universe; a similar discussion can be found in Brooke 2000, cited under Theological Anthropocentrism. This quintessential “paradigm shift” would serve as a standard of comparison against which future scientific revolutions, specifically the Darwinian one, would be compared (see Darwin, Natural Selection, and the Origins of Ecology).

Cohen, I. Bernard. 1985. *Revolution in science*. Cambridge, MA, and London: Belknap.

Cohen engages issues raised by Thomas Kuhn, connects the so-called Copernican revolution to subsequent reorderings of the human place in nature, and delineates the ways that the Copernican revolution has been compared to that of Darwin, among other things (see, e.g., Darwin, Natural Selection, and the Origins of Ecology).

Leiss, William. 1972. *The domination of nature*. New York: George Braziller.

An overview of ideas about human domination of nature from the Renaissance to the modern era. Republished as recently as 1994 (Montreal: McGill-Queen’s Univ. Press).

Lovejoy, Arthur O. 1936. *The great chain of being: A study of the history of an idea*. Cambridge, MA, and London: Harvard Univ. Press.

A classic work on the *scala naturae*, Lovejoy’s book investigates the origins of this influential cosmological ordering in the work of Plato, Aristotle, and the Neoplatonists and traces its influence on the subsequent philosophical, scientific, and artistic works in the Western tradition. Reprinted as recently as 1982.

Passmore, John Arthur. 1980. *Man’s responsibility for nature: Ecological problems and Western traditions*. 2d ed. London: Duckworth.

Passmore suggests it is not only Christian theology but also classical philosophy (and Aquinas’s reliance on Aristotelian orderings of the world) that forms the intellectual basis for modern anthropocentrism. Passmore identifies two tendencies within the Christian tradition: the first frames humans as “despot”; the second, as caretaker or “steward.” Originally published in 1974.

Renehan, Robert. 1981. The Greek anthropocentric view of man. *Harvard Studies in Classical Philology* 85:239–259.

A contextualization of Greek understandings of human exceptionalism; Renehan documents the coherence of classical Greek philosophy around the idea that intelligence and the capacity for reason distinguished humans from the rest of nature. Available online for purchase or by subscription.

Sedley, David. 1991. Is Aristotle's teleology anthropocentric? *Phronesis* 36.2: 179–196.

While acknowledging that God and the divine constitute the highest order in Aristotelian orderings of the universe, Sedley argues nonetheless that Aristotle's teleology is in fact anthropocentric. Available online for purchase or by subscription.

Steiner, Gary. 2010. *Anthropocentrism and its discontents: The moral status of animals in the history of Western philosophy*. Pittsburgh, PA: Univ. of Pittsburgh Press.

Steiner's point of departure is animal studies (see Speciesism, Animal Rights, and Eating Animals), but this overview of anthropocentrism in Western thought is far reaching and thorough, investigating thinkers from Homer through Plutarch, medieval Christians, Descartes, and Kant, as well as 19th- and 20th-century scientists, philosophers, and social critics.

Wolloch, Nathaniel. 2006. *Subjugated animals: Animals and anthropocentrism in Early Modern European culture*. Amherst, NY: Humanity Books.

Like Steiner 2010, Wolloch approaches the question of anthropocentrism from the point of view of animal studies (see Speciesism, Animal Rights, and Eating Animals); also like Steiner's, this book provides a useful overview of anthropocentrism, and attitudes toward anthropocentrism, in European arts and letters through the 17th century.

THEOLOGICAL ANTHROPOCENTRISMS

To what extent are current discussions over anthropocentrism grounded in Western theology? One of the texts most important to modern debates over anthropocentrism is White 1967, "The Historical Roots of Our Ecologic Crisis." White blamed modern environmental problems on the anthropocentric worldview inherent in Christianity, and his argument was central to debates over anthropocentrism in its time (see the Environmental Era). White's essay engendered significant debate over the anthropocentric nature of Christianity; Harrison 1999 provides a comprehensive discussion. Scholarship on biblical authorizations of the human dominion over nature, for instance Goodman 1992, is indicative of this approach, which views Christian anthropocentrism from the point of view of ecology, as does Brooke 2000. Not all discussions of anthropocentrism in Christian theology turn on questions of the environment or nature, however; basic questions as to how to understand the human place in creation, or the relationship between humankind and God, have also been framed in terms of anthropocentrism, as are the case studies discussed in Manson 2000 and Silverman 2011. The earliest uses of the term "anthropocentrism" referred to these kinds of theological questions. Thus, while the earliest use of "anthropocentric" given in the *Oxford English Dictionary (OED)* (Oxford University Press 2000–) is 1863, in fact the term was in use within Christian theology previously, as in Hundeshagen 1855. It was only after the term "anthropocentrism" was introduced within these theological discussions over the displacement of God from the center of humanistic worldviews that it was then taken up within theological and philosophical debates over the merit and impact of Darwin's ideas (see Darwin, Natural Selection, and the Origins of Ecology).

Brooke, J. H. 2000. "Wise men nowadays think otherwise": John Ray, natural theology and the meanings of anthropocentrism. *Notes & Records of the Royal Society of London* 54.2: 199–213.

Brooke discusses John Ray's 1691 text, *Wisdom of God*. Ray's work is a bridging text, and Brooke's reading of it makes clear the close connections between the Copernican revolution and the development of a natural history in the 17th century that displaced earlier anthropocentric understandings of nature. Available online for purchase or by subscription.

Goodman, Ellen. 1992. Human mastership of nature: Aquinas and Milton's *Paradise Lost*. *Milton Quarterly* 26.1: 9–15.

Aquinas's justification of human domination over nature, explicated in the *Summa Theologica* and *Summa Contra Gentiles*, is one of the most important of such framings in Christian theology. Ellen investigates the far-reaching effect of Aquinas's portrayal of human mastery of nature, in this case in *Paradise Lost*. Available online for purchase or by subscription.

Harrison, Peter. 1999. Subduing the Earth: Genesis 1, Early Modern science, and the exploitation of nature. *Journal of Religion* 79.1: 86–109.

An overview of Christian ideas about the human dominion over nature, grounded in the book of Genesis. The paper is one of many responses to White 1967 and takes issue with the premise that the Christian doctrine of creation may be held accountable for present-day environmental woes.

Hundeshagen, Karl B. 1855. The inner mission and the German universities. *Evangelical Christendom* 9:78–80.

The early use of the term “anthropocentric” in this article is of a piece with its use in mid-19th-century theological texts; the author, a minister and a professor of theology at the University of Heidelberg, decries humanistic approaches to humankind's relation with God that understand God largely from the point of view of human needs and desires.

Manson, Neil A. 2000. Anthropocentrism and the design argument. *Religious Studies* 36.2: 163–176.

An article that investigates the question of “intelligent design” from the point of view of debates over anthropocentrism. An example of an article on the relationship between anthropocentrism and Christian theology that does not turn specifically on questions of ecology or environmental stewardship.

Oxford University Press. Anthropocentric. In *The Oxford English dictionary online*.

The OED entry gives an 1863 discussion of Hinduism as the earliest use of the term “anthropocentric,” followed by an 1876 translation of Haeckel's *History of Creation*. The shift from a theological to an evolutionary context for the term is mirrored in the wider literature. Available online by subscription.

Silverman, Eric J. 2011. Anthropocentrism and the medieval problem of religious language. In *Anthropocentrism: Humans, animals, environments*. Edited by Rob Boddice, 117–137. Leiden, The Netherlands, and Boston: Brill.

A discussion of medieval theology, specifically of Maimonides and Aquinas. At issue in this exploration of anthropocentrism is not the question of ecology, but the question of human-centered knowledge and the limitations that language places on humans' ability to know and describe the divine.

White, Lynn, Jr. 1967. The historical roots of our ecologic crisis. *Science* 155.3767: 1203–1207.

White, a historian of the Middle Ages, argued that Christianity “bears a huge burden of guilt” for modern ecological woes, owing to the dominion granted to humans over the natural world in the Bible. Available online for purchase or by subscription.

Darwin, Natural Selection, and the Origins of Ecology

Darwin's theory of natural selection, coupled with his assertion that humans, too, were produced through evolutionary processes, and that the difference between humans and other animals was thus one of degree and not of kind, represent one of the most significant and enduring challenges to anthropocentric notions of the central place of humans in relation to other organisms. The question of anthropocentrism featured significantly in debates over evolution and ecology in the wake of Darwin 1859 and figured not only in the critiques raised by his detractors but also in the works of those who shared many of his views. Thus, Huxley 1863 and Wallace 1904, which in different ways advanced the ideas at the core of evolutionary theory, differed over the question of anthropocentrism, with Wallace unwilling to completely abandon a human-centered understanding of humankind's “place” in the universe. The question was

similarly implicated in debates between Ernst Haeckel, who coined the term “ecology,” and his intellectual rival Emil Heinrich du Bois-Reymond; in Haeckel 1876 (and later works) and Du Bois-Reymond 1883 the two argued about who had been the first to identify the destabilizing effect of Darwin’s theory on the anthropocentric view of the world. In addition to original texts from Darwin’s era, this section includes analytical texts that assess the transformation of then-prevalent anthropocentric worldviews during the birth of evolutionary theory and ecology: Mayr 1972 extends Haeckel’s assertion that Darwin’s theory of natural selection constituted a shift in understanding on the order of the earlier Copernican revolution, Koerner 2001 traces continuities in human-centered orderings from classical Antiquity to the Linnaean classificatory scheme, and Dick 2008 explores Wallace’s divergence from more-revolutionary, and less anthropocentric, understandings of the transformations wrought by the new science of natural selection.

Darwin, Charles. 1859. *On the origin of the species by means of natural selection, or, the preservation of favoured races in the struggle for life*. London: John Murray.

By providing “descent with modification” as a mechanism for understanding the relation of species to each other, Darwin undermined the anthropocentric worldview that informed earlier orderings of humans in relation to other organisms. Republished as recently as 2009 (London: Penguin), edited and introduced by William Bynum.

Dick, Steven J. 2008. *The universe and Alfred Russel Wallace. Natural selection and beyond: The intellectual legacy of Alfred Russel Wallace*. Edited by Charles H. Smith and George Beccaloni, 320–340. Oxford: Oxford Univ. Press.

Dick examines Alfred Russel Wallace’s anti-pluralist understanding of the universe, and his teleological assertion that the “*raison d’être* of the world . . . was the development of the human spirit.”

Du Bois-Reymond, Emil Heinrich. 1883. *Darwin and Copernicus*. *Popular Science Monthly* 23 (June): 249–251.

A translation of a lecture at the Berlin Academy of Sciences, this is Du Bois-Reymond’s elaboration of the notion that the Darwinian revolution was on a par with that of Copernicus in its challenge to anthropocentrism.

Haeckel, Ernst Heinrich Philipp August. 1876. *The history of creation, or, the development of the Earth and its inhabitants by the action of natural causes: A popular exposition of the doctrine of evolution in general, and of that of Darwin, Goethe and Lamarck in particular*. Translated by E. Ray Lankester. New York: D. Appleton.

In this popular evolutionist history of the world, originally published in German in 1868, Haeckel suggested that the Judeo-Christian tradition was premised on two fallacies: the “geocentric error,” which places the earth at the center of creation, and “the anthropocentric error, that man is the premeditated aim of the creation of the earth” (pp. 38–39). In his later arguments with Du Bois-Reymond, Haeckel would expand on various forms of “anthropism,” the opposition of humans to the rest of nature. Fifth edition published in 1914.

Huxley, Thomas Henry. 1863. *Evidence as to man’s place in nature*. New York: D. Appleton.

The book makes the case that humans and apes belong to the same order of primates, the same argument against human exceptionalism that had propelled Huxley’s career as a defender of Darwin in a series of important public debates. Republished as recently as 2009 (Cambridge, UK: Cambridge Univ. Press).

Koerner, Lisbet. 2001. *Linnaeus: Nature and nation*. Cambridge, MA: Harvard Univ. Press.

Linnaeus’s “natural economy” understood nature in relation to divine intent, natural law, and the prerogatives of human use, and extended Aristotelian orderings of the *scala natura*. For Koerner, the success of the Linnaean classification of the natural world relied on the separation Linnaeus maintained between these interpretive frames and his scientific work. Originally published in 1999.

Mayr, Ernst. 1972. *The nature of the Darwinian revolution*. *Science* 176.4038: 981–989.

According to Mayr, the Darwinian revolution’s importance to Western science and culture consisted partly in its “destruction” of a

previous, anthropocentric conception of the universe. Available online for purchase or by subscription.

Wallace, Alfred Russel. 1904. *Man's place in the universe: A study of the results of scientific research in relation to the unity or plurality of worlds*. 4th ed. London: Chapman and Hall.

Wallace, whose discovery of natural selection emerged separately from Darwin's, differed from Darwin on the question of humans' relationship with other species. Here, partly in response to Huxley, Wallace elaborates an anthropocentric vision of human distinction in the face of evolutionary theory. Republished as recently as 2005 (New Delhi: Vishvabharti).

Modern Environmentalism in the American Grain

Modern environmental thought, increasingly spurred on by the recognition of ecological limits and of the impact of human use on the environment, has directed considerable attention to the question of anthropocentrism. A distinction between anthropocentric and non-anthropocentric viewpoints was apparent in the work of early naturalists and advocates for the importance of nature to such things as the human spirit or the national character. As environmental questions were increasingly framed in terms of a "crisis," the question of anthropocentrism came into sharper focus, and the possibility of alternatives to anthropocentrism were engaged directly.

EARLY ENVIRONMENTALISM

Especially within the American tradition, the emergence of a debate over the relative merits of anthropocentric and non-anthropocentric visions of nature can be traced to the distinction between the approaches of conservationists such as Gifford Pinchot and preservationists such as John Muir. Worster 1977 provides a historical contextualization of this distinction, which is represented in writings such as Pinchot 1998 and Muir 1997. American attitudes toward nature drew on Emerson's transcendentalism, which posited nature as a source of human inspiration, as in Emerson 1849, and on Thoreau's subsequent work, especially *Walden* (Thoreau 1882). Mark Twain brought his biting wit to bear on the idea of anthropocentric understandings of nature; Twain 1962 provides a quintessentially American view of Alfred Russel Wallace's effort to reconcile humanistic anthropocentrism and evolutionary theory (see Darwin, *Natural Selection*, and the *Origins of Ecology*). In one possible genealogy, it could be said that Leopold 1989, *A Sand County Almanac*, represents a culmination of these early writings; in it the author advocates for an explicitly non-anthropocentric value of nature, a position he comes to not as a disciple of Muir, but as a practitioner of conservation in the tradition of Pinchot. Grove 1995 provides an alternative to these American-centric origins of early environmentalism, tracing the emergence of ideas about scarce resources and environmental management to the experiences of British colonial administrators.

Emerson, Ralph Waldo. 1849. *Nature*. Boston: James Munroe.

Emerson urges humans to experience nature individually, and through nature to obtain access to the universe and the divine. Emerson's legacy consists partly of this anthropocentric framing of a nature whose importance rests in its capacity for promoting human self-realization (see Oelschlaeger 1993, in *Wilderness Troubles*). Originally published in 1836; republished as recently as 2008 (New York: Penguin).

Grove, Richard H. 1995. *Green imperialism: Colonial expansion, tropical island Edens, and the origins of environmentalism, 1600–1860*. Studies in Environment and History. Cambridge, UK: Cambridge Univ. Press.

Grove locates the origins of modern environmentalism in the experiences of colonial governments charged with administering tropical islands. Managing island resources with a view toward anthropocentric values, administrators became conservation minded when faced with scarcity.

Leopold, Aldo. 1989. *A Sand County almanac, and sketches here and there*. New York: Oxford Univ. Press.

Leopold's "land ethic" rests on respect for nature as an end in itself, not for its utility to humans. Leopold argues for the extension of the moral community to include nonhuman aspects of nature, an argument he makes through comparison with the recognition of the immorality of slavery. Originally published in 1949.

Muir, John. 1997. *Nature writings*. Edited by William Cronon. Library of America 92. New York: Library of America.

A comprehensive collection of the writings of John Muir (b. 1838–d. 1914), the early and important advocate for preservationism, founder of the Sierra Club, and early proponent of the establishment of national parks. In advocating for the preservation of nature for nature's sake, Muir advanced an explicitly non-anthropocentric environmental ideal.

Pinchot, Gifford. 1998. *Breaking new ground*. Commemorative ed. Introduced by Char Miller and V. Alaric Sample. Washington, DC: Island.

The autobiography of Gifford Pinchot, originally published in 1947 (New York: Harcourt, Brace), this book documents the utilitarian conservationism that Pinchot advocated throughout a storied career in conservation and government. His vision of stewardship was both influential and highly anthropocentric.

Thoreau, Henry David. 1882. *Walden*. Boston and New York: Houghton, Mifflin.

Thoreau's classic text is a departure from the more instrumental approach to nature adopted by Emerson, his mentor and advocate. While Thoreau follows Emerson in emphasizing the importance to humans of recognizing what is good in nature, he premises his argument on the intrinsic values of nature. Republished as recently as 2013 (London: HarperPress), in which it is combined with *Civil Disobedience*.

Twain, Mark. 1962. *Was the world made for man?* In *Letters from the Earth*. Edited by Bernard DeVoto, 221–226. New York and London: Harper & Row.

In this piece, written in 1903, Twain directs his biting satire at Alfred Russel Wallace's assertion that the universe exists to facilitate the development of the human spirit. Book republished as recently as 2004 (New York: Perennial Classics), with the subtitle *Uncensored Writings*.

Worster, Donald. 1977. *Nature's economy: The roots of ecology*. San Francisco: Sierra Club Books.

An investigation of ecological science and its relationship to human attitudes toward nature, Worster's text charts the historical emergence within environmental thinking of the contrast between anthropocentric, utilitarian understandings and non-anthropocentric, communitarian ones.

THE ENVIRONMENTAL ERA

The emergence of the environmental movement in the mid-20th-century was accompanied by a questioning of anthropocentric value systems and, in some cases, an embrace of non-anthropocentric or anti-anthropocentric alternatives. Environmental thinking during this period was spurred on by numerous factors. One of these was a recognition of the effects of human activity on the natural world, an understanding made accessible to many by Rachel Carson's documentation of the effects of pesticides on bird populations, discussed in Cafaro 2002. Another was the growing concern about population growth. This was a central concern addressed in Hardin 1968, arguably one of the most important papers on environmental scarcity of the last century. Alarm over population growth was further advanced in Ehrlich 1971. Recognition of scarce resources and increasing populations resurrected Malthusian arguments about planetary limits to growth and encouraged "global" environmental thinking; for instance, in the Gaia hypothesis initially developed in Lovelock 1979, work initially undertaken with biologist Lynn Margulis. Framings of environmental questions in terms of scarce resources and seemingly unlimited desires for growth were encapsulated in the notion of "sustainable development," first advanced in Brundtland Commission 1987. Questions of anthropocentrism were central to many of the framings of environmental crisis that structured environmental thinking during this period; as Minter and Manning 2005 suggests, the work of Lynn White, including White 1967 (cited under Theological Anthropocentrism), provides an important example. In the popular and literary press, the environmental crisis ushered in a flourishing of nature writing, such as McPhee 1971, as well as other nonfiction work that popularized the science of humans' relationship with nature, a category of writing that included not only Carson's early work, but also, for instance, work by writers from within the academy, such as Wilson 1984. Whereas the possibility of reconstituting the human-nature relationship on new, less anthropocentric terms might be fitted into an argument about the utopianism of the idealistic "1960s generation," the continued attention to such themes today suggests that

the effort to rework anthropocentrism is perhaps one of the lasting legacies of this period.

Brundtland Commission. 1987. Report of the World Commission on Environment and Development: Our common future. New York: United Nations.

The Brundtland Commission report played a key role in putting the notion of “sustainable development” on the international policy agenda. Inherently anthropocentric conceptualizations of the human relationship to the environment, arguments for sustainability valorize environmental protection almost entirely in terms of its value to projects of human advancement.

Cafaro, Philip. 2002. Rachel Carson’s environmental ethics. *World Views: Environment, Culture, and Ecology* 6.1: 58–80.

Carson’s *Silent Spring* made a case for environmental restraint based on the implications of chemical use for human health, for the well-being of animals, and on the value to humans of preserving nature. Cafaro examines the environmental ethics of *Silent Spring*, together with Carson’s other, more explicitly non-anthropocentric nature writing. Available online for purchase or by subscription.

Ehrlich, Paul R. 1971. *The population bomb*. New York: Ballantine.

Along with Hardin 1968, Ehrlich’s argument about the perils of population growth attached Malthusian apprehensions to debates over the environmental limits to growth and industrialization. The argument combined an awareness of the impact of human activity with an anthropocentric focus on the availability of resources to sustain human needs. Most recent revised edition published in 1998.

Hardin, Garrett. 1968. The tragedy of the commons. *Science* 162.3859: 1243–1248.

Hardin asserts that individual users of commonly held resources will seek to maximize their gain at the expense of the common good. Alarmed by worldwide population increase, Hardin argues for an “extension of morality” that would allow for the control of human “freedom to breed.” But Hardin’s focus is on “resources,” a framing that valorizes nature’s utility to humans. Available online for purchase or by subscription.

Lovelock, James E. 1979. *Gaia: A new look at life on Earth*. Oxford and New York: Oxford Univ. Press.

Lovelock’s assertion, initially developed with the biologist Lynn Margulis, presented Earth as a superorganism. Within this holistic representation, humans are relegated to the role of a mere component of a larger entity. Republished as recently as 1991.

McPhee, John. 1971. *Encounters with the archdruid*. New York: Farrar, Straus and Giroux.

McPhee narrates encounters between conservationist David Brower and three men with far-more-utilitarian views of nature, reminding readers of the enduring divide between Pinchot’s use-based ethic and Muir’s anti-anthropocentric ideal. Republished as recently as 2000.

Minteer, Ben A., and Robert E. Manning. 2005. An appraisal of the critique of anthropocentrism and three lesser known themes in Lynn White’s “The historical roots of our ecologic crisis.” *Organization & Environment* 18.2: 163–176.

A specific engagement with the challenge raised in White 1967 (cited under Theological Anthropocentrism), Minteer and Manning’s analysis demonstrates the continuing relevance of White’s framing of anthropocentrism and its centrality to the environmental crisis. Available online for purchase or by subscription.

Wilson, Edward O. 1984. *Biophilia*. Cambridge, MA: Harvard Univ. Press.

Wilson’s sociobiology, and his efforts elsewhere to explain culture in light of evolutionary theory, might seem to be opposed to human exceptionalism. But *Biophilia*’s anthropocentric suggestion is that because humans have evolved an affinity for nature, the conservation

of nature is justified for the contribution it makes to human well-being. Republished as recently as 2003.

WILDERNESS TROUBLES

The notion of wilderness—of nature free from human influence or modification—is tied up with the question of anthropocentrism. As both Nash 1982 and Cronon 1996 note, Western societies traditionally held negative or ambivalent views of wilderness—views that became increasingly more positive beginning perhaps in the 18th century, a transformation in attitude that Oelschlaeger 1993 also documents. Central to ideological understandings of wilderness in the United States was the notion, advanced in Turner 2010 (originally published in 1920), that the wilderness of the frontier played a formative role in forging the American character. As the American West became less and less “wild,” those seeking to preserve wilderness from development often made use of the nationalistic wilderness myth to make their case. The question of whether wilderness should be valued for its own sake or for the benefits it confers to human society, in this case for the contributions it makes to national identity, is one that places anthropocentric and non-anthropocentric systems of value into opposition. Wilderness itself is a troubling category, however. In recent years, partly as a result of ecological science, the integrity of the concept of wilderness itself has been called into question. Callicott and Nelson 1998 provides an overview of research in the burgeoning field of historical ecology; exemplary work in this field, for instance Balée and Erickson 2006, has demonstrated that forests long considered “primeval” in fact have long histories of settlement and are best considered “anthropogenic.” At the same time, demographers and geographers have pointed out that the absence of people from once-populated areas of the interior owes much to the tragic epidemics that accompanied conquest, a point made in Denevan 1992. Guha 1989 argues for a Third World critique of internationally supported nature conservation: efforts to remove humans from natural landscapes are premised on romantic understandings of a “pure” nature free from human modification. Much like the advent of Darwin’s theory of natural selection, the critique of wilderness suggests that humans do not stand outside nature, and raises questions about the basic categories on which arguments over anthropocentrism are based. Thus, for instance, the “crisis of wilderness” problematizes the preservationist, and anti-anthropocentric, argument that nature should be valued “for its own sake” and not for its provision of benefits to humans; where human use is understood as a critical element in the production of the natural world, then the extraction of humans from nature is itself unnatural.

Balée, William L., and Clark L. Erickson, eds. 2006. *Time and complexity in historical ecology: Studies in the Neotropical Lowlands*. Papers presented at the Symposium on Neotropical Historical Ecology, held at the Neotropical Ecology Institute, Tulane Univ., in October 2002. Historical Ecology Series. New York: Columbia Univ. Press.

An overview of work in historical ecology, this volume surveys important research areas in the field, including work on the species composition of anthropogenic forests, the extent and characteristics of the anthropogenic soils known as Amazonian “dark earths,” and case studies of areas once considered wild but now known to have been significantly affected by long periods of human habitation and management.

Callicott, J. Baird, and Michael P. Nelson, eds. 1998. *The great new wilderness debate*. Athens, GA: Univ. of Georgia Press.

A critical reader on the idea of wilderness, the book presents a series of classic texts on wilderness and follows them with critiques and efforts to find a way past the “crisis” of current views on wilderness.

Cronon, William. 1996. The trouble with wilderness; or, Getting back to the wrong nature. In *Uncommon ground: Rethinking the human place in nature*. Edited by William Cronon, 69–90. New York: W. W. Norton.

Cronon surveys historical framings of wilderness—as savage, as sublime—and subjects the concept to a constructivist critique. The removal of American Indians to create national parks, for instance, was done in the name of preserving America’s “uninhabited wilderness,” reminding us of “just how invented, just how constructed, the American wilderness really is.”

Denevan, William M. 1992. The pristine myth: The landscape of the Americas in 1492. *Annals of the Association of American Geographers* 82.3: 369–385.

While a powerful “pristine myth” suggests that the forests and grasslands of the American interior were largely a wilderness, Denevan argues for the recognition that this was a “humanized landscape.”

Guha, Ramachandra. 1989. *Radical American environmentalism and wilderness preservation: A Third World critique*. *Environmental Ethics* 11.1: 71–83.

Guha condemns radical ecology (see Deep Ecology and Environmentalist Anti-anthropocentrism) and advocacy for wilderness as an American construct. For Guha, it is a construct with negative implications for marginalized people, especially when the wilderness idea, along with nature conservation policy, is exported to the developing world. Available online by subscription.

Nash, Roderick. 1982. *Wilderness and the American mind*. 3d ed. New Haven, CT: Yale Univ. Press.

An overview of the American ideal of wilderness; Nash discusses Emerson, Thoreau, Muir and the opposition of his preservationist ideal to Pinchot's use-oriented conservationism, the emergence of American environmental politics, and Aldo Leopold. Originally published in 1967.

Oelschlaeger, Max. 1993. *The idea of wilderness: From prehistory to the age of ecology*. New ed. New Haven, CT, and London: Yale Univ. Press.

An intellectual history of the idea of wilderness, with a focus on the American experience. The author is attentive to arguments about the intrinsic value of nature and anthropocentric alternatives to such views. Originally published in 1991.

Turner, Frederick Jackson. 2010. *The frontier in American history*. Mineola, NY: Dover.

Turner identifies "the frontier" as a central and organizing myth in the development of the American national character. As Nash 1982 makes clear, the notion of wilderness was central to Turner's framing of the frontier; for Turner, American ideals were founded on a particularly anthropocentric project—the transformation of nature to human use. Originally published in 1920 (New York: Henry Holt).

Environmental Ethics and Modern Anti-anthropocentrism

Environmental ethics as a coherent field within the study of ethics emerged in the late 20th century in concert with widespread concern for the state of the environment and with the emergence of the environmental movement. The distinction between anthropocentric and non-anthropocentric approaches to valuing nature has been one of the central organizing frameworks within this literature. Environmental ethics' claim for theoretical innovation was in large part premised on the recognition of biocentric, ecocentric, and generally non-anthropocentric value systems, a point made in Callicott 1984. Early and foundational works within environmental ethics thus constituted the field as an effort to extend "moral being" from humans to other beings, especially animals (see Speciesism, Animal Rights, and Eating Animals) but also plants and other biota, as was advocated in Rolston 1975 and Taylor 2011 (originally published in 1986). While in the minority, some theorists of environmental ethics have argued from an explicitly anthropocentric approach, especially when they advocate for the notion that the exceptional nature of human influence implies a concomitant obligation of "stewardship"; elaborations of anthropocentric approaches to environmental ethics include the argument in Passmore 1980 (cited under Classical Antiquity and the Western Canon) for the human role as stewards of nature, and the argument in Barry 1998 for "virtue," made on strategic grounds. Norton 1984 argues for "weak anthropocentrism" in environmental ethics. Where arguments for environmental ethics have incorporated some element of anthropocentrism, these claims have often been made on pragmatic grounds, as has been the case with the work of Ben Minteer (see, for instance, Minteer and Manning 2005, cited under the Environmental Era).

Barry, John. 1998. *Rethinking green politics: Nature, virtue and progress*. SAGE Politics Texts. Thousand Oaks, CA: SAGE.

A call for a green politics based on virtue and environmental stewardship, conceived of in an explicitly anthropocentric framework.

Buell, Lawrence. 1995. *The environmental imagination: Thoreau, nature writing, and the formation of American culture*. Cambridge, MA, and London: Belknap.

This book is a foundational work of ecocriticism, a school of environmental textual criticism within the humanities. In it, Buell analyzes the

writing of Thoreau and allied figures in American letters and takes a moral stance in favor of biocentric and ecocentric depictions of nature, and against overly "homocentric" portrayals.

Callicott, J. Baird. 1984. Non-anthropocentric value theory and environmental ethics. *American Philosophical Quarterly* 21.4: 299–309.

The (then-)emerging field of environmental ethics may either be understood as applied or theoretical. If the former, its main task is to apply "well-established conventional philosophical categories" to environmental problems. If it is to be considered a new body of theory, the distinction will turn on the elaboration of a non-anthropocentric value theory or axiology. Available online for purchase or by subscription.

Murdy, W. H. 1975. Anthropocentrism: A modern version. *Science* 187.4182: 1168–1172.

A response, in part, to White 1967 (cited under Theological Anthropocentrism). Murdy argues for an anthropocentrism that takes into account the human potential for managing the environment, and he urges realism in addressing the human potential for managing human evolution. Available online for purchase or by subscription.

Norton, Bryan G. 1984. Environmental ethics and weak anthropocentrism. *Environmental Ethics* 6.2: 131–148.

A value system is one of strong anthropocentrism if value is reckoned according to the "felt preferences" of humans. Where "considered preferences" are used to countenance value, the system may be understood as one of "weak anthropocentrism," a position Norton favors. Framed as a response to the strong positions adopted by animal-rights advocates, Norton's anthropocentrically grounded environmental ethics places him in opposition to many advocates for non-anthropocentric ethics. Available online by subscription.

Rolston, Holmes, III. 1975. Is there an ecological ethic? *Ethics* 85.2: 93–109.

Rolston grounded his early advocacy for the extension of moral being beyond humans in the work of Darwin and Leopold. His claim here, that a moral logic may be found in nature, asserts that homeostasis is the "paramount law" in ecology, a view at odds with present-day nonequilibrium models of ecology. Available online for purchase or by subscription.

Taylor, Paul W. 2011. *Respect for nature: A theory of environmental ethics*. Princeton, NJ: Princeton Univ. Press.

Originally published in 1986. In contrast to Singer 1990 (cited under Speciesism, Animal Rights, and Eating Animals) and other works that argue for animal rights on the basis of animal sentience, Taylor proposes a "biocentric egalitarianism" based on the extension of moral rights to all living beings, including plants.

Williams, Bernard. 1995. Must a concern for the environment be centred on human beings? In *Making sense of humanity and other philosophical papers, 1982–1993*. By Bernard Williams, 233–240. Cambridge, UK, and New York: Cambridge Univ. Press.

Williams rejects projects of moral extension premised on the notion that other species have "interests" (a position taken in Taylor 2011, among other studies). Williams suggests many non-anthropocentric value systems retain a nature-culture divide, extend human morality to recognize the moral standing of nature, and thus "firmly preserve the traditional doctrine of our transcendence of nature."

DEEP ECOLOGY AND ENVIRONMENTALIST ANTI-ANTHROPOCENTRISMS

Arne Naess's term "deep ecology," coined in Naess 1973 and further popularized in Devall and Sessions 1985 (see also Sessions 1987), refers to a popular strain of non-anthropocentric philosophy. Deep ecology emerged within the context of the Environmental Era and struggles over the preservation of wilderness (see Wilderness Troubles). Adopted by some as a philosophy to guide social action, deep ecology has been closely linked to radical ecopolitics and artistic movements, finding advocates in activists such as Dave Foreman of Earth First!, and resonances in the writings of authors such as Edward Abbey and Gary Snyder. Critics of the deep-ecology movement have included not only traditional advocates of conservation for human benefit, but also non-anthropocentric philosophers such as

Sylvan (in Sylvan 1985), and advocates for critical environmental theory concerned by deep ecology's position on issues of social justice. Critiques in this vein include Pepper 1993 and Guha 1989 (the latter cited under Wilderness Troubles), as well as the work of social-ecology proponent Murray Bookchin (see Stoll 2001). Hay 1988 responds that deep ecology and concern for social justice are neither mutually exclusive nor founded on "romantic" understandings of a nature devoid of humans. Grey 1993 raises concerns over deep ecology from the point of view of evolutionary biology, an intervention that raises the question of the extent to which the "ecology" of deep ecology is concerned solely with ecosystem ecology and its traditional focus on holistic models of natural systems, to the exclusion of evolutionary ecology.

Devall, Bill, and George Sessions. 1985. *Deep ecology: Living as if nature mattered*. Salt Lake City, UT: Gibbs Smith.

A formulation of the principles of deep ecology as the basis for a "movement" and as an agenda for political action. Reprinted as recently as 2007.

Grey, William. 1993. Anthropocentrism and deep ecology. *Australasian Journal of Philosophy* 71.4: 463–475.

Grey's qualified anthropocentric argument invokes the "grand perspective of evolutionary biology" to raise questions about the non-anthropocentric value propositions that cluster around the term "deep ecology." Available online for purchase or by subscription.

Hay, P. R. 1988. The contemporary environment movement as neo-romanticism: A re-appraisal from Tasmania. *Environmental Review: ER* 12.4: 39–59.

A defense of ecocentric values and deep ecology, in the face of critiques of "romanticism" advanced by Third World and Marxist theorists. Available online for purchase or by subscription.

Naess, Arne. 1973. The shallow and the deep, long-range ecology movement: A summary. *Inquiry: An Interdisciplinary Journal of Philosophy* 16.1–4: 95–100.

The foundational text of deep ecology, Naess grounds deep ecology in a rejection of the nature/culture divide in favor of a "total-field" model, in an assertion of the positive value of diversity, and in "biospherical egalitarianism." Available online for purchase or by subscription.

Pepper, David. 1993. *Eco-socialism: From deep ecology to social justice*. London: Routledge.

Pepper's explicitly anthropocentric critique of deep ecopolitics takes issue with the movement's abandonment of issues of social justice and inequality.

Sessions, George. 1987. The deep ecology movement: A review. *Environmental Review: ER* 11.2: 105–125.

A review of the deep-ecology movement from the point of view of one of its principal proponents. Available online for purchase or by subscription.

Stoll, Mark. 2001. Green versus green: Religions, ethics, and the Bookchin-Foreman dispute. *Environmental History* 6.3: 412–427.

Stoll provides historical context and a theoretical explication of the critique of deep ecology and of Earth First! founder Dave Foreman that was leveled by anarchist and social ecologist Murray Bookchin. Bookchin took issue with the movement's failure to consider inequality and injustice in its advocacy for radical ecocentrism. Available online for purchase or by subscription.

Sylvan, Richard. 1985. A critique of deep ecology. *Radical Philosophy* 40 (Summer): 2–12.

Continued in *Radical Philosophy* 41 (Autumn 1985): 10–22. Sylvan takes issue with proponents of deep ecology, for instance Devall and Sessions 1985, for introducing “conceptual murkiness and degeneration” into the original, coherent definition. available Part I and Part II are available online by subscription.

SPECIESISM, ANIMAL RIGHTS, AND EATING ANIMALS

Moral extension—the extension of moral standing to nonhumans—is a central proposition of many non-anthropocentric value systems. Advocates for moral extension have often begun with nonhuman animals as the most obvious or natural candidates for moral standing. Thus, Leopold’s land ethic is premised on ethical extension; Leopold narrates his recognition of this principle through a series of encounters with wildlife, most famously, perhaps, in his discussion of the “fierce green fire” that fades from the eyes of a wolf as it dies (see Leopold 1989, under Early Environmentalism). While respect for animal being has a long tradition in Western thought—compassion toward animals was a central tenet of the ministry of St. Francis, for instance—the period since the early 1960s or so has seen important contributions to the case for the moral standing of animals, as demonstrated in comprehensive reviews of the subject, such as Steiner 2010. The term “speciesism,” which sought to frame human attitudes toward animals within the language of the civil-rights movement’s opposition to oppression (along with racism, sexism, etc.) was coined by Richard Ryder (see Ryder 1989) and popularized in Singer 1990, *Animal Liberation*. While animal rights advocacy has generally taken up an anti-anthropocentric viewpoint, arguments against eating meat on the basis of the unclean or industrial method of its slaughter and consumption are not necessarily anti-anthropocentric; where these arguments are based on appeals to human health, on the protection of the environment for human enjoyment, or on the degradation of the human spirit that accompanies the consumption of meat produced under these conditions, the arguments are decidedly anthropocentric in nature. Critical representations of industrial food production in the popular press, such as in Foer 2009 and Pollan 2006, have taken an anthropocentric view, for instance. As the flourishing of popular writing suggests, animal rights advocacy has experienced a boom in recent years; while foundational works remain important, recent reframings, such as that in Varner 1998, suggest the continued importance of animal-rights advocacy as a locus for the exploration of non-anthropocentric value systems within Western thought.

Foer, Jonathan Safran. 2009. *Eating animals*. New York and London: Penguin.

In his nonfiction defense of vegetarianism, the novelist decries the inhumane, industrial system of meat production. Ultimately, however, he differs with writers such as Michael Pollan (see Pollan 2006); for Foer, it is the fact that animals are sentient beings, capable of suffering, that convinces him of the immorality of consuming them.

O’Neill, Onora. 1997. Environmental values, anthropocentrism and speciesism. *Environmental Values* 6.2: 127–142.

Examining arguments about speciesism and anthropocentrism, O’Neill argues that not all animal rights need be considered fundamental or moral rights but may instead be understood as the “positive and institutional rights of a particular social-order.” Available online for purchase or by subscription.

Pollan, Michael. 2006. *The omnivore’s dilemma: A natural history of four meals*. New York: Penguin.

Pollan, a journalist, has become one of the foremost critics of industrialized food production and has written extensively about the health and environmental impacts of industrial slaughter.

Regan, Tom. 2004. *The case for animal rights: Updated with a new preface*. 2d ed. Berkeley and Los Angeles: Univ. of California Press.

Regan asserts that Western conceptions of rights and duties are themselves anthropocentric; he seeks to redefine rights in ways that would apply universally to all “subjects of life.” This latter term suggests his effort to replace the notion of “personhood,” a term that is couched in the language of anthropocentrism, with a new rubric of moral belonging. Originally published in 1983.

Ryder, Richard D. 1989. *Animal revolution: Changing attitudes towards speciesism*. Oxford and Cambridge, MA: Blackwell.

Ryder, who coined the term “speciesism” in 1974, argues against discrimination toward animal species by humans. In this book he

concentrates on animals' ability to feel pain as a necessary threshold for moral inclusion, a concept he would later term "painism."

Singer, Peter. 1990. *Animal liberation*. 2d ed. New York: New York Review of Books.

A foundational text of modern animal rights, originally published in 1975. Singer argues for the inclusion of animals within a utilitarian ethics. Singer asserts that animals, too, have interests, and that discrimination against the interests of certain individuals simply on the basis of the species they belong to is unethical. Republished in English as recently as 2002 (New York: Harper Collins).

Steiner, Gary. 2010. *Anthropocentrism and its discontents: The moral status of animals in the history of Western philosophy*. Pittsburgh, PA: Univ. of Pittsburgh Press.

A comprehensive review of anthropocentrism in Western philosophy, undertaken from the point of view of animal rights. Steiner identifies "orthodox" approaches to animal rights, which are based on the capacities of animals (such as in studies by Singer and Regan) and their kinship with humans, and "heterodox" approaches that rely less on anthropocentric values.

Varner, Gary E. 1998. *In nature's interests? Interests, animal rights, and environmental ethics*. Environmental Ethics and Science Policy. New York: Oxford Univ. Press.

Varner addresses perceived incompatibilities between holistic environmental ethics and more-individualist ethics based on animal rights. The author advocates for the view that all living things have interests, which ought to serve as the primary basis for asserting their moral value.

Emerging Issues in the Biological and Social Sciences

The following sections consist of brief surveys of emerging issues in the biological and social sciences that touch on the question of anthropocentrism in some way. These collections point to the way that anthropocentrism and its alternatives continue to frame current debate over the human relation to the environment.

BIOLOGY, ECOLOGY, AND ENVIRONMENTAL MANAGEMENT

Anthropocentrism and its alternatives exert influence on the biological and ecological sciences, especially when biology and ecology are used in the service of environmental management. Populations, communities, ecosystems, and landscapes, where they are managed by humans, are managed according to a system of environmental values. Insofar as those values are asserted by humans, the entire domain of management may be understood as human oriented, and thus anthropocentric. Even so, a distinction may be made between managing for economic productivity, ecosystem services, carbon sequestration, etc., or toward somewhat less anthropocentric values such as managing for wilderness, biodiversity conservation, or system resilience and sustainability—see, for instance, Gladwin, et al. 1995; Glaser 2006; Hende and Stankey 1973; and Keulartz 2012. Discussions of anthropocentrism within biology, ecology, and environmental management have thus focused on environmental valuation and ecosystem management—for instance, in Ehrlich and Ehrlich 1992; Martín-López, et al. 2008; and Turner, et al. 2003. Questions about anthropocentric orderings have also been raised within nonapplied fields of biology and ecology, particularly in regard to the extent to which various taxonomies, ordering systems, and analytical categories reflect "anthropocentric" values, rather than being grounded in a perspective originating closer to "natural" or "ecological" logics. These are long-standing issues (for the case of Linnaeus, see Brooke 2000, under Theological Anthropocentrism) but have received attention in recent assessments of anthropocentrism in ecological science; for instance, in Soulé and Stewart 1970.

Ehrlich, Paul R., and Anne H. Ehrlich. 1992. The value of biodiversity. *Ambio* 21.3: 219–226.

An explicitly anthropocentric argument for the value of biodiversity to humans. Available online for purchase or by subscription.

Gladwin, Thomas N., James J. Kennelly, and Tara-Shelomith Krause. 1995. Shifting paradigms for sustainable development: Implications for management theory and research. *Academy of Management Review* 20.4: 874–907.

A typology of management paradigms as they apply to the management of nature and natural resources. The authors examine technocentrism and ecocentrism within efforts to achieve sustainable development, and they urge the adoption of "sustaincentrism" as a preferred alternative. Available online for purchase or by subscription.

Glaser, Marion. 2006. The social dimension in ecosystem management: Strengths and weaknesses of human-nature mind maps. *Human Ecology Review* 13.2: 122–142.

An analysis of "mind maps"—anthropocentric or otherwise—undergirding ecosystem management science.

Hendee, John C., and George H. Stankey. 1973. Biocentricity in wilderness management. *BioScience* 23.9: 535–538.

An analysis of the possibilities for a biocentric value system as a guiding principle for the management of wilderness in the United States.

Keulartz, Jozef. 2012. The emergence of enlightened anthropocentrism in ecological restoration. *Nature and Culture* 7.1: 48–71.

The author asserts that a recent tendency to embrace "ecological design" at the expense of ecological restoration represents an embrace of anthropocentric values, a "hubristic" and technocratic effort to mold ecosystems entirely according to humans' perceptions of their own needs. Available online for purchase or by subscription.

Martín-López, Berta, Carlos Montes, and Javier Benayas. 2008. Economic valuation of biodiversity conservation: The meaning of numbers. *Conservation Biology* 22.3: 624–635.

A study in contingent valuation of biodiversity; the authors investigate the relative weight given to anthropocentric, anthropomorphic, and scientific variables by individuals in assessing their willingness to pay for biodiversity conservation. Available online for purchase or by subscription.

Soulé, Michael, and Barbara Rindge Stewart. 1970. The "niche-variation" hypothesis: A test and alternatives. *American Naturalist* 104.935: 85–97.

The authors question the construction of various components of the niche-variation hypothesis on the grounds that they are anthropocentric, and urge a recognition that the narrowness or width of such things as food niches be considered not only from human points of view but also, for instance, from the point of view of birds or other consumers of food. Available online for purchase or by subscription.

Turner, R. Kerry, Jouni Paavola, Philip Cooper, Stephen Farber, Valma Jessamy, and Stavros Georgiou. 2003. Valuing nature: Lessons learned and future research directions. *Ecological Economics* 46.3: 493–510.

A review of the science of environmental valuation; the authors frame their argument specifically within a heuristic bifurcated into anthropocentric and non-anthropocentric values, each category of which is further elaborated according to instrumental and intrinsic properties.

THE ANTHROPOCENE

There are implications for anthropocentric and non-anthropocentric conceptions of nature in cases where human use has transformed "nature" and has disrupted the conceptual divide separating "nature" from "culture," a point made clear in the literature on Wilderness Troubles. In a similar vein, the recognition of the great magnitude of human impact on the functioning of natural systems has forced a reappraisal of the extent to which any part of the world's socio-ecological system may be considered free of human impact, a point made increasingly clear by the realization of the effects of climate change on the global environment (see, for instance, Pearce, et al. 1996). Recognition of the disproportionate effects of human activity on the biosphere has led to a reconsideration of the reckoning of geological time, and geologists and ecologists have suggested that the current epoch be named the "Anthropocene," an argument first made in

Crutzen 2002. The concept of the Anthropocene, initially introduced as a provocation, has increasingly been adopted as a framework for analysis, as further evidence and further theoretical vigor have been brought to bear to strengthen the concept; such work is described in Steffen, et al. 2007 and Zalasiewicz, et al. 2008. These new orderings raise a series of questions. For instance, whereas nature is increasingly understood as the product of anthropogenic forces, are classificatory systems that recognize human agency themselves anthropocentric in nature? Ellis and Ramankutty 2008 suggests that commonly used ecospatial notions of the “biome” might be enhanced by the recognition of “anthromes”—natural and spatial arrangements that specifically incorporate a recognition of human modification and agency. What are the implications of recognizing the Anthropocene for nature conservation? Caro, et al. 2012 insists it does not require a complete abandonment of efforts to conserve those aspects of the natural world that might still be considered “intact,” and only slightly modified, ecosystems. Finally, how might governance regimes shift toward more-ecocentric value systems in recognition of the Anthropocene? As Löwbrand, et al. 2009 suggests, the new approach to earth system science represented by the term “Anthropocene” is indicative of new ideas about nature and society as a governable domain, raising questions about the relevance of ecocentric philosophy to the elaboration and implementation of environmental governance regimes.

Caro, Tim, Jack Darwin, Tavis Forrester, Cynthia Ledoux-Bloom, and Caitlin Wells. 2012. Conservation in the Anthropocene. *Conservation Biology* 26.1: 185–188.

The authors acknowledge significant impacts of human activity on natural ecosystems but argue for giving priority in conservation to “intact ecosystems”—ecosystems where native species are still found in similar densities and still play the same role within ecosystem function, as they did prior to “extensive human settlement and use.”

Crutzen, Paul J. 2002. Geology of mankind. *Nature* 415.6867: 23.

The landmark article in which Crutzen introduced the concept of the Anthropocene; the author provides a short and provocative defense of the notion that human influence on the functioning of the Earth rises to a level worthy of its own epoch.

Ellis, Erle C., and Navin Ramankutty. 2008. Putting people in the map: Anthropogenic biomes of the world. *Frontiers in Ecology and the Environment* 6.8: 439–447.

On the basis of the recognition that we now live in the Anthropocene era, Ellis and Ramankutty urge a rethinking of standard orderings of ecology, in this case the notion of the biome. They suggest that whereas the biome concept was devised to reflect standard types of nature existing in the absence of human intervention, in fact it is more true to modern reality to include “anthromes”—anthropogenic biomes—in this system of classification.

Löwbrand, Eva, Johannes Stripple, and Bo Wiman. 2009. Earth system governmentality: Reflections on science in the Anthropocene. *Global Environmental Change* 19.1: 7–13.

The recognition of the Anthropocene raises questions about the future of ecological governance; the authors suggest that it may also prompt a reconsideration of ecocentric philosophy. Available online for purchase or by subscription.

Pearce, David W., William R. Cline, Amrita N. Achanta, et al. 1996. The social costs of climate change: Greenhouse damage and the benefits of control. In *Climate change 1995: Economic and social dimensions of climate change; Contribution of Working Group III to the second assessment report of the Intergovernmental Panel on Climate Change*. Edited by James P. Bruce, Hoesung Lee, and Erik F. Haites, 179–224. Cambridge, UK, and New York: Cambridge Univ. Press.

Part of the influential output of the Intergovernmental Panel on Climate Change that helped to establish the case for anthropogenic climate change, the paper asserts that the analysis of climate change impact has been undertaken from an explicitly anthropocentric point of view, arguing for the assessment of human-induced change on the basis of two broad anthropocentric perspectives: the cost-benefit framework and the sustainability framework.

Steffen, Will, Paul J. Crutzen, and John R. McNeill. 2007. The Anthropocene: Are humans now overwhelming the great forces of nature? *AMBIO: A Journal of the Human Environment* 36.8: 614–621.

The authors raise questions about the implications of human power over nature at the planetary level, and they point to the prospect of future intentional geoengineering and intervention at the biosphere scale, issues that raise important questions within discussions about anthropocentric and other values. Available online for purchase or by subscription.

Zalasiewicz, Jan, Mark Williams, Alan Smith, et al. 2008. Are we now living in the Anthropocene? *GSA Today* 18.2: 4–8.

The authors adopt and expand on Crutzen's initial formation of the Anthropocene epoch, providing further evidence for and defense of the concept.

ANIMALS, OBJECTS, AND AGENTS

A recent "ontological turn" in social theories of nature has had implications for discussions about human-animal and human-nature relations, especially within anthropology, geography, and allied disciplines. Emerging from and reacting to the epistemological focus on perception and knowing that characterized earlier post-structural engagements, recent work in this vein has taken up questions of being, and of the materiality of nature, proceeding from an interrogation of the subject-object divide that posits humans, for instance, as the subjects of action, and nature as the object. The possibility of considering nonhumans as actants, and as possessed of certain forms of agency, owes much to the work of Bruno Latour (e.g., Latour 2005), Michel Callon, and others who developed actor-network theory (ANT) in the 1980s. Central to this work is a questioning of what it means to be human, and a concomitant destabilizing of the nature/culture divide. While many authors writing in this emerging field are uninterested in questions of anthropocentrism per se, their work has important implications for the ways that humans and other beings are conceived as participating in "the social." Lacking the space for a full treatment of this complex field of social criticism, the following section lists a few provocative roads into this discussion, emphasizing early-21st-century texts and treatments. Such work by established figures includes Latour 2005, Haraway 2008, Ingold 2012, and Morton 2007. Also included is the work of emerging scholars. Ahuja 2009, for instance, addresses environmental governance. Candea 2010 and Helmreich 2011 import approaches from science and technology studies into a new arena of the social sciences, in this case anthropology.

Ahuja, Neel. 2009. Postcolonial critique in a multispecies world. *PMLA* 124.2: 556–563.

Ahuja brings postcolonial critique to bear on the question of biological species and international regimes for their management and protection. Available online for purchase or by subscription.

Candea, Matei. 2010. "I fell in love with Carlos the meerkat": Engagement and detachment in human–animal relations. *American Ethnologist* 37.2: 241–258.

A science-studies project from within anthropology, Candea presents an ethnography of the laboratory of behavioral biologist Tim Clutton-Brock. Biologists, aware of the allure of animal sociality, seek to become "practitioners of relational detachment" in order to maintain a human/animal boundary they know is subject to dissolution along emotional lines. Available online for purchase or by subscription.

Haraway, Donna J. 2008. *When species meet*. Posthumanities 3. Minneapolis: Univ. of Minnesota Press.

Haraway turns her attention to the places where species meet, grounding her study of human-animal relations in her own participation in the sport of dog agility. Haraway's exploration of "companion species," and her discussion of the forms of sociality that join humans and animals, challenge anthropocentrism even as they surely frustrate advocates for animal rights or for an ecocentrism grounded in notions of a pure "nature."

Helmreich, Stefan. 2011. What was life? Answers from three limit biologies. *Critical Inquiry* 37.4: 671–696.

Helmreich proposes three prior research subjects—artificial life, extreme marine microbiology, and astrobiology—as "limit biologies." Investigation of biologies where the meaning of the term "life" is drawn into question "unsettle the nature so often imagined to ground culture." Available online for purchase or by subscription.

Ingold, Tim. 2012. Toward an ecology of materials. *Annual Review of Anthropology* 41:427–442.

Ingold, often iconoclastic, has long engaged critically with questions about animals, materiality, and the relationship between humans and nonhuman others. Eschewing actor-network theory, in this review article he discusses materiality and reviews arguments about the ontological status of humans and nonhuman objects. Available online for purchase or by subscription.

Latour, Bruno. 2005. *Reassembling the social: An introduction to actor-network-theory*. Clarendon Lectures in Management Studies. Oxford and New York: Oxford Univ. Press.

Latour advocates for “following the actors” as the method of ANT, a method that extends not only to humans but to nonhuman objects. For Latour, assemblages represent “the social,” reassembled.

Morton, Timothy. 2007. *Ecology without nature: Rethinking environmental aesthetics*. Cambridge, MA, and London: Harvard Univ. Press.

Morton's aim in this book is to dismantle our conception of nature, and with it the possibility either of a nature/culture divide or a distinction between anthropocentrism and ecocentrism. In place of these unworkable approaches to nature, he seeks to substitute an ecology within which the concept of nature does not exist.

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