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# The need for ecocentrism in biodiversity conservation

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**Abstract:** Over the past 5 decades, scientists have been documenting negative anthropogenic environmental change, expressing increasing alarm, and urging dramatic socioecological transformation in response. A host of international meetings have been held, but the erosion of biological diversity continues to accelerate. Why, then, has no effective political action been taken? We contend that part of the answer may lie in the anthropocentric ethical premises and moral rhetoric typically deployed in the cause of conservation. We further argue that it is essential to advance moral arguments for biodiversity conservation that are not just based on perceived human interests but on ecocentric values, namely, convictions that species and ecosystems have value and interests that should be respected regardless of whether they serve human needs and aspirations. A broader array of moral rationales for biodiversity conservation, we conclude, would be more likely to lead to effective plans, adopted and enforced by governments, designed to conserve biological diversity. A good place to start in this regard would be to explicitly incorporate ecocentric values into the recommendations that will be made at the conclusion of the 15th meeting of the parties to the Convention on Biological Diversity, scheduled to be held in October 2020.

**Keywords:** anthropocentrism, biophilia, Convention on Biological Diversity, ethics, IPBES, justice, nature, needs half, rights of nature, worldviews

La Necesidad del Ecocentrismo en la Conservación de la Biodiversidad

**Resumen:** Durante las últimas cinco décadas, los científicos han estado documentando el cambio ambiental negativo causado por la actividad humana, expresando cada vez una mayor alarma e insistiendo por una transformación socio-ecológica dramática como respuesta. Se han realizado un número de reuniones internacionales pero la erosión de la diversidad biológica se sigue acelerando. Entonces, ¿por qué no se han tomado acciones políticas efectivas? Sostenemos que parte de la respuesta a esta pregunta puede estar en las premisas éticas antropocéntricas y en la retórica moral que típicamente se despliega para la causa de la conservación. Además, argumentamos que es esencial promover argumentos morales para la conservación de la biodiversidad que no estén solamente basados en los intereses humanos percibidos sino en los valores ecocéntricos, principalmente la convicción de que las especies y los ecosistemas tienen valor e intereses que deberían respetarse sin importar si sirven a las necesidades y aspiraciones humanas. Concluimos que un conjunto más amplio de justificaciones morales para la conservación de la biodiversidad tendría mayor probabilidad de guiar planes efectivos, adoptados y aplicados por los gobiernos, diseñados para conservar la diversidad biológica. Un buen punto de partida al respecto sería la incorporación explícita de los valores ecocéntricos dentro de las recomendaciones que se harán al concluir la decimoquinta reunión de las partes que forman al Convenio sobre la Diversidad Biológica, programada para octubre 2020.

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**Article Impact statement:** Ecocentric ethical rationales are needed in international research as are meetings to build support for biodiversity conservation policies and practices.

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**Palabras Clave:** antropocentrismo, biofilia, Convenio sobre la Diversidad Biológica, derechos de la naturaleza, ética, IPBES, justicia, la naturaleza necesita la mitad, visión del mundo

**摘要:** 在过去的半个世纪中,科学家们报道了许多人类对环境的负面影响,同时越来越多地发出警告,并大力呼吁推动社会生态的巨大变革来作出响应。目前已经举行了许多相关的国际会议,但生物多样性受到的侵蚀仍在加剧。为什么人们还没有采取有效的政治行动呢?我们认为部分原因可能在于保护工作中惯用的以人类为中心的伦理前提和道德修辞。我们还认为,推进生物多样性保护的道德论证至关重要,它不仅要基于人类的利益,还应基于生态中心主义的价值观,即无论物种和生态系统是否满足人类的需求和愿望,都应尊重它们的价值和利益。本文的结论是,在生物多样性保护中引入更广泛的道德理论才更有可能推动政府为保护生物多样性而通过和执行的有效计划。在这方面,一个很好的起点是明确地将生态中心价值观纳入2020年10月即将举行的《生物多样性公约》第十五次缔约方会议在结论部分提出的建议之中。**翻译: 胡怡思; 审校: 聂永刚**

**关键词:** 人类中心主义, 亲自然性, 伦理, 正义, 世界观, IPBES, 生物多样性公约, 自然需要半个地球, 自然的权利

## Introduction

Over the past 5 decades, scientists have been documenting negative anthropogenic environmental change, expressing increasing alarm and urging dramatic socioecological transformation in response. Early on such calls included the Club of Rome's study of the *Limits to Growth* (Meadows et al. 1972) and the 1972 United Nations Conference on the Human Environment (UNCHE). In 1987, the UN commissioned *Our Common Future* (WCED 1987), commonly called the *Brundtland Report*, which focused on sustainable development. In 1992, scientists concerned about environmental degradation issued the first of 2 "warnings to humanity" (UCS 1992). The same year, the UN sponsored the Conference on Environment and Development, popularly known as the Rio Earth Summit, which was the first meeting of its kind designed to galvanize the nations to protect the biosphere. At this meeting, the carefully crafted text of the Convention on Biological Diversity was adopted (UNEP 2018). By the time it went into force in December 1993, it had received 168 signatures and had been fully ratified by 30 nations (CBD 2020). Under its auspices, the Conference of the Parties (COP) to the convention, as its regular meetings are called, have been held annually or biennially to coordinate efforts toward biodiversity conservation.

These developments, as well as another seminal UN-sponsored report, the *Millennium Ecosystem Assessment* (2005), and a growing body of scientific research about the negative impacts of biodiversity erosion, led the UN to declare 2011 through 2020 a Decade on Biodiversity (<https://www.cbd.int/2011-2020/>). In 2010, delegates to a biodiversity-focused meeting, held under the auspices of the UN Environmental Program (UNEP), agreed to establish a scientific body akin to the Intergovernmental Panel on Climate Change with a focus on biodiversity titled the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). In 2012, the IPBES was established as an independent nongovernmental body by 94 governments. It receives, however, administrative support from the UNEP and its

members (IPBES 2020). The IPBES seeks to focus attention on and help member states develop plans for protecting biodiversity and the ecosystem services on which people depend. In late 2019, the IPBES released the *Global Assessment on Biodiversity and Ecosystem Services* (IPBES 2019), which was the most comprehensive report of its kind yet published (Díaz et al. 2019). The assessment estimated that 1 million species are at risk of extinction and found that extinction rates are accelerating and that the nations had failed to meet the targets established to address biodiversity erosion at COP 10. This report set the stage for COP15, which is scheduled for October 2020.

The work of the many scores of scientists producing biodiversity-focused studies, including a second, even more grave warning to humanity with 15,000 signatories (Ripple et al. 2017) and scientific reports and journalistic overviews asserting that humankind is precipitating a "sixth great extinction" (Kolbert 2014; Ceballos et al. 2017), and efforts of environmental educators, activists, and nongovernmental organizations have raised public awareness about the importance of biodiversity. Nevertheless, the decline of Earth's living systems, which encompasses many dynamics, including biodiversity erosion (Steffen et al. 2015b), is undergoing what environmental historians McNeill and Engelke (2014) and many scientists (Steffen et al. 2015a) aptly term the "great acceleration" and trace to the economic boom that began soon after the end of WWII.

Why, in the face of the acknowledged biodiversity crisis, has effective political action been lacking? We contend that part of the answer may lie in the ethical assumptions and moral rhetoric typically deployed in the cause of conservation. Such calls for conservation may reject narrow self-interest (including actions that privilege the ethnic, religious, or national groups to which one belongs) as a basis for action. Nevertheless, these calls tend to be deeply rooted in anthropocentric assumptions, namely, beliefs that human beings have special moral (if not also spiritual) value. This is notwithstanding occasional statements in the most important international environmental documents that express or imply

that nonhuman organisms have intrinsic value, namely, value apart from their usefulness to our own species. Such values have come to be termed *biocentrism*, for life-centered ethics, and *ecocentrism*, which includes biocentric moral sentiments but considers ecosystems themselves to have value independent of their usefulness to humankind (O’Riordan 1976; Naydler 1987; Rowe 1994; Batavia & Nelson 2017; Picolo 2017; Gray et al. 2018).

### Anthropocentrism and Other Rationales for Biodiversity Conservation in Major International Reports and Initiatives

The United Nations Stockholm Conference in 1972 and the *Brundtland Report* in 1987 provide telling early examples of the anthropocentric assumptions that typically underly international environmental reports and initiatives. The Stockholm Conference, for example, pre-saged its anthropocentrism by using *human* as a modifier of *environment* in its official title: the United Nations Conference on the Human Environment. The conference’s concluding declaration made it clear that the conference was foremost about ensuring economic development. This is notwithstanding a statement of concern about “gravely imperiled” wildlife (United Nations 1972) because the text’s following sentence stated that wildlife and the habitats they depend on are important because they are needed for development. Moreover, a host of other organisms and ecosystems were left out of the document’s expressed concern for wildlife. Indeed, throughout the document, nonhuman life-forms were portrayed instrumentally as “natural resources” for “economic and social development,” and their protection was enjoined to ensure the well-being of present and future generations of human beings. Setting aside any doubts that economic growth, not biodiversity conservation, was the priority, the document declared, “States have the sovereign right to exploit their own resources” in the pursuit of their social and economic development objectives. The only qualification provided was that the nations ought not “cause damage to the environment of other States” (United Nations 1972).

For the most part, the *Brundtland Report* expressed a similar priority in its declaration where it stated that its foremost purpose is to promote “sustainable development,” which it famously defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED 1987). The report’s overarching focus made it clear that the authors had future generations of *Homo sapiens* in mind. Unlike the World Conservation Strategy (IUCN 1980), however, which also promotes sustainable development but is entirely anthropocentric in its rationale for conservation, *Our Common Future* in-

cludes 2 passages that, taken together, add a stronger case for biodiversity conservation. One strongly argues that biodiversity conservation should be a “first priority” and calls for an international convention toward this end (WCED 1987). The other directly seeks to broaden the moral argument. In a paragraph that begins by stressing that “major changes in policies” are needed, it argued that “the case for the conservation of nature should not rest solely with development goals. It is part of our moral obligation to other living beings and future generations” (WCED 1987). This passage, however, has received little attention.

This said, in 1992, the idea of an international initiative to protect biodiversity bore fruit at the Rio Earth Summit, when the delegates were presented with and endorsed the text for the aforementioned Convention on Biological Diversity. Significantly, the first words of its Preamble appear to express ecocentric values because the signatories declared that they are “*Conscious* of the intrinsic value of biological diversity and of the ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its components” (UNEP 1992). The document’s authors then defined *biological diversity* in a holistic way that typically coheres with ecocentric understandings: “as the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems” (UNEP 1992).

Despite occasional passages like these, however, the world’s major international conservation initiatives continue to advance their arguments primarily and sometimes exclusively on anthropocentric premises. In the 21st century, this has increasingly been the case.

The notion of ecosystem services, for example, which was promoted in the *Millennium Ecosystem Assessment* in 2005, stressed that people need ecosystems to survive and flourish. This notion was incorporated into “planetary boundaries” research, which has focused on the ways negative environmental changes are eroding the “safe operating spaces” needed for human societies (Steffen et al. 2015b). The assumptions and implications of this approach are deeply anthropocentric, as critics have noted (Montoya et al. 2018). Even reports focused on biodiversity conservation under the Convention on Biological Diversity reflect the general trend.

Like some of the earlier documents, the IPBES assessment, although it defined *biodiversity* in a robust way as “the diversity within species, between species and of ecosystems” (IPBES 2019), focused tightly in its “conceptual framework” on “nature’s contributions to people,” which is abbreviated in the report as NCP (Pascual et al. 2017; Díaz et al. 2018; IPBES 2019). This focus on NCP was further reflected in the assessment’s “key messages,” which embraced the notion of “ecosystem services” and

stressed that nature is “essential for human existence and good quality of life” (IPBES 2019).

The assessment continued, “Most of nature’s contributions to people are not fully replaceable, and some are irreplaceable” (IPBES 2019). This statement appears to reflect the scientifically controversial theory of functional redundancy within ecosystems (Loreau 2004), namely, the notion that species can be extirpated without negatively affecting ecosystems if other organisms still provide the functions of the extirpated species. From a logical point of view, when combined with the anthropocentric NCP, this statement seems to erode the rationale for the conservation of biodiversity in all of its forms because those species whose functions can be replaced by other species are expendable. Regardless of whether a society can flourish, or even survive, while driving other species to extinction, such a possibility is morally repugnant (Crist 2012).

To their credit, the assessment’s authors acknowledged that some people, including many among indigenous peoples, consider nonhuman organisms—and sometimes also other natural entities, such as rivers, mountains, and Mother Earth herself—to have intrinsic value (Pascual et al. 2017; Díaz et al. 2018). Moreover, they urged all sectors to respect and consider the values and “desired future development pathways” of indigenous peoples (IPBES 2019). Their statements in this regard, however, fail to appreciate that people who consider natural entities to have intrinsic value are expressing views that directly challenge anthropocentric values. This includes a challenge to the values of the IPBES assessment’s authors themselves, who have embraced the NCP notion. Ironically, in their desire to be respectful to human cultural diversity, the assessment’s authors do not, in fact, take seriously the values and arguments of those who believe that nonhuman organisms and entities have their own agency and their own interests in having natural areas available to them for their own ways of life and survival quests. Put differently and more pointedly, *the call for pluralism voiced by the assessment’s authors excludes all but human voices.*

It is, of course, important to make arguments for conservation appealing to human self-interest and anthropocentric values; many people will not be dislodged from such a narrow moral horizon. But such values do not enjoin biodiversity conservation when people cannot be convinced that certain nonhuman organisms benefit humans (Curry 2011; Kopnina et al. 2018). We contend, however, that the calls for comprehensive social transformation typical of major international reports and initiatives would likely be more powerful and persuasive, including in the long term, if conservationists were to forcefully and regularly argue that humanity has direct ethical obligations to nonhuman organisms as well as to the species and ecosystems to which they belong.

## Ecocentrism as a Rationale for Biodiversity Conservation

We think, moreover, that the reticence to make such arguments, based on the assumption that anthropocentric arguments are more convincing in the cause of conservation than biocentric and ecocentric ones, is or might be counterproductive. We do not think such assumptions are warranted, in part because many of those who are the most concerned about environmental degradation and anthropogenic biodiversity erosion are motivated by biocentric or ecocentric values (Taylor 2010; Taylor et al. 2016).

Such sensibilities are not new; indeed, this is as one might expect because humans share the same perceptual and emotional traits. Evidence suggests, for example, that such sentiments are relatively common among indigenous societies, which tend to have spiritual perceptions and values and to develop in-depth ecological knowledge that contributes to relatively sustainable lifestyles (Gadgil et al. 1993; Posey 1999; Rappaport 1999; Berkes et al. 2000, 2003; Berkes 2008 [1999]; Graham & Maloney 2019). Such societies often, also, express and promote values that have affinities with ecocentrism, including kinship feelings and responsibilities toward nonhuman organisms (Suzuki & Knudtson 1992; Posey 1999; Curry 2011; Kimmerer 2013; Vetlesen 2019; Washington 2019). Such perceptions and values are not, however, only found among indigenous peoples; they are found in diverse cultures around the world (Diaz et al. 2015). Indeed, diverse research, including comprehensive reviews of social scientific research, has found that ecocentric values and kinship ethics animate the world’s most ardent proenvironment actors (Taylor 2010; Taylor et al. 2016; Taylor et al. 2020), and a survey of more than 9000 conservationists found that 79% agreed that “Conserving nature for nature’s sake should be a goal of conservation” (Sandbrook et al. 2019). Although the terminology may be new, the moral sentiments are not.

In the Western world, for example, much of the romantic tradition can be understood as expressing ecocentric values (O’Riordan 1976). Such sensibilities have also been advanced by many scientists, including Alexander von Humboldt (Wulf 2015), and Charles Darwin (1871), who in the *Descent of Man* argued that empathy is a deeply rooted evolutionary trait and, in his notebooks, speculated that this affective trait could (and implicitly, he hoped, would), when combined with an evolutionary understanding, kindle kinship feelings toward nonhuman organisms (Taylor 2017). It was Aldo Leopold in *A Sand County Almanac* (1948), however, who most famously advanced the ideal (also long before the term was coined) with his land ethic: “A thing is right when it tends to preserve the integrity, stability, and beauty of

the biotic community. It is wrong when it tends otherwise” (Leopold 2013). Drawing directly on Darwinian understandings, Leopold (2013) argued that our rational and emotional selves should lead to kinship ethics and ecocentric values:

It is a century now since Darwin gave us the first glimpse of the origin of species. We know now what was unknown to all the preceding caravan of generations: that men are only fellow-voyagers with other creatures in the odyssey of evolution. This new knowledge should have given us, by this time, a sense of kinship with fellow-creatures; a wish to live and let live; a sense of wonder over the magnitude and duration of the biotic enterprise.

J. Baird Callicott subsequently and influentially promoted and refined Leopold’s land ethic, eventually as a planetary ethic (Callicott 2011, 2013, 2017), as have many others (Shepard 1982; Taylor 1986; Taylor 2010; Rolston 2011; Washington et al. 2017; Kopnina et al. 2018).

In an equally influential way, Arne Naess (1973) coined the term *deep ecology* to express the idea that nature has intrinsic value, and in 1978 David Ehrenfeld issued a scathing critique of anthropocentrism (Ehrenfeld 1978). That same year, Michael Soulé orchestrated the first International Conference on Conservation Biology. In a subsequent gathering, Soulé invited Naess to be the keynote speaker because, in his view, Naess “provided a better philosophical foundation for conservation and biodiversity than anybody since Leopold” (Taylor 2010). Soulé and Ehrenfeld played leading roles in cofounding the Society for Conservation Biology (SCB) in 1986, and Ehrenfeld became the first editor of the Society’s journal. They formed the SCB because, as Soulé (1985) put it, “Species have value in themselves, a value neither conferred nor revocable, but springing from a species’ long evolutionary heritage and potential.” In a complementary way, Wilson (1984) and others (Kellert & Wilson 1993) advanced the biophilia hypothesis, theorizing that humanity’s aesthetic sensibilities, such as finding biologically intact ecosystems beautiful and good, is a gift from evolution, which can redound in proenvironmental behaviors. Because all humans share the same cognitive and emotional inheritances, it is unsurprising that such perceptions would be found widely among our species, both chronologically and geographically. Such theorizing as well as research into group-selection theory (Wilson 2002; Atkins et al. 2019) indicates that cultures can evolve in ways that support expanding the moral community in prosocial and even ecocentric ways.

## Practical Need for Ecocentrism in Conservation

Philosophers who consider themselves pragmatists insist that, when people are fully informed of the environmental facts, anthropocentric values will be more than adequate to inspire effective personal and policy responses to environmental predicaments (Norton 1994; Light & Katz 1997; Minter & Manning 1999; Norton 2005). Environmental history lends little support for such optimism. As William Rees noted in 2008, although humanity has the capacity and resources “to execute a smooth transition to global sustainability out of mutual self-interest” and despite decades of “organized environmentalism, two world summits on environment and development, repeated warnings by scientists and the emergence of ‘sustainable development’ as a mainstream mantra, global society continues its drive toward ecological disaster and geopolitical chaos” (Rees 2008).

It is difficult, therefore, to conceive of how continuing to prioritize self-interested anthropocentric rhetorical strategies will lead to effective collective action. We contend that such values do not provide the kind of affectively rich and resonant moral languages that are needed to inspire effective political action (Lakoff & Johnson 1980, 2003; Lakoff 2002, 2016). At best, such premises provide a disputable prudential and utilitarian argument for conservation. It is hard to imagine that such premises would inspire visionary proposals to maintain biodiversity, such as the one to protect at least a half of Earth’s remaining ecosystems (Noss 1992; Locke 2013; Kopnina 2016; Wilson 2016; Dinerstein et al. 2017; Ripple et al. 2017; Watson & Venter 2017; Watson et al. 2018; Dinerstein et al. 2019). Indeed, the proposal has inspired a movement toward this end (see <https://natureneedshalf.org/>) as well as an important endorsement from the European Parliament, which has passed a resolution calling for rapid progress toward protecting and restoring 30% of the ecosystems within the EU by 2030 while also, through the COP and other international processes, promoting an ambitious global goal of “protecting half the planet by 2050” (European Parliament 2020). Meanwhile, scientists have published an assessment of what it would take for the EU to meet these objectives (Müller et al. 2020). These developments would be unlikely in the absence of ecocentric values, which becomes clear when one is acquainted with the values of those promoting this vision in the first place (Takacs 1996; Washington 2019). This is unsurprising because, as noted previously, environmental history and social scientific research indicates that it is those with such values who have been at the forefront of conservation efforts. We believe this is in no small measure because for many, ecocentric values have been cognitively convincing and emotionally evocative; and this is at least in part because such values call

people to expand their moral horizons and become more generous and compassionate.

Visionary proposals, such as efforts to establish legal rights for natural entities (Chapron et al. 2019), and the nature needs half vision, are controversial and difficult to implement. Although some proponents of the nature needs half vision recognize that it would be impractical to devote half of Earth's densely populated regions to natural processes (Locke 2013; Dinnnerstein et al. 2017), such proposals would require there be fewer humans living and working in areas that are judged critical to the survival of species and ecosystems.

As is always the case when some people are expected to relocate or otherwise make sacrifices owing to policies designed to promote a social, economic, or ecological goal, this ought to be done with a keen sense of justice and proper compensation. Unfortunately, the history of conservation is replete with examples where the establishment of reserves has been done in unjust and violent ways (Carruthers 1995; Neumann 1998; Spence 1999). It is understandable given this history why there would be suspicions about efforts to establish new nature reserves, which underscores why it is essential that concerns about justice and human well-being be integrated into conservation efforts (Washington et al. 2018). Nevertheless, it is also important to recognize that if reserves had not been established during the period of colonial expansion, then the biodiversity crisis would be even more grave today (Pimm et al. 2014). It is equally important to acknowledge that the recognition of previous injustices has led to significant reforms with regard to national parks (Hall-Martin et al. 2003), as well as to new models for the establishment of nature reserves that include human residents who are responsible for managing them in ways that conserve biodiversity. This is the case with the biosphere reserves that have been established since 1971 under UNESCO's Man and the Biosphere Programme (UNESCO-MAB 1988) and, more recently, with the European Union's network of protected areas, Natura 2000 (CEC 1992). Such examples could be multiplied.

There are many places, of course, where biodiversity conservation will require fewer people living and working in a protected area or doing so in dramatically different ways. Without the growth and extension of ecocentric values, complemented with commitments to just sharing of the burdens of such efforts, it is difficult to imagine the implementation of the hard choices that need to be made. For all these reasons, we contend, it is essential to advance moral arguments for biodiversity conservation that are not dependent on perceived human interests alone (Piccolo 2017; Kopnina et al. 2018). For these and many other reasons beyond the scope of the present argument, with Callicott (2011), we believe that if humankind is to develop environmentally sustainable and equitable societies, profound "worldview reme-

diation," including those that include ecocentric values, is essential. Therefore, we invite scientists and others who share our ecocentric moral sentiments to not only argue for biodiversity conservation with the usual anthropocentric and prudential rationales, but also to share the deeper moral reasons and experiences that have given rise to their efforts to defend life on Earth. By contributing to the growth of ecocentric thought, it may become possible for such conservationists to insist that ecocentric values become central in the development of international instruments, such as the IPBES and CBD, and to propose concrete implementation plans that will turn these values into policies to be adopted and enforced by governments. A good place to start in this regard would be to explicitly incorporate ecocentric values into the recommendations that were to be made at the conclusion of the 15th meeting of the parties to the Convention on Biological Diversity, which has been planned for October 2020. Ironically and tragically, the ongoing human disruption of Earth's wildlands and wildlife and the concomitant Covid-19 pandemic may prevent this important meeting from taking place.

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