[*JSRNC* 10.3 (2016) 306-378]
doi: 10.1558/jsrnc.v10i3.29011

JSRNC (print) ISSN 1749-4907
JSRNC (online) ISSN 1749-4915

The Greening of Religion Hypothesis (Part Two): Assessing the Data from Lynn White, Jr, to Pope Francis

Bron Taylor

University of Florida, Department of Religion, PO Box 117410
Gainesville, FL 32611-7410, USA
www.brontaylor.com

Gretel Van Wieren

Michigan State University, Department of Religious Studies
736 Wells Hall, East Lansing, MI 48824, USA
Vanwie12@msu.edu

Bernard Zaleha

University of California, Santa Cruz
PO Box 7579, Santa Cruz, CA 95061, USA
berniezaleha@pobox.com

Abstract

Herein we provide a comprehensive review of research pertinent to Lynn White, Jr's contentions in 'The Historical Roots of Our Ecologic Crisis' (1967) about the negative environmental impacts of 'Judeo-Christian' ideas as well as subsequent claims that the world's predominant religions are becoming more environmentally friendly. Definitive conclusions are difficult given the complexity of biocultural systems; nevertheless, extant research has identified many themes and dynamics that hinder environmental understanding and mobilization by religious individuals, whether Abrahamic or involved in religions that originated in Asia. Some indigenous traditions, however, appear to foster pro-environmental perceptions and behaviors as do some nature-based cosmologies and value systems, which are often deeply informed by the sciences and direct experience within environmental systems. Our review overturns common misperceptions regarding the role of religion in environmental behaviors and concludes that additional research is warranted to better understand under what circumstances, and with which communicative strategies, religious or other individuals and groups might be more effectively mobilized in response to contemporary environmental challenges.

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Keywords

Lynn White, Jr, religion and ecology, religion and nature, religious environmentalism, religious naturalism, dark green religion, environmental behavior.

Introduction

When Cardinal Jorge Mario Bergoglio was elected Pope in March 2013 he took the name Francis,[1] sending a strong signal that he would focus on the poor and had affectionate feelings toward non-human organisms. In July 2015 Francis issued the second encyclical of his papacy, which made this intention all the more clear. The strongly worded encyclical called for justice for the poor, endorsed consensus science regarding anthropogenic climate disruption, and called for a global 'ecological conversion' toward social justice, environmental sustainability, and the preservation of both biological and cultural diversity.

Francis was, little doubt, aware of the criticisms advanced by many that Christianity's anthropocentrism leads to beliefs and practices that are indifferent or exploitive toward nature. Yet even as Francis acknowledges that his tradition is anthropocentric—after all, only humans are created in the divine image, and therefore they do have a special dignity and moral value—the encyclical emphasized that this status confers on them a unique obligation to care for the world that God created.

The response to Francis's encyclical and his earlier pro-environment statements has been highly polarized. Ardent environmentalists who had often been frustrated at how little support they had received from religious individuals and groups enthusiastically welcomed the statement. Religious conservatives, both in and beyond the Catholic Church, thought Francis was downplaying Christianity's central teachings, including the preeminent value of the human person, salvation through Christ, and God's sovereignty in the universe. Anyone who spends a few minutes online searching with the title of the encyclical, *Laudato si ('Praise Be to You'): On Care for our Common Home*, will quickly see how contested its reception has been.

Was the negative reaction due to the charges that had been leveled against Christianity? Did Francis' letter demonstrate that those charges were false? The answers are not easy but one thing is clear: scientists should not turn to the partisans involved in interpreting the tradition and its impacts to sort out the role of any given religion in environment-related behaviors. Moreover, there are many themes in the tradition that

1. Bergoglio was the first to select Francis as his papal name so his official title is Francis I although herein we will refer to him simply as Francis or Pope Francis.

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have been overlooked by some of the critics that might also play a critical role in shaping environmental perceptions and behaviors. It might additionally be that religious ideas themselves are less important to environmental attitudes and behaviors than many partisans and scholars assume.

Methodology

Clearly, a judicious, empirical approach is needed to try to understand what, if any, role religious ideas, and *which* religious ideas if so, shape environment-related perceptions and practices. We have therefore conducted as comprehensive a review of extant research as possible that is pertinent to the question: Do religions and religion-resembling social phenomena hinder or promote environmental understanding and pro-environmental practices?[2] In our review we have focused not only on Christianity and the other two Abrahamic religions, Judaism and Islam, but also on religions originating in Asia, as well as on nature-related religions, worldviews, and spiritualities unfolding outside of the world's predominant religions.

Our comprehensive review resembles that of disciplinary Annual Reviews, such as by Rudel, Roberts, and Carmin (2011) and Pellow and Brehm (2013). It began in 2012 with a search undertaken by co-author Taylor for books and articles in a variety of citation databases according to enquiry-related key words including religion, spirituality, ecology, nature, Lynn White, anthropocentrism, environmentalism, nature religion, wilderness, biodiversity, and environmental beliefs, attitudes, religions, behaviors, movements and conservation, as well as topics that tap into experiences in nature, such as biophilia, awe, wonder, affect, emotion, and connection. In 2013 and joined by Zaleha and Van Wieren, we continued to build the database using a snowball technique. Eventually we reviewed over 700 articles.[3]

Although much of the reading was done individually, we met to discuss and develop a framework for classifying and interpreting the studies during four face-to-face sessions.[4] Through these meetings and

2. There have been some review essays that have covered in a more limited way some of the literature we have surveyed, including a number focusing on Asian religions (Allitt 1998; Foltz 2006; Johnston 2006; S. Snyder 2006; Van Horn 2006; Witt and Wiles 2006; McCammack 2007; Djupe and Hunt 2009; Jenkins and Chapple 2011; Danielsen 2013; Hitzhusen and Tucker 2013).

3. Not all of these studies are cited in this article, but a complete list of them is available at http://www.brontaylor.com/pdf/Religion+EnvironmentSources.pdf.

4. The meetings took place in Boulder, Colorado, in 2013; two in Gainesville, Florida, in 2014; and one in East Lansing, Michigan, in February 2015.

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subsequent communications we organized the articles by (1) genre and method; (2) type of religion or religion-resembling social phenomena under scrutiny; (3) date of data collection; (4) location of the subjects; (5) sample size (if applicable); and (6) the researcher's findings.

We discerned four broad types of findings: that the 'religion' under examination (1) promotes environmental understandings and/or concern; (2) works against such understandings and concern; or (3) has no such effects; or (4) the evidence is ambiguous or otherwise inconclusive. With regard to the genre and method, we found four main types: (1) hortatory and normative; (2) historical and anecdotal (3) qualitative/ethnographic; and (4) quantitative/empirical.

The *hortatory and normative* articles purport to explain the proper understanding of a religious tradition while exhorting readers to ethical behavior that coheres with these understandings. Much of this literature is also apologetic, advancing rejoinders to those who consider their tradition to promote environmentally destructive attitudes and behaviors. Some such writings were discussed in Part One of this study, but because these are not scientific, we have not included discussion of them in our research review, which is discussed presently.

The *historical and anecdotal* articles, as explained in Part One, advance a claim that the world's religions or some of them are becoming environmentally friendly. These often examine statements made by religious organizations or individuals, or the efforts of religious groups that seek to provide aid to disadvantaged peoples, and those cases in which environmental understandings and sustainability-oriented practices have been of growing importance. Not uncommonly, such writings go hand in hand with the hortatory and normative approaches. Writings with such objectives and making such claims have helped to pose the questions that the third and fourth research types address scientifically.

The *qualitative/ethnographic* studies develop insight into the groups they study, usually through interviews and/or fieldwork. Qualitative researchers who are in place for a considerable period of time often gather significant insights and a high level of confidence about the dynamics they have been observing and how to understand them. Such researchers often make reasonable suppositions based on the patterns they observe. But without empirical research methods, including a random selection of research subjects, they cannot conclude with confidence what relationships there are between variables, let alone credibly claim to prove their suppositions.

Finally, there are also *quantitative/empirical*, randomized studies, through survey research and other methods that randomly select respondents, provide powerful means to test specific hypotheses, and make

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generalizable claims—if and when the data warrant such conclusions. During our comprehensive review, therefore, we have been especially interested in quantitative studies.

Problematics/Challenges

Before turning to our review of the extant scientific studies, however, we must discuss problems and dubious assumptions that we have identified in many, if not most, of them. First of all, as explained in Part One, there is no consensus about the definition, essence, or function of religion. Nevertheless, few social scientific researchers, whether sociologists, anthropologists, psychologists, economists, political scientists, or those from other disciplines provide a clear operational definition of the phenomena whose effects they are attempting to measure. Instead, there tends to be an assumption that religion involves beliefs, perceptions, and practices related to extraordinary, non-material divine beings or forces.

In contrast, the strategy in our review of this research has been to open our analytic lenses to a wide range of social phenomena that includes obviously religious phenomena but also that examines individuals and groups who engage in practices that have religion-resembling traits that not every observer will consider religious. This enables us to examine studies exploring the affective dimensions of human relations with non-human organisms and environmental systems beyond the so-called 'world religions' as that term is commonly understood. The heuristic value of this approach will be clearer in due course.

Another significant problem in much of the extant research is that almost all researchers simplistically treat the existing denominational divides in American Christianity as the central factor to be analyzed. Such research has generally followed Will Herberg, who in 1955 posited that the varieties of American religion were best understood by examining the differences between confessional statements made by Protestant, Catholic, and Jewish leaders and institutions. The idea that these divisions were the important ones was the prevailing assumption for over four decades, until Lyman Kellstedt, Brian Steensland, and others divided Protestants into three categories (evangelical, mainline, and black) and added an 'other affiliation' as a catchall category for everyone else (Kellstedt and Green 1993; Steensland, Robinson, and Wilcox 2000). Most social-science analysis of American religious demographics still utilizes this six-part categorization (Clements, McCright, and Xiao 2013, 2014), continues to treat American Catholics as a single, uniform type of American religion, and fails to account for the enormous diversity within it.

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As early as 1988, however, Robert Wuthnow argued that the key divisions within American Christianity are not based primarily on denominational and doctrinal differences but on specific factors that cut across all Christian denominations: on the one hand, theological conservatism versus liberalism, which tends to be connected with political conservatism and liberalism, and on the other hand, a broad swath of moderates (again, moderate both theologically and politically), who are located in between. Wuthnow (1996) later revisited his thesis based on data from 1984, 1988, and 1992, and again found a gradient from conservative to liberal across most denominations, and argued that this is the best way to understand American Christianity. Indeed, Wuthnow contended, American Christianity has diverged into three main groups: one conservative; another liberal, with distinct and substantial theological, political, and ethical differences; with a third, more heterogenous and moderate group located in between. The only things conservative American Christians share in common with liberal Christians, Wuthnow concluded, is their desire for an emotionally fulfilling and economically successful life (1996: 320).

We agree with Wuthnow that this divide is prevalent within most Christian denominations. The Catholic/Protestant divide has become far less important than most observers have assumed—and a failure to recognize this is a pitfall for researchers unfamiliar with some of the research produced by sociologists of religion. Consequently, much research continues to treat denominational divisions as decisively important to understand. An additional, significant point related to the social impacts of denominational differences in US Christianity, which has been overlooked in most of the extant research on religion and the environment, is the increasing and dramatic decline in the proportion of the American public that expresses a Christian identity (from 86% in 1990 to 70.6% in 2014, an 18% decline overall).[5]

Most of the empirical research that has been conducted has focused on Christianity in the United States. This research has increasingly recognized that evangelicals tend to be conservative both theologically and politically (Brint and Abrutyn 2010). The degree of this polarization within both mainline Protestantism and Catholicism, however, has not typically been a focus. Nor has there been much effort to measure whether conservative Protestants really have more in common with conservative Catholics than they have with liberals who ostensibly belong to their own traditions, and vice versa. Two recent studies,

5. For studies that treat the decline between 1990 and 2008 see Kosmin and Keysar 2009; between 2007 and 2014 see Pew Research Center 2015a.

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however, have demonstrated this is indeed the case (Arbuckle and Konisky 2015; Jones, Cox, and Navarro-Rivera 2014).

Another problem is that much extant research focuses on examples in which religious individuals or groups have made statements or undertaken environmental initiatives, but concludes with the unwarranted claim that the phenomena described represent a significant and important trend. Often with such studies there is no effort to quantify the significance or assess its religious, cultural, or political influence. Not uncommonly, resistance to the green religionists within these traditions receive little attention in such studies (for exceptions see Taylor 2010b: 194, 203-5; Zaleha and Szasz 2014), or the studies do not acknowledge how much more powerful within these traditions are the opponents of the green partisans. Such studies also typically ignore those who are not involved with these green initiatives and fail to ask why that is the case.

The dearth of quantitative studies that would enable researchers to make well-grounded assertions about whether and to what extent religious traditions (or subsets of them) are or might be becoming environmentally friendly is, in a nutshell, the biggest problem in efforts to understand the role of 'religion' in eco-social systems. This lack of data is especially pronounced with regard to efforts to understand religious individuals and groups who are prevalent outside the United States or who are so small that it is difficult to analyze them with any statistical confidence.

Review of Research

Despite problems with the extant literature, a careful review of it provides many insights and spotlights specific areas for further research. We begin our review by noting that White's focus has driven so much of the subsequent enquiry that many important, religion-related dynamics have drawn little attention. This is especially true with regard to quantitative studies.

Nature and Divine Agency

One environment-related religious dynamic that White did not mention and has received too little attention, especially in quantitative research, is the tendency of a wide variety of religious people to attribute environmental circumstances and changes, whether welcome, harmful, or catastrophic, to divine favor or disfavor.

To recognize the human propensity to see divine agency in natural events one can begin by recalling biblical stories in which, for example, God instructed Noah to build an ark and then destroyed all but one

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mating pair of the world's creatures in a flood (recounted in Genesis 6–9); tormented the Egyptians with fires, pestilence, frogs, locusts, and parted the Red Sea as a means to liberating the Israelites from Egypt (as described in Exodus 7–14); and promised additional environment-related favors or punishments for those who would obey or disobey the ten commandments conveyed to them by Moses (in Leviticus 26).[6] There have been many examples of such thinking among conservative religious leaders and politicians in the United States, who have blamed droughts, hurricanes, and other natural catastrophes on a lack of fidelity to God, not uncommonly as demonstrated by purportedly sinful behaviors and laws, often regarding abortion and extramarital or gay sex (Steinberg 2006). Entreaties to God have also been seen as a potentially ameliorating response when the deity is withholding environmental favors, as, for example, when between 2007 and 2011 the Christian Governors of Alabama, Georgia, and Texas orchestrated prayer vigils in response to a protracted drought, asking God for rain (Mersereau 2013).

Another view is that, given God's sovereignty, it is arrogant to think that human beings can significantly damage nature. As part of his assertions that the notion of anthropogenic climate change is a 'hoax', US Senator James Inhofe (a political conservative from an oil producing state) quoted Genesis 8.22: 'as long as the earth remains there will be seed time and harvest, cold and heat, winter and summer, day and night' (Inhofe 2012; Tashman 2012). In an interview-based study of 37 evangelical Christians in Texas (including nine pastors), Wylie Carr et al. (2012) found such ideas to be common. Indeed, the notion of God's sovereignty over creation and the end of times, combined with notions of biblical inerrancy that made devotees skeptical of scientists whom they think deny the truth of the biblical creation narrative, presented a significant barrier to being concerned about anthropogenic climate change or environmental protection (Rosenau 2015).

Around the world, beliefs about the power of God, the gods, or spirits, and regarding divine disfavor or favor being expressed in natural phenomena, research suggests, is an especially important influence on environmental understandings and behaviors. In July 2009, for example, two years after post-election violence that claimed many lives in Kenya, Christian radio preachers blamed the devastating drought on divine

6. A good summary of the idea is in this passage from the Hebrew Bible: 'When I shut up the heavens so that there is no rain, or command the locust to devour the land, or send pestilence among my people, if my people who are called by my name humble themselves, pray, seek my face, and turn from their wicked ways, then I will hear from heaven, and will forgive their sin and heal their land' (2 Chronicles 7.13-14).

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anger over the violence, asserting moreover that for the drought to end, the perpetrators of the thievery and violence must reconcile with those whom they had wronged (Taylor 2011). Another ethnographic study that focused on diverse religious groups in Northern Kenya found similarly that indigenous herders in two tribes, and many Christians and Muslims, attributed climate change and drought to sin, sometimes as God's punishment for violence and because people were drifting away from their cultural traditions. In one or another way, they all interpreted the environmental challenges they faced in religious ways; they did not adopt scientific understandings even though these were present in the region (Watson and Hussein Kochore 2012).

A study based in southern Mali (Bell 2014) found that the Muslim populations there, facing a devastating drought and forest desiccation, expressed these understandings: God controls the natural environment; he changes it periodically for his own reasons and sometimes to challenge people in various ways; and individual sinners (especially thieves and liars) bring on the disfavor of God in the form of environmental stresses, as do violent and corrupt politicians and political conflicts. As in the example of Christians in the United States, efforts to ameliorate the problems typically include prayer but also ritualized readings of the Quran and rituals with both Islamic and indigenous roots, which try to appease God by sacrificing to him domesticated animals, milk, or plants. When the religious interventions fail to improve the weather, the conclusion typically is that the wrongdoing has been so grave that God is not (yet) willing to reverse his chosen punishment.

In a valuable book focusing on religion and climate change (Veldman, Szasz, and Haluza-Delay 2014), several ethnographers reported similar findings. For example, members of indigenous and Christian groups in Guatemala (Hermesse 2014), northern Alaska (Johnson 2014), Côte d'Ivoire (Chérif and Greenberg 2014), and Ghana (Sarfo-Mensah and Awuah-Nyamekye 2014; see also Awuah-Nyamekye 2014), who were involved in or sympathetic to indigenous traditions, blamed negative climate changes on disloyalty to these traditions, their god(s), and their ethical obligations.[7] Christians in these regions attributed the changes to disobedience to God, especially as represented in the continued practice

7. Both practitioners of African traditional religion and Christian Pentecostals in western Ivory Coast attribute negative climate changes in ways that occlude scientific understanding and adaptation to them. The traditionalist animists blamed 'those who no longer adhere to the old ways', who cut trees and disrespect the spirits who inhabit sacred groves, while the Christians interpreted climate changes as 'signs of the end of times' and urged conversion of all the people as a way to regain God's favor and end the drought (Chérif and Greenberg 2014: 127, 133-34).

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of idolatrous/pagan indigenous traditions—but the changes were also sometimes seen as a sign of end times.

In Asia, Buddhist practitioners (Tibetan tradition) in Nepal (Manandhar et al. 2014) attributed negative climate changes to various offenses against gods or spirits, and many Hindu worshippers in India, who hear that glaciers are shrinking and reducing water flowing into the sacred Ganga River or about the extent of pollution to the river, found it to be inconceivable that such a Goddess could be harmed by people (Drew 2014). An earlier ethnographic study conducted in India in 1992 and 1993 found that Hindus attributed negative environmental changes including a lack of rainfall to divine displeasure resulting from several interrelated sins: greed, envy, deforestation, and insufficient affection among humans and proper religious devotion to God (Gold 1998).

In India, the indigenous Batek people have long believed that the gods *Gobar* and *Dranuk* punish people with severe weather such as thunderstorms and flooding when people break taboos; now that they have access to global media and are aware of extreme weather events more widely, they interpret these also as being caused by humans breaking these same taboos (Tacey 2013).

A study of Christian and Muslim climate activists in the United Kingdom found that both groups prescribe prayer and other religious interventions as effective ways to deal with environmental problems (Nita 2014). Given their multicultural context, many of these activists were involved in difficult and delicate efforts to fuse their religious understandings with secular ethical and scientific perspectives, including those described in Part One of this study as 'dark green' spiritualities. Such hybridity is sometimes not only difficult but understood to be dangerous: one Muslim biologist and environmental activist in Indonesia stated that such activists experience religious scrutiny and a fear of being associated with what conservative Muslims perceived to be pernicious secular sciences.[8]

Most scientists and environmentalists, of course, think that an accurate understanding of the processes involved in environmental changes—especially anthropogenic ones that presumably can be intelligently ameliorated or adapted to—is critical to developing ecologically sustainable societies. The extent to which religious people can incorporate such understandings into their overall understanding of the way the world works would presumably be an important variable to assess when analyzing whether religious individuals and groups are becoming more environmentally aware, concerned, and engaged in pro-environmental behaviors.

8. Confidential personal communication with co-author Taylor.

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Because White's argument has been central to precipitating much of the ferment over the role of religion and environmental behavior and has implicated all of the Abrahamic religions, at least implicitly, we shall now focus on these traditions.

Abrahamic Traditions

When it comes to the Abrahamic traditions there is a considerable literature that can be termed anecdotal and historical. This literature demonstrates that environmental mobilization by some participants in these traditions sometimes results in modest political influence.[9] Many of these authors, however, appear to us to make generalizations about the extent of 'greening' that is unwarranted given the evidence mustered and methodologies deployed.

Fewer scholars have paid attention to those who are indifferent to nature and/or hostile to environmentalist understandings and causes. This may be because it has become something of a truism that White was right. Such an assumption may be because many individuals have experience with Christianity because it has been the most prevalent religion in North America; we also have had extensive experience within this milieu.[10] Two of us have, moreover, written about the ways many Christians resist understandings typical of environmentalist perceptions and priorities (Taylor 2010b: 203-5; Zaleha and Szasz 2014, 2015).

Indeed, it is easy to provide anecdotal evidence for the kind of critique famously made by White. In 2014, for example, a newspaper report

9. See, for example, Khalid and Obrien 1992; Fowler 1995; Kearns 1997; Shibley and Wiggins 1997; Stoll 1997, 2015; Hessel and Ruether 2000; Tucker and Grim 2001; Tirosh-Samuelson 2002; Foltz, Denny, and Baharuddin 2003; Palmer and Finlay 2003; Gatta 2004; S.M. Taylor 2007; Henneman and McIntosh 2009; Pulver and Smith 2009; McDuff 2010, 2012; Gilliat-Ray and Bryant 2011; Wilkinson 2012; Johnston 2013; Aliardo 2014; Kerber 2014; Lysack 2014; Musil 2014; Townsend 2014; Witt 2016. The Gilliat-Ray and Bryant study despite the title really indicated that very few Muslims in the United Kingdom were involved in environmental causes and when they were the vision was very narrowly focused on human wellbeing. Broad overviews that include but go beyond the Abrahamic traditions are Nash 1989; Dunlap 2004; Gardner 2006; Gottlieb 2007; Kearns 2011, 2012; Sponsel 2012; Tucker 2014.

10. Taylor was involved with evangelical church and para-church organizations from his early teens and into his 20s, and earned a Master's degree in Theology from the evangelical Fuller Theological Seminary in Pasadena in 1980. Van Wieren is an ordained minister in the Reformed Church in America (RCA) where she has worked as a pastor and on environmental issues. Zaleha has worked extensively over the last two decades in a variety of environmental advocacy projects in close collaboration with a wide range of Christian advocacy groups (from conservative evangelical to liberal Protestants and Catholics).

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quoted Francis as saying, 'One day, we will see our animals again in the eternity of Christ. Paradise is open to all of God's creatures'. (The report was later corrected to indicate that this was actually said by Paul VI decades ago.) Dave Warner, a worried lobbyist for the National Pork Producers Council in the United States, declared that the Pope was 'misinterpreted' and that his words 'certainly do not mean that slaughtering and eating animals is a sin'. Quoting the famous passage in Genesis giving humanity 'dominion over the fish of the sea and over the birds of the heavens and over every living thing that moves on earth', Warner asserted, '"dominion" means use for human benefit' (in Gladstone 2014). White, of course, focused his analysis on the Christian notion that humanity is entitled to dominion over the entirety of non-human life and on Christianity's arrogation for humanity alone as the sole 'image of God' on earth, all of which he thought devalued non-human life. Just as White did not focus on God's sovereignty over environmental conditions and changes, he did not analyze Christian notions of an imminent apocalyptic end for the planet. White wrote before Hal Lindsey's landmark 1970 book, *The Late Great Planet Earth* as well as before the 'Left Behind' novels and films, which helped to precipitate a resurgence of apocalyptic expectation within conservative American Christianity (LaHaye and Jenkens 1995; Kearns 2011). Perhaps that strand of Christian thought was not within White's frame of reference because he was raised within the mainline Presbyterian Church, USA.[11] Religious climate activist Michael Dowd and evangelical climate scientist Katharine Hayhoe (2015), however, report that in their public-speaking events, they regularly encounter people who insist, 'Jesus is coming real soon, so there's no point in doing anything'.

Although qualitative studies and anecdotal information pose important questions and cumulatively can lead to plausible hypotheses, more empirical studies are needed to illuminate fully whether religion and religion-resembling social phenomena hinders or promotes pro-environmental attitudes, values, and behaviors.

With regard to the specific claims made by White, no serious efforts to test his thesis emerged until nearly 20 years following the publication of his argument in *Science*. When studies did begin to appear in the mid- to late 1980s, they focused on US Christianity, unsurprisingly, because it was in the United States that White's thesis had been most widely discussed and, within the environmentalist milieu, accepted (Callicott 1995; Pope 1998). Although White's thesis implicated all Abrahamic religions,

11. In his famous essay, White identified himself as a Christian 'churchman' (White 1967: 1206).

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few empirical studies have tested the relevant claims in relation to Judaism (but see Rosenau 2015) or Islam. While this is beginning to change, it remains the case that most of what we know empirically about the Abrahamic traditions and the environment is limited to studies about Christianity in the United States.

1980s to Early 1990s

Initially it was sociologists who began to question the legitimacy of the claims that had been developing since White that religion, and particularly Christianity, was a causal driver in shaping environmental attitudes and behaviors. 'Was Lynn White right?' these scholars asked. Specifically, this early scholarship focused on testing the environmental meaning and significance of religious beliefs that God had given dominion over the earth and other living things to humanity. Although White stressed theology-based anthropocentrism as a key driver of environmentally destructive attitudes and behaviors, this was not a specific focus of the early research, perhaps because researchers thought the notion of dominion was an expression of it.

In one of the earliest studies titled 'Religion, Mastery-Over-Nature, and Environmental Concern', Carl Hand and Kent Van Liere (1984) confirmed but also complicated White's thesis regarding the relation between dominion beliefs and anti-environmental orientations. As did White, they spoke of 'Judeo-Christians' as shorthand for those rooted in the biblical tradition and who were well known in the United States. On the one hand, when they controlled for mastery-over-nature beliefs, those who were not Jews or Christians were slightly more likely to express environmental concern. On the other hand, they discovered that a strong view that God had given humans dominion or mastery over nature varied considerably among Christian denominations, which in their study included Episcopalians, Methodists, Presbyterians, unspecified Protestants, Catholics, Lutherans, Baptists, and Mormons. More so than denominational differences, however, they found that the categories of 'conservative' and 'liberal' were more predictive of dominion views of nature. Along these lines, those affiliated with religiously 'conservative' traditions (e.g., Baptists and Mormons), as Hand and Van Liere defined them, were much more likely to endorse the idea of a God-given mastery over nature than were individuals involved in 'liberal' denominations (e.g., Episcopal and Methodist). The authors concluded that 'some organized religious groups are implicated in the continuing salience of the mastery-over-nature orientation in American society', but also 'contemporary [non-dominion type] religious consciousness may be quite influential in finding a value orientation compatible with the

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demands of a limited world' (Hand and Van Liere 1984: 568). The authors also speculated that the rise of fundamentalist Christians in the public policy arena, as well as the priority on promoting economic growth by the New Right and Moral Majority, would impede positive environmental reform, a speculation we now know was correct.

Conrad Kanagy and Fern Willits (1993) subsequently questioned White's emphasis on the significance of a dominion view of nature for predicting environmental attitudes and behavior. They stated that previous studies had presented 'ambivalent findings' and had mostly emphasized environmental attitudes rather than environmental behavior. They found that church attendance was a stronger predictor of environmental attitudes, and in a negative direction, than any other variable in their study—gender, age, income, and education. Yet upon further analysis, they found that religiosity, measured by church attendance, had differing effects on environmental behavior when measured by the new environmental paradigm (NEP) scale developed by Riley Dunlap and Van Liere (1978) and further subdivided by Albrecht et al. (1982) into the following categories: the need to preserve the balance of nature; the belief that growth should be limited in order to sustain the environment; and the notion that humans are part, rather than the rulers, of nature (Kanagy and Willits 1993: 676). They concluded:

> To the extent that church attendance was associated with attitudes which were not supportive of the new environmental paradigm, it lessened participation in environmentally protective activities. This indirect effect of religiosity on behavior was statistically significant and is congruent with White's (1967) thesis. The effect of religious participation on environmental attitudes, however, did not totally flow through one's acceptance of the principles contained in the new environmental paradigm. When these environmental attitudes were controlled, religiosity (as indexed by church attendance) was positively, not negatively, associated with participation in environmentally protective behaviors (Kanagy and Willits 1993: 681-82).

Eric Woodrum and Thomas Hoban's 1994 study, 'Theology and Religiosity Effects on Environmentalism', examined the significance of standard measures of religiosity, most notably biblical literalism, on dominion beliefs. In a telephone survey of 332 North Carolina residents, they found on the one hand that dominion beliefs were widespread and significantly linked to low levels of environmental knowledge, particularly among those respondents with little formal education or information about environmental issues. On the other hand, contradicting previous studies (they cite White, Toynbee, Gray, and Eckberg and Blocker), they did not find that those who subscribed to a literal belief in Genesis were more supportive of the dominion beliefs than others surveyed (Woodrum and Hoban 1994: 202).

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Other early surveys examined whether belief in the bible was associated with environmental concern. Douglas Eckberg and T. Jean Blocker (1989), for example, conducted a telephone survey of 300 adult residents of Tulsa, Oklahoma, and using four measures of environmental concern, found that belief in the bible was associated with anti-environmental attitudes, beliefs, and behaviors. Further, they found that participants who identified with the Judeo-Christian tradition scored lower on their measures of environmental concern than those who did not. A subsequent study by Andrew Greeley sought to expand Eckberg and Blocker's examination, which had been confined to Tulsa residents, by using data from the 1988 General Social Survey. Greeley confirmed that biblical literalism correlated with low environmental concern. He also concluded that non-believers (defined as agnostics/atheists and doubters) supported environmental spending more than theistic believers (Greeley 1993: 24). Moreover, when comparing Catholic and Protestant Christians, Catholics exhibited higher levels of environmental concern, which Greeley surmised was due to differing understandings of God's attributes. These attributes Greeley examined through a 'Grace Scale' in which a 'gracious worldview' was defined by images of God as 'Mother, Spouse, Lover, Friend' (1993: 24). Catholics with a high 'gracious worldview' were just as likely as non-Christians to support environmental spending (1993: 23). Moreover, adherence to greater political and ethical liberalism diminished the negative relation between religion variables and environmental concern (1993: 25-26).

Mid-1990s to Early 2000s

The next wave of empirical scholarship expanded the types of religious beliefs and denominational traditions under consideration, as well as the geographic range of the research.

Several large surveys have found religion-related variables to be weak or insignificant predictors of environmental concern. Kanagy and Nelsen's US-based study compared three religious traits: regularity of church attendance, whether respondents identified as 'born again' (a marker of evangelicalism), and personal religiosity. The degree of personal religious experience was rated by relative agreement to these statements: '(1) Prayer is an important part of my daily life, (2) We all will be called before God at the judgment day to answer for our sins, (3) Even today miracles are performed by the power of God, (4) I am sometimes very conscious of the presence of God, and (5) I never doubt the existence of God' (Kanagy and Nelsen 1995: 37). The markers of relative environmental concern were based on responses to statements regarding (1) willingness to support higher pro-environmental spending

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by the Federal government, (2) support for reducing federal environmental regulations in order to promote economic growth, and (3) self-identification as environmentalists. The researchers found that when education, gender, age, and religion were controlled, religious variables did not predict an environmentalist orientation; they did not control for race because all respondents were white. Heather Boyd's 1999 study of the 1993 GSS data found similarly that religious factors were weak predictors of environmental attitudes.

Other analyses of the 1993 GSS data found an association between anti-environmental attitudes and Christian theology, but this was confounded by the finding of a pro-environmental effect with religious participation in general (Eckberg and Blocker 1996), which was likely because the different religious groups were insufficiently differentiated. In this case, the negative influence of theology appeared to stem from dominion beliefs, although the authors stated that the data left them uncertain whether such beliefs were based on biblical, fundamentalist religious, or political views (1996: 353).

In another US-based study analyzing a national survey conducted in 1992, Michelle Wolkomir et al. (1997a) found that neither biblical literalism nor reported salience of religion (namely, its importance to respondents in daily life) were associated with anti-environmental behavior. Moreover, they concluded, that when controlling for the strength of dominion theology, salience had a positive effect on environmental behavior. Another study led by Wolkomir (Wolkomir et al. 1997b) of variance of environmental concern among denominational substructures of Christianity found that theological views about dominion (contra White) were not significantly correlated with environmental views.

Some survey studies found both positive and negative relationships between Christian traditions and environmental orientation, depending on the particular theological beliefs and religious commitments controlled for and measured. James Guth et al., for example, drew on four data sets in their 1995 review: (1) a 1988 survey of Protestant ministers from four denominations conducted by one of the authors; (2) the 1990 Wheaton Religious Activist survey of 5,000 clergy and lay members of eight religious interest groups; (3) the laity from the Wheaton study and respondents from two matched surveys of Republican and Democratic donors in 1986–87, and; (4) the 1992 American National Election Study. They concluded, 'conservative eschatology, religious tradition, and religious commitment' are negatively associated with environmental concern and 'conservative eschatology [was] by far the strongest religious predictor of environmental perspectives' (Guth et al. 1995: 364). The

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authors also found evangelicals to be less environmentally concerned than Catholics and that 'those outside the Judeo-Christian religious tradition—secular Americans—are the most pro-environment' of the subject groups surveyed (1995: 377).

Nalini Tarakeshwar et al. (2001) found similar results in a study of members, elders, and clergy within the Presbyterian Church, USA, in which greater theological conservatism was associated with less concern for environment, and views of the 'sanctification of nature' (in which nature is understood to 'possess sacred qualities' and/or is experienced as 'a manifestation of God') was correlated with greater pro-environmental beliefs and a stated willingness to invest personal funds to protect nature.

As the twenty-first century approached, some scholars broadened the enquiry beyond the United States and the focus on Christianity. Bernadette Hayes and Manussos Marangudakis, for example, drew on the 1993 International Social Survey Programme, which focused on populations in the United States, Canada, Great Britain, and New Zealand, and found in its broadest analysis no significant differences between Christians and non-Christians in terms of environmental concern in general. They did, however, find inter- and intra-denominational differences regarding environmental attitudes suggesting less environmental concern correlated with fundamentalism; nevertheless, they stated that the research design precluded further conclusions regarding denominational variation (Hayes and Marangudakis 2000: 170). Yet in three of the four countries studied, they found that Protestant Liberals were less likely than non-Christians to adopt pro-environmental stances (2000: 171). Their overall conclusion was that religion was a weak and inconsistent predictor of environmental attitudes across countries.

Mid-2000s to Present

In the twenty-first century new research arose due to increasing alarm about climate change and the possibility that religion might hinder or encourage understanding and effective responses to it. Early in the century there were some signs of environmental mobilization among evangelical Christians in the United States. There had been ardent environmentalists within the evangelical community since the 1970s, some of whom formed the Evangelical Environmental Network in 1993, and in 2006 issued a strongly worded document, 'Climate Change: An Evangelical Call to Action', which clearly accepted consensus climate science regarding anthropogenic climate change (Veldman 2016: 200). Two years later, a large and influential evangelical denomination issued 'A Southern Baptist Declaration on the Environment and Climate

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Change', which was widely interpreted by journalists and later by some scholars as evidence of increasing acceptance of consensus scientific understandings regarding anthropogenic climate change and a concomitant greening of US evangelical Christianity. In a study focusing on this document, which included interviews with many of its signatories, Robin Veldman (2016) found that many of them agreed with the theological statements that Christians should be good environmental stewards but did not concur with consensus climate science or support strong public policies to ameliorate or adapt to climate change. She also noted that in this statement putatively about climate change there was even more concern expressed about abortion and homosexuality that has long preoccupied theologically conservative Christians, whatever their denomination.

Another researcher studying Christian evangelicals found that few of them were aware of the efforts and views of evangelical climate activists and, in any case, given their spiritual priority on sharing their faith in Jesus Christ with the unconverted and their perception that environmentalists often worship nature rather than God, they did not consider environmental causes to be a high priority (Carr et al. 2012). The researchers also found the kind of anthropocentrism White criticized but also heard statements that Christians should be good stewards of the creation—with Veldman finding the stewardship notion to be a common refrain—but also like her, discovering that this notion was put in very broad terms and without much specificity, in no small measure because such was not considered to be a religious priority. Lucas Johnston (2013: 107-32) has demonstrated the sometimes transitory character of creation-care mobilizations in his study of the emergence and then dissolution of a 'creation care team' at Northland Church, an evangelical mega-church in the Orlando, Florida area headed by Joel Hunter, a spiritual advisor to Barack Obama. Johnston illustrated that even in evangelical settings where creation is spoken of positively, this is not always a durable expression of a pro-environment attitude.

It is certainly the case that, as alarm about anthropogenic climate change increased, more researchers began to focus on the possibility that religion influences understanding and effective responses to it. In 1998 and 1999, Paul Djupe and Patrick Hunt, for example, conducted a two-stage survey of 2,400 clergy and 1,600 members of congregations in the Episcopal Church and the Evangelical Lutheran Church of America (2009). They found 'little support for the White thesis on a number of fronts—members hold fairly pronounced pro-environmental views, communication from clergy is overwhelmingly in favor of environmental protection, and religious beliefs have little to no effect once social

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communication is controlled'. They concluded, 'a Christian worldview is not incompatible with holding pro-environmental views' (Djupe and Hunt 2009: 681). Their conclusions, however, could not be widely generalized because the denominations surveyed are among America's most liberal. Nevertheless, the study reinforced other studies that indicate liberal Christians tend to support environmental protection. In 2010, for example, Djupe released results from another study (with a different co-author), drawing on a larger sample that included two surveys—one of clergy in Ohio and South Carolina, and the second a large national survey. This research, in contrast to the narrower study that focused on Christians who were exclusively from liberal traditions, found a negative relationship between Christian beliefs and environmental concerns (Djupe and Olson 2010).

Two particularly impressive studies rely on a much broader dataset, the General Social Science Survey (GSS). Drawing on data in the 1993 survey Darren Sherkat and Christopher Ellison (2007) sought to reconcile the seemingly contradictory early findings by focusing on a multiplex of variables that they thought previous studies had failed to consider adequately. The researchers found that membership in conservative congregations and church participation drove political conservatism, which in turn shaped views that questioned the seriousness of environmental problems (2007: 82). They also found that religious variables had different effects on private and public environmental actions. Church participation had a positive influence on non-policy focused environmental behaviors such as recycling and car-pooling, yet apparently, because it also influenced political conservatism, such participation had a negative impact on political environmental activism (2007: 82). Stewardship beliefs were found to have a positive indirect influence on environmental views by bolstering beliefs about the significance of environmental problems, whereas beliefs in the inerrancy of the bible had a significant negative impact on environmental political action (2007: 81).

Drawing on the 2010 GSS, John Clements et al. (2013) issued two studies regarding self-identified Christians' environmental attitudes, beliefs, and behaviors. In the first, 'Green Christians? An Empirical Examination of Environmental Concern within the U.S. General Public', they found that Christians reported lower levels of environmental concern than non-Christians (Clements, McCright, and Xiao 2013). They concluded that the 'presumed greening of Christianity has not yet translated into a significant greening of pro-environmental attitudes, beliefs, and behaviors of rank-and-file Christians in the U.S. general public' (2013: 85). They added, 'we found no clear evidence of a green Christianity among rank-and-file Christians in the general public. Indeed, the

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patterns of our results are quite similar to those from earlier decades, which documented that U.S. Christians were less pro-environmental than non-Christians, all other things equal' (2013: 97). Clements and his colleagues also were among the first to take ethnicity seriously when they concluded, 'while there are no statistically significant differences in environmental concern among Mainline Protestants, Catholics, and Evangelical Protestants, we did find that Black Protestants are less willing to pay or sacrifice for the environment and perform fewer private environmental behaviors' than is the case with 'Mainline Protestants' (2013: 97).

The second analysis released by Clements et al. (2014) compared the 2010 GSS data with that of the earlier survey in 1993. Their objective was to assess whether differences had emerged between the two surveys regarding the environmental views of Christians. They concluded: 'the patterns of our results are quite similar to those from earlier decades, which documented that self-identified Christians reported lower levels of environmental concern than did non-Christians and nonreligious individuals' (Clements, McCright, and Xiao 2014: 373). Among Christians, they found evidence of 'some greening among evangelical Protestants, especially relative to mainline Protestants, between 1993 and 2010' (2014: 373). These researchers did not, however, address the extent to which a major economic recession that began in 2008 might have distorted findings derived from the 2010 dataset (Kahn and Kotchen 2011).

Another unusually large study based on data generated the same year—the 2010 Cooperative Congressional Election Study—involved over 55,000 respondents and was able to analyze sub-groups within religious traditions in more detail than is typically the case (Arbuckle and Konisky 2015). The researchers teased out religious affiliations and commitment using climate change and jobs versus environmental attitudes and found that while there is significant variation within and between denominations, evangelical Protestants were the least environmentally concerned and the greater the religiosity of Protestants (of all sorts) and Catholics, the less environmental concern was expressed. In general, higher religious commitment (religiosity) was associated with less environmental concern than those who are less religious or do not affiliate with a religious tradition. This is not the case, however, with Jews. The researchers noted, as have many other studies, that other factors play a role in relative environmental concern—liberals and Democrats more than conservatives and Republicans, younger and better educated individuals versus older and less-well educated ones, and interestingly, women, minorities, and low-income individuals tended to be more concerned about climate change, but of these, women

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tended to favor jobs over the environment. These researchers' main point, however, was that religion remained an important and usually negative factor, if most strongly for evangelicals and among the most religious Christians, even when other variables were significant. The researchers concluded as well that their study provided evidence in favor of White's 'dominion' thesis (although dominion theology was not directly evaluated), while noting that although they share the same religious lineage and creation stories, Jewish individuals, especially Reformed and Conservative ones, were more environmentally concerned than Christians and those not religiously affiliated, which raised additional questions. The data led the researchers to speculate that the more respondents read the bible literally the less environmental concern they typically express.

This is a plausible supposition, however, as indirectly evidenced in part by three studies conducted by the evangelical Protestant pollsters of the Barna Group, which produced three studies that complement the findings of Steven Arnocky and his collaborators, discussed presently. In their studies, the Barna Group compared the environmental views among different groups of Christians in the United States with those of the wider public. One of these studies found that 'Christians—like most other Americans—are open to environmental concerns, but these issues tend to be relatively minor top-of-mind concerns' (Barna Group 2008). Barna also noted that 89% of Christians and 85% of churchgoers had never 'heard the phrase "creation care"'. This was telling because environmentally concerned Christians have increasingly used the expression as shorthand for the idea that there is a religious duty to be good stewards of creation. The authors explained that this 'may be because few congregations teach the topic': most churchgoers (64%) reported that they had never heard any sermons 'about how Christians should respond to environmental issues' (Barna Group 2008, see also Taylor 2011: 257). Another study illuminates why: clergy are reluctant, even in liberal churches, to speak up about environmental problems for fear of alienating and losing parishioners (Szasz 2015: 163-64).

Another Barna study (2007) showed that there is considerably less concern about global warming and less interest in expending resources for environmental protection among evangelical Christians than among other segments of the US population. For instance, at the time of that survey, only 33% of US evangelical Christians (a category they define well and narrowly, including a strong view of the veracity of the bible) considered global warming to be a 'major problem', compared with 59% of mainline US Christians, and 69% of atheists and agnostics.

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The Barna Group also found in a 2015 study that evangelical Christians have continued to place a low priority on environmental issues. For them, 'the economy' and 'abortion' ranked high as priority issues (at 69% and 67% respectively) but only 16% considered 'environmental issues' to be a high priority. Another study that might explain the lack of environmental urgency among these religionists documented the prevalent expectation of an imminent apocalypse among many conservative American Christians (Barker and Bearce 2013).

In 2014 the Public Religion Research Institute released one of the largest sample, methodologically sophisticated studies yet published about religion and the environment in the United States, which focused specifically on climate change (Jones, Cox, and Navarro-Rivera 2014). Based on a random probability sample of over 3,000 respondents nationwide who were interviewed by telephone, the study made it possible to illuminate the beliefs and attitudes of the largest religious groups in the United States as well as some smaller populations and sub-groups, such as US Jews and Christians of different traditions and ethnicities.[12] Benchmark questions to determine respondents' views about climate change found that only 46% of US Americans agreed with the scientific consensus regarding anthropogenic biosphere warming (although another 24% thought the world was warming but not because of human activities).[13] Only among Jews, Hispanic Catholics, and those who did not express a religious affiliation, did a majority concur with the consensus scientific view at 66%, 61%, and 57%, respectively. And only 50% of all Americans were concerned about climate change, whatever they thought about its origins. There were also interesting and significant correlations between conservative Christian theology and climate science skepticism. Certain doctrines, including biblical end-times expectations, were seemingly influential, with 49% of Americans and 77% of evangelical Protestants attributing natural disasters 'to "end times" as described in the bible', which is especially interesting because fewer evangelicals, 27%, attribute

12. Available online at http://www.prri.org/research/believers-sympathizers-skeptics-americans-conflicted-climate-change-environmental-policy-science/.

13. For the most important recent expression of this consensus see *Climate Change 2014: Impacts, Adaptation, and Vulnerability, the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, online at http://www.ipcc.ch/report/ar5/wg2/. For scientific organizations that have endorsed the consensus, see NASA's list at http://climate.nasa.gov/scientific-consensus/, the union of concerned scientists' at http://www.ucsusa.org/global_warming/science_and_impacts/science/scientific-consensus-on.html, and the website of skeptical science at http://www.skepticalscience.com/global-warming-scientific-consensus-intermediate.htm.

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climate change to human activities, compared to 46% of all Americans (Jones, Cox, and Navarro-Rivera 2014: 2, 4, 23). In line with other polls, white evangelical Protestants were far more likely to be skeptical about theories of anthropogenic climate change. But in a new twist, the study also revealed that black Protestants and Hispanic Catholics were significantly more likely to expect that climate disruption would negatively affect them and others like them and to support action to prevent such impacts than were white Protestants and white Catholics (2014: 15). Lead author Robert Jones commented upon the release of the study about the relatively high level of concern among Hispanic Catholics, noting that although concern about climate change among US-born Catholic Hispanics was comparable to the US public as a whole, it was foreign-born Hispanic Catholics who expressed the greatest concern (Jones 2014). This finding is likely because throughout Latin America there is greater awareness of and concern about climate change than in the United States (Lee et al. 2015).

A study of the voting of US legislators from 1973 to 2009 found similar patterns, revealing as well the influence of religion on environmental politics. The researchers concluded that 'LDS and Evangelical Protestant representatives are least supportive of environmental legislation, while Jewish and black Protestant members are most supportive. Mainline Protestants and Catholics fall somewhere in between', while Hispanic Catholics were as pro-environment as their Jewish and black Protestant colleagues (Newman et al. 2016). A different study based on a 2014 survey conducted in the Western United States found that Mormonism, Protestantism, and Catholicism were negatively associated with pro-environmental beliefs, although conservative ideology complicated the results (Olson-Hazboun et al. 2016).

Although a majority of the studies we have surveyed have found that the lack of environmental concern is most robustly concentrated among evangelicals, the reasons are multifold and their relative influence unclear, but some do seem to be particularly important. From her detailed ethnographic study of conservative Christians in Georgia, for example, Veldman (2014) concluded that a significant barrier to these evangelicals taking up environmental causes was their reluctance to be associated with environmentalists, whom they viewed as cultural opponents because of their liberal and secular values and because they were viewed as spiritually dangerous pagans or immoral agents promoting abortion and homosexuality. Ellingson, Woodleym, and Paik (2012) found a similar dynamic in a study of religious environmental organizations. Both of these studies additionally found that religious ideas that situate conservative Christians in opposition to what they consider to be

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unbiblical, liberal values pose significant barriers to collaboration not only with secular but with liberal religious actors who do not share their theologically rooted social conservatism.

It may also be that in societies in which secularization has been more profound than in the United States, religion plays no significant role in hindering or promoting sustainability efforts. This was the finding in a study conducted in Northwest Germany (Koehrsen 2015), a region that has a long Christian history that has become highly secularized, like much of Europe.

Whatever uncertainty there may be about variables that hinder and promote pro-environmental behavior among Christians, what does seem clear is that, as Max Weber once argued, religious ideas do sometimes 'become effective forces in history' (2001 [1930]: 48) and specifically, that theological doctrines of dominion, imminent apocalyptic end times, and the all-controlling sovereignty of the Christian deity appear to have decisively shaped Christian attitudes and behaviors toward nature, especially among conservative Christians. At the same time, as Emile Durkheim noted, society at large also shapes religious beliefs and practices, and so it should come as no surprise that political ideologies also shape and become integrated with religious and other overall worldview orientations.

It is also the case, as Wuthnow observed in another study focusing on the United States, that religious conservatives tend to be more insular and intentionally restrictive in their cultural orientation because of their regular and positive reinforcing interactions with fellow conservatives in their churches and because of the negative ideas about liberals propagated in their congregations and by special-purpose groups such as the Moral Majority, a non-denominational organization that during the 1980s sought to mobilize conservative Christians on behalf of conservative politicians. Wuthnow noted, in contrast, that members of more mainline or liberal churches form their own religious identities based primarily on their negative reaction to such high-profile conservative Christian groups rather than through reinforcement and interaction with their fellow religious liberals (1996: 316).

Although the Moral Majority is long defunct, the vectors of conservative Christian public policy advocacy have multiplied and gained strength through conservative radio and cable television networks, and social media. These developments have provided liberal Christians many high-profile figures to trigger strong negative reactions, while simultaneously reinforcing conservative Christians' distaste for all things liberal. Indeed, in presidential election years, numerous candidates strategically stoke anti-liberal attitudes by drawing on conservative

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Christian tropes. Conservative Christians, moreover, reinforce one another's ideologies through conversation within their congregations and small group settings, as documented by Veldman (2014), which likely contributes to their resistance to consensus climate science and reduces environmental concern. The lack of social enforcement of orthodox religious beliefs may, in like manner, help to explain the relative ease with which liberal religionists incorporate scientific understandings, including those that evoke awareness and concern about environmental degradation and acceptance of changing moral norms regarding, for example, the acceptance of homosexual marriage and procreative freedom. Studies of the different sources and of the divergent epistemological communities that religious individuals and groups draw on may well help to clarify the relative importance of religious and non-religious factors in shaping environmental attitudes and behaviors.

Asian Religious Traditions

As shown in Part One, when interest in religion and the environment emerged in the 1960s and 1970s, many writers, including White, averred that religions originating in Asia were more intrinsically friendly than Abrahamic religions. Some made this argument with regard to Buddhism (Schumacher 1966, 1973a, 1973b; G. Snyder 1969), while others, such as Watanabe (1974) in the journal *Science*, made it with regard to Japanese religions (Zen Buddhism and Shinto). Still others argued that Chinese religions (Confucianism and Daoism) were deeply green (Tucker and Williams 1997), with some thinking that this was especially true with regard to Confucianism (Tucker and Grim 1994; Tu and Tucker 2003) or Daoism (LaChapelle 1978, 1988; Miller, Smyer Yü, and van der Veer 2014)—in one case, because of its putatively anarchistic political philosophy (Clark 1984). Two small sample studies of Daoist practitioners tentatively suggested that such practice might well cultivate receptivity to environmental awareness and pro-environmental behaviors but acknowledged that more research would be needed to assess this possibility (Nixon 2006; Brown, Jennings, and Sparkes 2014).

Arnold Toynbee thought the solution to the environmental crisis relied on 'reverting from the Weltanschauung of monotheism to the Weltanschauung of pantheism, which is older and was once universal' and by embracing instead the 'more perceptive and less aggressive religious and philosophical traditions such as Confucianism, Taoism, and Shinto' (Toynbee 1972: 145). And the Harvard religion and ecology conference and book series, which focused more on the role of religious texts and ideas than religious influences on environmental behaviors,

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with a few notable exceptions, contributed to sanguine views about the environmentally friendly nature or potential of Asian religions.[14]

Critics of the supposedly green Asian traditions emerged soon after White published his article, which claimed that Buddhism is more environmentally friendly than the dominant forms of Christianity. The geographer Yi Fu Tuan, for example, although he conceded that Chinese, Daoist, and Buddhist thought did seem to offer a gentler approach to nature, focused on the huge gap between such ideas and the rapacious destruction of nature in Asian cultures, much of which pre-dated any Western influence. In doing so he called into question White's premise that religious ideas decisively influence environmental behaviors (Tuan 1968). In an article published in *Science*, Louis Moncrief argued similarly, contending that White had overemphasized the role of religion and under-emphasized non-religious social and economic variables that have contributed to the environmental crisis, and that widespread environmental degradation in Asia cast doubt on White's view that Asian religions harbored more environmentally beneficent values than Western ones (Moncrief 1970; see also Whitney 1993).

Two decades later, the philosopher Baird Callicott and Buddhism scholar Roger Ames (in concert with contributors to a volume they co-edited) asserted in response to such criticisms, 'there is less evidence for Tuan's skepticism than for White's optimism about whether environmental ideas and values can exert a significant influence on environmental behavior' (Callicott and Ames 1989: 287). Their argument, however, was more focused on defending White's idealistic premise than on showing that Asian religions have actually promoted environmental sustainability.

The claim that the ancient sources of Asian traditions express and promote environmentally friendly ideas has, moreover, been challenged by a number of scholars, including most notably, with regard to ancient Chinese traditions, Jordon Paper (2001, 2005) and Lambert Schmithausen (1991, 1997, 2005, 2009); with regard to Buddhism, Ian Harris (1991, 1995a, 1996, 1997, 2000); and with regard to Hinduism, Lance Nelson (1998a, 1998b, 2000), Laurie Patton (2000), Kelly Alley (2002), and Anil Agarwal (2000). Whether analyzing religions of South, East, or Southeast Asia, these critics do not deny that there are themes in the tradition that can be adapted to enjoin responsible behavior, such as a sense of the numinous in nature in general; the perception that certain mountains, forests, groves, and rivers are sacred (even manifestations of God in

14. See Tucker and Berthrong 1998; Chapple and Tucker 2000; Chapple 2002; Girardot, Miller, and Liu 2001; see also Prime 1992; Kinsley 1995; Coward 1997.

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some traditions); and notions that humans belong to nature and that all creatures have souls, conceptions of interdependence, laws of karma, and ethics enjoining compassion for all sentient creatures.

The critics, however, argue that many sacred texts and religious themes—even some of the ones that are touted as environmentally beneficent—are often understood in ways that promote indifference or even hostility to nature or some aspects of it, or otherwise obscure clear understandings of human–environment interactions. Patton (2000) and Nelson, for example, cited ancient texts from South Asia that reflect a domineering attitude toward non-human nature, including Nelson's using a quote from the *Bhagavad-Gita* (5.19) as an epigraph: 'They have conquered nature [and]…therefore, they are established in Brahman' (2000: 128, trans. by author from Sanskrit). Patton, for her part, argued that more honesty about the prevalence of animal sacrifice to divinities in South Asian religion was needed. Jordan Paper also made a similar observation with regard to ancient China, noting as well that ritual sacrifice remains prevalent today within traditional Chinese culture (2005). Such religious practices, of course, have been ubiquitous in the history of religion and continue to be prevalent in some regions; they are typically used to gain environmental favors or avoid harms that are controlled by one or more divinities. Such practices are difficult to reconcile with a compassionate approach to non-human nature let alone with scientific understandings of how environmental systems function.

Critics note as well that there are other religious views and priorities that work against environmental concern and action, including themes that can devalue this world, viewing it as a place of suffering to be passively accepted or transcended through religious practice (sometimes Asian religions even involve a loathing for this world); religious priorities focusing on the salvation or enlightenment of individual human souls (which reflects its own kind of anthropocentric hierarchy that functions much like the 'chain of being' in Abrahamic religions); a lack of a social justice tradition that might be extended to environmental deprivations and harms; and doubts that sacred places can be harmed by human action because they are seen as divine. In short, critics contend, it is inaccurate if not also blindly romantic to read retroactively Asian traditions as being in essence environmentally wise and concerned. Perhaps the most detailed environmental histories of Asia provide the strongest evidence against the idea that Asian religious traditions are essentially green or even greener than their Abrahamic counterparts.[15]

15. See, for example, Boomgaard 2007; Hill 2008. See also the review by Nugteren (2010), as well as these global environmental histories: Williams 2003; Ponting 2007.

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Divergent views such as those briefly discussed here may have helped precipitate at least some of the historical and ethnographic studies that began to be published in the late twentieth century, which, as with the case of Abrahamic religions, documented that some religious individuals and groups in South Asia have become deeply engaged in environmental causes, understanding their efforts as enjoined by their tradition.[16] This would be unsurprising to those who argue that Hindus have long been adept at re-interpreting their sacred texts in new ways (Pollock 1985; Edelmann 2014). As some of these studies noted, however, most of these movements have been small and not very influential. And as Ugo Dessi argued with regard to Japanese Buddhism, 'rather than a timeless "green Dharma" inherently close to nature' the gradual greening that is occurring may be for extra-doctrinal reasons, including Japanese Buddhism's need to counter social marginalization (2013: 334). Another collaborative study found that many grassroots environmental resistance movements have been rooted foremost in efforts to defend commons areas from usurpation by outsiders, or to restore access to them and livelihoods from them, not because they were motivated by nature-sympathetic religions (Banuri and Apffel-Marglin 1993; Friedmann and Rangan 1993; Rangan 1993; Taylor 1995b).

Many ethnographers who have studied environmental issues and movements in Asia have identified ideas and practices that are *not* environmentally friendly, and note that whatever religious restraints on environmentally destructive behaviors that might exist are eroding as young people are drawn into a globalizing economy.[17] Complementing such studies, Jay Wexler, an environmental law professor, wrote a journalistic book (2016) about the way some traditional religious beliefs and practices cause significant environmental harms. In Asia, for example, Daoists in Singapore and elsewhere burn paper of various sorts including money as offerings to ancestors, believing this will appease these ghosts and thus provide a measure of safety, while also allowing their ancestors' spirits to temporarily return to earth; Hindus in India pollute a host of waterbodies during an annual festival by placing scores of toxic statues of their elephant God Ganesh into rivers, lakes, and oceans; Buddhists in Taiwan and elsewhere practice 'mercy release' of animals restrained in order to achieve merit and a higher reincarnated form in

16. See, for example, Shiva 1988; Guha 1989, 1993; Akula 1995; Narayanan 1997; Haberman 2006, 2010, 2013; Jain 2011; Sanford 2012; James 2013.

17. See, for example, I. Harris 1991, 1995b, 1997; Alley 1998, 2002; Gold 1998; L.E. Nelson 1998b; Nugteren 2005, 2010; Tomalin 2008; Kent 2010a, 2010b, 2013; Drew 2012; Allison 2014; Drew and Gurung 2014; Spoon 2014.

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the future, but often unknowingly cause great suffering to both the released organisms and environmental calamity as non-native species are introduced to habitats they impact negatively, or for which they are ill equipped to survive (Wexler 2016). Wexler noted that in all these cases there were those both within and outside of these traditions who were trying to turn them in more pro-environmental directions, including by reforming such practices. Others viewed such efforts as an affront to true religion and an example of a threatening secularism, while still others complained such efforts were discriminatory and an affront to religious liberty. Much of this is reminiscent of what the anthropologist Kelly Alley noted in her research, that (like many conservative Christians) some Hindus dismissed scientific understandings as rooted in a degenerate secularism (1998).

Taken together these studies indicate that the Asian traditions have so many different expressions, themes, and interpretive possibilities that generalizations about their environmental impacts are exceptionally difficult to make. Unfortunately, there is little quantitative data available that tests perceptions voiced by historians and qualitative researchers.

An exception are two studies focusing on the way people understand themselves, whether as individuals, as interdependent within human societies, or as deeply interconnected with all life. This third type the researchers labeled 'metapersonal self-construal'. In their initial study examining the differences between people with these types of self-understandings, which involved Canadian undergraduate students, these researchers concluded that Buddhism and Hinduism involved such 'metapersonal self-construal', and that it promotes pro-environmental, 'biospheric' values (Arnocky, Stroink, and DeCicco 2007). In a subsequent, broader study in Canada, researchers again concluded that notions central in Buddhism (that there is no independent self), in Hinduism (that everything is entwined in a sacred universe), and in indigenous traditions (all life is interconnected), made them all score higher on metapersonal self-construal than did comparative groups of Christian and Canadians (Stroink and DeCicco 2011).

Although the researchers' understanding of Asian religions appeared to represent a rather simplistic Western and ecologically transmogrified understanding of these traditions, their studies reinforced other ones, discussed presently, which suggest that affective connections to nature can predispose people to pro-environmental attitudes. What was not demonstrated in these studies of metapersonal self-construal is the extent to which such self-understandings lead to pro-environmental behaviors; this was especially the case with regard to political action.

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Perhaps the most relevant empirical study to test White's assumption about the intrinsically superior ecological ethics in Buddhism compared to Christianity was conducted by the ecologist Stephen Kellert. He compared early 1990s' data from similar surveys conducted in the United States and Japan and concluded that 'neither Eastern nor Western societies are intrinsically inferior or superior in their perspectives of nature…both cultural viewpoints represent functional and dysfunctional attitudes toward the natural world' (Kellert 1995: 118).[18] Arguing that the data directly contradicted Watanabe's assertions (1974) that Japanese religions promoted better environmental attitudes than Western ones, these data also cohered with the historical reality that environmentalism emerged earliest and most forcefully in the West—not in Asia—which Kellert had also noted. While Kellert's study continues to be widely cited, to our knowledge there have been no other large-scale surveys conducted on environmental views and behaviors among those engaged in religions originating in Asia.

Indigenous Societies

It is also the case that there have been, to our knowledge, no large-scale surveys focusing on the environmental views and behaviors of indigenous peoples.[19] This is understandable because researchers who might

18. Eastern conceptions of nature are 'highly abstract and idealized', Kellert also wrote, and 'rarely provide…support for nature conservation… Moreover, traditional Eastern attitudes toward nature often encourage passivity, even fatalism, toward the natural world depicted as all-powerful and beyond human capacity to control or grasp, let alone conserve or regulate' (1995: 116-17).

19. Defining indigenous peoples is a sensitive topic because definitions can be used both to include and exclude, which could have implications from subjugation to the conferral or denial of social and environmental goods and rights. As a result, participants in the United Nations Forum on Indigenous Issues (UNFII) and other venues where indigenous issues are engaged have resisted formal definitions. Nevertheless, the characteristics typically involved can be found in discussions held and documents produced by participants in such venues. See, for example, 'Who Are Indigenous Peoples?', a factsheet prepared by participants of the UNFII, at http://www.un.org/esa/socdev/unpfii/documents/5session_factsheet1.pdf; and 'The Concept of Indigenous Peoples', a background paper prepared by the United Nations Secretariat of the Permanent Forum on Indigenous Issues for the Workshop on Data Collection and Disaggregation for Indigenous Peoples, PFII/2004/WS.⅓ (English) (New York, 19-21 January 2004), which is downloadable at http://goo.gl/E0Hnnn. The long discussion included these passages: 'Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing on those territories, or parts of them. They form at present non-dominant sectors of society and are determined to preserve,

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seek to conduct such research face daunting challenges. Indigenous peoples constitute approximately 5% of the global population, in 5,000 distinct societies,[20] with differing histories and a wide range of relationships with the nations in which they are situated and the predominant religions therein. Further complicating the matter is that indigenous peoples have often converted to the surrounding nation's dominant religions or have blended them with their traditional perceptions and practices. Consequently, most of what is known is what has been learned from historical and ethnographic studies of specific indigenous groups, times, and places. It is perilous, therefore, to make generalizations about indigenous societies given such diversity. Historical ecology, island biogeography, ethnography, and environmental history, however, have made it possible to explore this complicated territory.

Early humans as well as what are now termed indigenous societies, including small pastoral, foraging (gather-hunting), and agricultural ones, have often profoundly altered the habitats in which they have lived (Ponting 2007; Denevan 1992, 2001, 2011; Diamond 1997). Not uncommonly, as such societies spread into new habitats, they precipitated or contributed to the extinction of some species, often in no small measure because these species had no evolution-bred defenses against newly arrived human predators who could kill from a distance (Martin 2005: 33).[21] Sometimes they exceeded the carrying capacities of their habitats, precipitating societal collapse (Grinde and Johansen 1995; Diamond 2005). Nevertheless, claims that Native Americans or other indigenous peoples are ecologically beneficent are common, numerous, and range from credulous to scholarly and nuanced (for some of the latter see Deloria 1973, 2000; Shepard 1973, 1998; M.K. Nelson 2011; Callicott and Nelson 2004; Weaver 2015). Assertions, however, that they are universally so are unwarranted (Weaver 1996, 2015; Krech 1999, 2005a, 2005b;

develop and transmit to future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal system'. Kyle Whyte suggested that these reports stress voluntary self-identification as perhaps the most important and simple marker of indigenous identity (pers. comm., November 2015; see also Weaver 2000, 2015; Whyte 2016a).

20. Source: Cultural Survival, at http://www.culturalsurvival.org/who-are-indigenous-peoples.

21. This is well established with regard to the arrival of humans on islands (MacArthur and Wilson 2001; Losos, Ricklefs, and MacArthur 2010). The theory that the first people in the Americas precipitated species extinctions (Martin and Klein 1984; Martin 2005; Bartlett et al. 2015) is accepted by many but not all analysts (Wolverton 2010; Nagaoka 2012; MacLeod 2013).

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Sponsel 2001; Snodgrass and Tiedje 2008b; Wexler 2016). To observe that some indigenous individuals and societies have in the past eroded the biological diversity and resilience of their ecosystems does not justify any greater negative moral judgment than those made regarding other societies, for this would unfairly use contemporary (in this case, scientific) understandings and corresponding values as a benchmark to make retroactive ethical evaluations (Sponsel 2001).

Nevertheless, a significant body of research has found that many indigenous societies have developed forms of what has become known most commonly as 'traditional ecological knowledge' (alternatives include indigenous knowledges, knowledge systems, or native science; see Whyte forthcoming), in which stories and perceptions about plants, animals, and sometimes supernatural agents and forces are entwined with ecological understandings, ceremonies/rituals, mores, and cultural practices (including, for example, religion-related regulation of plant gathering and animal hunting), which promote environmental conservation and sustainable livelihoods.[22] Nevertheless, much remains to be learned, including about the possibilities of Western scientific and indigenous ecological understandings being brought together for sustainable ecological management (Mauro and Hardison 2000; Kelly and Hardison 2006; Bohensky and Maru 2011; Williams and Hardison 2013; Whyte 2013).

A number of scholars have argued that the animistic spiritualties that characterize many indigenous societies promote perceptions of nonhuman organisms as persons to whom they have ethical responsibilities and with whom they are in relationship, even sometimes as kin.[23] Often these responsibilities are referred to as 'life-affirming' in the sense of promoting biological diversity and the protection of specific habitats or coupled human–natural systems.[24] Some indigenous peoples today are

22. See M. Harris 1965, 1966; Rappaport 1968, 1979, 1999; Reichel-Dolmatoff 1971, 1996; Steward 1977; R.K. Nelson 1983; World Commission on Environment and Development 1987; Schultes 1989; Ostrom 1990; Lansing 1991; Descola 1994; LaDuke 1994; Posey 1999; Ellen, Parkes, and Bicker 2000; Grim 2001; Berkes and Folke 2002; Berkes 2005, 2008; Houde 2007; Wright 2007; Hall 2008; Laudine 2009; Reo and Whyte 2012; Kimmerer 2013.

23. The term *animism* today 'commonly refers to perceptions that natural entities, forces, and nonhuman life-forms have one or more of the following: a soul or vital life force or spirit, personhood (an affective life and personal intentions), and consciousness, often but not always including special spiritual intelligence or powers' (Taylor 2010b: 15); see also Chidester 2005, 2011; Harvey 2005, 2006.

24. See Abram 1996; Bird-David 1999; Cajete 1999; Ingold 2000, 2006; Harvey 2006, 2013; Bird-David and Naveh 2008; McGregor 2009; Haberman 2010; M.K. Nelson 2011; Kimmerer 2013; Whyte, Brewer, and Johnson 2015.

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adapting these systems of responsibilities to address contemporary environmental challenges both in and beyond their own societies, and not uncommonly, this also includes criticism of extractive industries and industrial agriculture.[25]

Ethnographic evidence, however, makes it clear that animistic perceptions and other indigenous religious beliefs and perceptions can hinder as well as contribute to attitudes of respect toward non-human animals and environmental systems. Even where respect and reciprocity is enjoined, it is often only for certain organisms, not for environmental systems as a whole.[26] Such spirituality in these cases does not directly lead to an environmental ethics, at least in the contemporary sense of promoting the conservation of biodiversity.

At the same time, there are many examples in which religious mores that have some conservation value are being expanded, sometimes as indigenous people come into contact with scientific ecological understandings and environmentalist values, to understand conservation as a sacred practice (Tiedje 2008). Moreover, efforts are increasing to bring together Western scientific and indigenous knowledges in ways that promote ecosystem health and infuse environmental science with an ethics that values the agency and value of non-human organisms as relatives, rather than only instrumentally as a means to human wellbeing, and that takes seriously the rights and needs of indigenous people.[27]

In one synthetic and rigorous meta-analysis of nearly 50 community-based (commons) systems managed by indigenous populations, Michael Cox and Sergio Villamayor-Tomas (2014) looked for religion-related variables that respondents reported as contributing to conservation. They identified several of these variables as especially important: religions set boundaries of places considered sacred (most commonly, forests), regulate resource appropriation (including animals that may be hunted and plants used as medicine or in rituals), sanction violators and reward cooperators, and to a lesser extent, provide social monitoring. 'Religion is frequently viewed as an anachronism or as a kind of irrational nuisance in the face of modern scientific knowledge', they noted, but religious systems, at least when relatively intact, 'can have an important adaptive

25. See Mauro and Hardison 2000; Kelly and Hardison 2006; M.K. Nelson 2011; Williams and Hardison 2013; Whyte 2013, 2014, 2015; Whyte, Brewer, and Johnson 2015.

26. See Milton 1996; Amster 2008; Bird-David and Naveh 2008; Obadia 2008; Pickering and Jewell 2008; Snodgrass et al. 2008; Snodgrass and Tiedje 2008a; Tiedje 2008.

27. See Agarwal 1995; Berkes, Colding, and Folke 2000; Gunderson and Holling 2002; Berkes 2008; Whyte 2013; Whyte, Brewer, and Johnson 2015.

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function' (Cox and Villamayor-Tomas 2014: 54).[28] Indigenous cultural systems are rarely intact in the contemporary world, of course, and this can erode the cultural mores that sometimes and to some extent prevent or reduce environmentally destructive behaviors (Kent 2010b, 2013).

This much seems reasonably clear: Although indigenous peoples sometimes degrade their environments, including by limiting ethical concern to only parts of their habitats, they have often, over time, established cultural mores that help to conserve the biota upon which they depend (Nabhan 1995). There is, moreover, evidence that they may do so more than non-indigenous societies (Watson and Hussein Kochore 2012). In addition, many who self-identify as indigenous strongly critique modern industrial societies, which have been far more responsible for negative environmental changes than have indigenous ones. Nevertheless, as Cherokee scholar Jace Weaver judiciously put it, 'Modern Natives and their ancestors are neither saints nor sinners in environmental matters'—sometimes they have degraded their environments even to the point of societal collapse (1996: 7). Using the Americas as an example, however, it may be that the ecological integrity of the continent was largely intact when Europeans arrived in part because its indigenous populations had dramatically different understandings of the land and what constitutes a proper relationship to it and its creatures (Deloria 1973). Although, as Weaver noted, indigenous peoples sometimes have and continue to make 'devastating choices for the environment', many of them continue to 'try to live a life that is in harmony and balance with the natural order' (Weaver 1996: 7). 'Their task is complicated', however, 'by powerful systemic forces arrayed against such ethical choices' (1996: 7).

As extant research has shown, these systemic sources include a colonial process in which more powerful societies impose new religions on indigenous peoples, leading variously to conversion or hybridization, and sometimes (often and more recently) to secularization. All of these dynamics erode traditional ecological knowledge and conservationist mores where they have been present, even if sometimes imperfectly in scope and practice. More extensive and methodologically rigorous research is needed to grasp better the role religion plays in the relations of indigenous people to the environments they inhabit, especially research that seeks to determine whether, given their great diversity, there are any religious understandings and practices that indigenous peoples (or many of them) typically share that hinder or promote environmental sustainability.

28. Their article drew on theories of commons management and group selection theory (Ostrom 1990; D.S. Wilson 2002).

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Nature-Based Spiritualities

A number of historical and ethnographic studies have analyzed the rise of nature-based spiritualities. Some of these forms are avowedly pagan, or fuse New Age thought to (sometimes heterodox) understandings of environmental science.[29] One scholar has speculated that Paganism, defined as any form of religion that considers all of nature sacred and thus including many non-Abrahamic traditions, is likely to continue to grow dramatically as global environmental crises intensify (Schönfeld 2012).

Those involved in such spiritualities often consider them to be pro-environmental, as the previously discussed scholarly sources have observed, although close observers of New Age spiritualities suggest that while there are some themes, such as the sacredness of the Earth (Bloch 1998), metaphysical interconnectedness, and compassionate vegetarianism, that promote pro-environmental attitudes, other traits, such as disinclination to political activism, individualism, and even narcissism, do not (Hedlund-de Witt 2011: 1063).[30]

Other studies have examined nature spiritualities more broadly, including those that consecrate scientific understandings of cosmological and biological evolution and derive from these understandings an ethics (and environmental activism) that values the biodiversity that has unfolded from these processes.[31] Indeed, many individuals around the world report having understandings of ecological interdependence and experiences of awe, wonder, belonging, and connection in and through explorations of nature, including scientific ones. Many of these individuals also have a deep sense of humility about the human place in the world and kinship ethics, understanding all life as related, valuable, and worthy of reverent care; this complex of ideas and feelings Taylor has labeled 'dark green religion' (2010b, see also Witt 2016).

29. See Adler 1979; York 1995; Harvey 1997, 2011; Bloch 1998; Blain, Ezzy, and Harvey 2004; Pike 2004; Berger 2005; Partridge 2005; Davy 2007; Zaleha 2010.

30. Unitarian Universalists incorporate aspects of many religious traditions and appear to be especially drawn to nature-venerating themes they perceive in the world's religious patrimony. The denomination lists 'respect for the interdependent web of all existence of which we are a part' as one of its seven core principles, for example, and in the mid-1990s, it officially added the following as a source of UU inspiration: 'Spiritual teachings of Earth-centered traditions which celebrate the sacred circle of life and instruct us to live in harmony with the rhythms of nature' (online: http://www.uua.org/uuagovernance/bylaws/articleii/6906.shtml). This embrace of Earth-centered traditions initially caused tension with the secular humanists who had been predominant since the 1930s but this rift has nearly disappeared as the denomination's clergy became predominantly female (R.W. Lee 1995).

31. See Taylor 1991, 1995a, 2000, 2001a, 2001b, 2006, 2012; Takacs 1996; Benthall 2008; Zaleha 2008, 2013; Sideris 2014.

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What has yet to be determined is how extensive are such nature spiritualities, their effect on human behaviors, and their ecological and social impacts. There is, however, a growing body of empirical research, some of it tantalizing, that provides some illumination of the characteristics and influence of nature-related spiritualities, even hinting at the possibility that they may be growing, shaping environmental behaviors, and exercising some political influence. A number of studies have found, for example, that there are positive emotional and psychological benefits to spending time in natural settings and/or documenting negative effects of the lack of exposure to nature on people, including in urban settings.[32]

Other studies have focused on the affective dimensions of wilderness experiences. One twelve-year study, for example, identified positive impacts from wilderness-based experiences, including a sense of peacefulness, solace, and oneness with nature (Kaplan and Talbot 1983). In a subsequent study based on content analysis of journals written by participants in a wilderness experience program, respondents expressed as a result of the experiences feelings of awe, wonder, and oneness with the environment and relatedness to the earth and animals, including a sense of nature's sacredness, harmony/interconnectedness, beauty, and mystery. Many also expressed that the experience helped them to feel 'mentally and physically renewed' and interested in living more simply (Talbot and Kaplan 1986: 185). Another mixed-methods study focusing on the wilderness experiences of twelve women drew on observation, analysis of participant journals, and in-depth interviews. It concluded that such experience provided 'a unique combination of biophysical, social, and managerial attributes that coalesce and give some sense of meaning to the overall landscape' (Fredrickson and Anderson 1999: 38). Yet another mixed-methods study focused on those who visit, live, or work in forest environments. Researchers found that common experiences included fascination, awe, humility, belonging, and a sense of peace and healing (restoring a sense of equilibrium in the midst of an otherwise harried life); the study did not, however, address environmental values or behaviors (Williams and Harvey 2001).

A number of studies have shifted focus to nature-based spiritualities in particular regions, professions, or lifestyle orientations. A study of views of sacred nature among citizens in the Pacific Northwest, for example, found a form of 'folk nature religion' to be culturally significant in the region (Shibley 2011). An interview-based study focused on environmental activists in Texas who were seeking to protect springs in

32. See Kaplan and Talbot 1983; Talbot and Kaplan 1986; Ulrich et al. 1991; Kaplan 1995; Herzog et al. 1997. For a study with children, see Van Wieren and Kellert 2013.

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an urban area and found that these activists experienced and understood the springs to be a sacred place—one that was important spiritually as well as for the well-being of the human community. The sacredness of the springs, however, was not understood in a conventionally religious way; rather, the researchers concluded, these activists were engaged in a kind of 'implicit [nature] religion' (Bartkowski and Swearingen 1997: 322; Bailey 1997). A broad study based on government data in the United States found, moreover, that in regions with beautiful landscapes and typically pleasant weather there are lower levels of adherence to 'traditional religious organizations' because, the researchers concluded, many people get their spiritual needs met through a sense of the sacred in nature; thus the natural environment in some areas more than others competes with conventional religious beliefs and is itself a social force (Ferguson and Tamburello 2015).

Experiences of nature as sacred do appear to provide spiritual meaning for many, and there is evidence that this can also lead to conservationist values and behaviors. Over 18% of US Americans report having profound experiences in nature, noted Terhaar (2009) in her mixed-methods study of people who have had experiences of awe, wonder, and belonging in nature; she concluded that such experiences often have pro-environmental and ecologically adaptive functions. They may also provide evidence of 'biophilia' among at least some people, as hypothesized by E.O. Wilson and Stephen Kellert (Wilson 1984; Kellert and Wilson 1993). Indeed, historical and ethnographic research has shown that feelings of 'belonging and connection to nature' are common among environmentalists (Taylor 2001a, 2001b). The wildlife ecologist and philosopher Aldo Leopold famously argued that just such connections are needed as an affective ground for a 'land ethic' that values biodiversity and ecosystems as wholes (1949).

A number of empirical studies have focused on the role of affect in nature-related perceptions and behaviors, concluding that 'connectedness to nature',[33] 'place attachment',[34] 'emotional affinity' (i.e., love and affection) toward nature (Kals, Schumacher, and Montada 1999), feelings of 'spiritual oneness' with nature (Garfield et al. 2014; Terhaar 2009), and 'metapersonal construal' (discussed previously) have to do with connectedness to nature, including feelings of affection with all living things (Stroink and DeCicco 2011; Arnocky, Stroink, and DeCicco 2007) and are associated with environmental concern and *pro-environmental* behaviors.

33. See Mayer and Frantz 2004; Schultz et al. 2004; Frantz et al. 2005; Hedlund-de Witt 2012; Hedlund-de Witt, de Boer, and Boerseman 2014.

34. See Dutcher et al. 2007; Gosling and Williams 2010; Hyland et al. 2010; Seifert and Shaw 2013; Manzo and Devine-Wright 2014.

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Other studies have found that such feelings (connectedness, oneness, and so forth) are also associated with *pro-social* behaviors generally (Weinstein, Przybylski, and Ryan 2009) and promote psychosocial well-being (Brown and Kasser 2005; Russell et al. 2013; Zhang, Howell, and Iyer 2014). Some of the above-mentioned studies also found an association between individualism and exploitive attitudes toward nature, indicating that such traits were negatively associated with feelings of connection to nature, place attachment, and did not appear to promote environmental concern and action.

Several studies have also found that those engaged in lifestyles of health and sustainability (LOHAS), which draw on a variety of countercultural spiritualities in the West, do tend to engage in some pro-environmental behaviors, such as efforts to reduce consumption and patronize or otherwise promote local, organic, and vegetarian foodways (Brown and Kasser 2005; Emerich 2011; Hedlund-de Witt 2011: 1058). Such LOHAS, by whatever terminology is used for them, are shaped significantly by Westernized forms of Asian Religions, such as found in New Age groups, and often as well by ideas considered scientific within these spiritual countercultures but heterodox by mainstream scientists (Campbell 1972, 2007).

Many mainstream scientists, for their part, have their own felt connections to nature, which for some lead to strong environmental commitments. A well-designed study by Ecklund and Long of 275 natural and social scientists at top research universities coded and assessed interviews that focused on the worldviews and spiritualities of these scientists, finding that 20% of the scientists considered themselves to be spiritual but not religious, a group the researchers labeled 'spiritual atheists' (2011: 269). The data suggested that, when compared to other populations, scientists 'may be distinctive in the pervasiveness with which their spirituality is connected to nature' (2011: 269). Moreover, the researchers reasoned, despite their small numbers relative to the US population, given their prestige and social capital, scientists might prove to be effective promoters of a science-compatible nature spirituality (2011: 272).

In a relevant earlier study based on an analysis of data from the 1998 and 2000 International Social Survey Programme (ISSP), James Proctor compared people who trust in traditional religious authority with those who trust science (especially ecology) and found that trust in science is associated with a 'deep trust in nature' itself, which is understood 'as inherently spiritual or sacred' (2006: 193). Of course, many continue to trust foremost their religious traditions and leaders, and research shows many religious people do not trust scientists, a mistrust rooted in

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long-festering disbelief in evolutionary science among many conservative Christians (McCammack 2007: 656-60; Smith and Leiserowitz 2013: 1010; Jones, Cox, and Navarro-Rivera 2014: 26-27; Rosenau 2015). But given the studies by Ecklund and Long (2011) and Proctor (2006), as well as the popularity of documentaries and television shows in which enthusiastic scientists wax lyrical about the beauties, complexities, and mysteries of nature, it is not only plausible but clear that at least in some cases and to some extent, scientists are effectively promoting nature spirituality and environmental caregiving. These dynamics provide evidence that nature-reverencing 'dark green' spirituality is being effectively promoted by a host of actors outside of the world's predominant religions, that it draws on the sciences, and in many cases is entirely naturalistic (non-supernaturalistic) (see, e.g., Taylor 2010b).

For whatever reasons, it appears that large majorities of the world's population endorse propositions that cohere with dark green values and reject the kind of attitudes that White critiqued in his best-known article. As Leiserowitz et al. (2005) observed in an analysis of the 2000 World Values Survey, 76% of respondents across 27 countries said that human beings should 'coexist with nature', while only 19% said they should 'master nature'. Yet more specifically, 'Overwhelming majorities of Europeans, Japanese, and North Americans said that human beings should coexist with nature, ranging from 85% in the United States to 96% in Japan. By contrast, only in Jordan, Vietnam, Tanzania, and the Philippines did more than 40% say that human beings should master nature' (Leiserowitz, Kates, and Parris 2005: 25, fig. 2).

Equally intriguing was a national survey conducted in the United States in 2002, in which large majorities acknowledged that humans are a part of nature; only about a quarter of respondents agreed that 'humans have the right to subdue and control nature' while over three quarters agreed that humans should 'adapt to nature rather than modify it to suit them' (Leiserowitz, Kates, and Parris 2005: 25). Moreover, and all the more remarkably, over 90% of these respondents agreed that 'Nature has value within itself regardless of any value humans place on it', thereby embracing what philosophers call the intrinsic or inherent value of nature (2005: 25, fig. 3). Nearly as high percentages agreed that 'Humans have moral duties and obligations' to plants, trees, animals and even inanimate nature, thereby embracing biocentric and even ecocentric moral sentiments (2005: 25, fig. 3). These data indicate that 'large majorities in the United States and worldwide now reject a domination ethic as the basis of the human–nature relationship, *at least at an abstract level*' (2005: 25, emphasis added). As these analysts observed and is clear, more empirical research is needed to understand differences across cultures

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and how environmental degradation could be so great when people hold such beliefs and values. Two additional studies, one focused on Ohio residents and one a national survey in the United States (summarized in a single report), also found that strong majorities—at least 69% and often much higher for those with higher education and income—identify as conservationists (Bruskotter, Nelson, and Vucetich 2015).

Such nature spiritualities are not only gaining adherents and cultural capital but are associated with pro-environmental behavior, as other studies suggest. One of these involved a broad overview of previous ones that focused on environmental values (Dietz, Fitzgerald, and Shwom 2005), for example, while another queried college students in Canada (Arnocky, Stroink, and DeCicco 2007: 257). Researchers in both cases found three environmental values that can promote pro-social behaviors: self-interested concerns to avoid being harmed by negative environmental actions; anthropocentric altruism, in which concern is extended beyond the self to other human beings and even future generations; and 'biospheric' values, in which, as the second study put it, it is believed that non-human species have intrinsic value. Additional surveys polling students and adults in the Netherlands and several other European countries found that although egoistic values are sometimes associated with pro-environmental intentions and behaviors, altruistic values are more strongly associated, and 'biospheric' values are the most strongly associated with these intentions and behaviors (de Groot and Steg 2008, 2010). Those who could be labeled 'biospherics', as Zaleha (2013) has called such individuals, express ideas that are common in nature-venerating, dark green spiritualities.

Additional research suggests that such biospherics experience 'a deep interconnection with all forms of life' and believe that 'human beings should not harm nature because we are a part of nature and all species have a right to exist' (Arnocky, Stroink, and DeCicco 2007: 256-57). Such self-understandings were not the only ones that significantly predicted 'self-reported conservation behavior' (261), however. A study based on 25 interviews with Canadians who had been previously involved in various types of nature spirituality found prevalent perceptions and beliefs that are typical of dark green spirituality (Hedlund-de Witt 2013).

It could be that the assent in general to propositions that reject the human domination of nature, acknowledge that humans are a part of nature, and embrace biocentric and/or ecocentric values have gained widespread resonance, but that only some of those who endorse such propositions feel them deeply, or have logically followed the implications of such understandings toward deep environmental commitments. Yet the studies reviewed in this subsection suggest that imperial attitudes

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toward non-human nature and environmental systems many not be as prevalent as some have assumed, and, therefore, may not pose as strong a barrier to environmental understandings and pro-environmental behavior as some, including White, have thought. Indeed, they suggest that communicative strategies, which draw out the implications of biocentric sentiments through science education and by explaining the value of conservationist strategies and policies, might well find acceptance among a wide range of publics, regardless of the sometimes negative influence of religious perceptions and beliefs. One study in Thailand suggested that through environmentally concerned 'spiritual leadership', biospheric values and pro-environmental behaviors can be cultivated (Afsar, Badir, and Kiani 2016). But clearly, more research is needed.

Studies that might deepen understanding of biocentric or ecocentric values and their influence—and potential influence—on environmental behaviors should also pay attention to the increasing numbers of people who are unaffiliated with any religion—'nones' in the terminology of contemporary social science research. A significant and growing subset of the nones declare they are atheists. This does not mean, however, that their quest for meaning and ethical guidance disappears. Indeed, we have noted that many elite research scientists who say they are atheists also describe themselves as 'spiritual' and use nature-venerating terms to describe what they mean by the word (Ecklund and Long 2011). It therefore seems clear that many of these religiously unaffiliated individuals are drawn to and engaged in nature-based spiritualities, and moreover, that the nones provide a likely if little-studied demographic group in which nature-based spiritualities have been increasing and are likely to continue to do so. Indeed, even among self-identified Christians, naturalistic, non-theistic understandings appear to be growing (Zaleha 2013: 147). The rate and significance of this trend, however, remains unclear.

The studies surveyed in this section suggest that for at least some individuals, pro-environmental attitudes and behaviors have much to do with self-transcendence: namely, the letting go of both egoistic and exclusively anthropocentric concerns, as well as extending the circle of moral concern to all living things. Such notions are not uncommonly associated with religious experiences, including those that take place in biotically rich environments, wherein individuals intuit kinship or unity with other living things or the world as a whole. Another way in which such affective experiences are described is as 'wonder' toward the beauties and mysteries of the universe. In the United States, at least, increasing numbers assent to a proposition posed in a major, national survey to the effect that on a weekly basis they experience a sense of 'wonder about the universe' (rising from 39% to 46% in the seven years

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between 2008 and 2014). The study found, moreover, that 'self-described atheists and agnostics are somewhat more likely than members of most religious groups to say they often experience such a sense of wonder' (Pew Research Center 2015b: 89-90).

Such experiences, feelings of connection, and valuing of nature can be understood as religious mysticism, or as Aldous Huxley (1945) put it, as a form of the 'perennial philosophy', which is found among people in diverse cultures, and through which people experience a sense of unity and oneness with God or Being itself.[35] Such connections can also be experienced in entirely naturalistic ways, as, for example, through direct experiences in nature and scientific enquiry into the complexity and wonders of the universe and biosphere, which may or may not be understood as 'religious' by the individual (Taylor 2010b; see also S. Harris 2014). However gained and whatever language is used to express and promote them, such experiences and feelings appear to be associated with reverence-for-life ethics (Schweitzer 1936, 1969; Leopold 1949), which in his own way, White himself expressed and promoted.[36]

Discussion

Nearly 50 years ago Lynn White Jr argued that Christianity has fostered anthropocentric and imperial attitudes and practices toward nature. But he was not just making a historical argument, he was making an ethical one, urging Westerners to reject anthropocentrism, take inspiration from St. Francis, and even create 'a viable equivalent to animism' (White 1973: 62). In his own way, White promoted reverence for life and indeed, for everything in the Universe that he believed God created.

The most provocative and debated historical claim in all of White's work was surely: 'Since the roots of our trouble are so largely religious, the remedy must also be essentially religious, whether we call it that or not' (1967: 1207). Given the complexity of social and environmental systems, of course, it is important to avoid overemphasizing any variable

35. Huxley asserted that the perennial philosophy was coined by Leibniz and defined it as 'the metaphysic that recognizes a divine Reality substantial to the world of things and lives and minds; the psychology that finds in the soul something similar to, or even identical with, divine Reality; the ethic that places man's final end in the knowledge of the immanent and transcendent Ground of all being—the thing is immemorial and universal' (1945: vii). He added in terms now out-of-scholarly fashion but that further illustrate his perspective, 'Rudiments of the Perennial Philosophy may be found among the traditional lore of primitive peoples in every region of the world, and in its fully developed forms it has a place in every one of the higher religions' (1945: vii).

36. See Taylor's preceding article in this issue of the *JSRNC*.

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that might contribute to environmental degradation (Minteer and Manning 2005), a point White himself acknowledged on a number of occasions (Riley 2016), even while emphasizing in a Weberian way that sometimes, religion is a decisive variable promoting social stability or change and considering it just such a variable with regard to environment-related behaviors.

Our review of extant research suggests that, indeed, religion does often play an important and perhaps sometimes even a decisive role in nature-related perceptions, values, and behaviors. Specifically, extant research shows that the world's religions often hinder but sometimes promote pro-environmental values and behaviors. We have also noted that the pro-environmental religiosity that has been emerging within the world's predominant religions has been directly and indirectly responding in constructive ways to White's challenge.

Clearly, White deserves credit for precipitating much of the soul-searching and religious environmentalism that has emerged since he penned his famous article. Yet, three decades after White's article was published, as we have shown, there is little evidence in support of claims that the world's religions are coming, or might come, to the environmental rescue (Taylor 2015). More typical is the conclusion of a historical study of the National Religious Partnership for the Environment in the United States, which was created by liberal Christians and Jews to promote environmental conservation:

> Churches may yet emerge as an important moral authority on conservation preservation issues, but, with the exception of some NCC [National Council of Churches]-affiliated liberal Protestant groups and other maverick congregations, there is no evidence to suggest the emergence of a widespread and prophetic interfaith voice that casts environmental issues in the broader life of social justice for all human beings. Most churches and synagogues may end up following, or resisting, rather than leading the emergent environmental justice movement in the United States (Shibley and Wiggins 1997: 346).

From the present historical vantage point on the eve of the 50th anniversary of the publication of White's article, the same thing can be said of the world's religions. Despite the examples of religious environmentalism that are cited as evidence for the greening of religion, the majority of religious individuals and groups remain mostly indifferent to environmental concerns, or such concerns, although professed, remain such a low priority that they do not produce politically effective environmental action. And moreover, no small number of religionists, for both religious and ideological reasons, are adamantly opposed to environmentalism and spiritual justifications for it.

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Notwithstanding the increasing number of statements issued by religious institutions, leaders, and activist laypeople, there has not been a groundswell of politically influential religious environmentalism. More study is needed to better understand why. There is also a longstanding recognition that liberal policy statements from national denominational bodies frequently do not filter down to individual congregations, which often will not tolerate too much liberalism from their pastors, ministers, and priests (Vidich and Bensman 1968: 234-35). Church conventions and liberal seminaries may be doing an excellent job promulgating urgency for increased environmental concern; getting congregants to internalize and act on these ideas has so far proved to be a much harder lift (Zaleha and Szasz 2015). Indeed, in one ethnographic study, Methodist and Catholic clergy candidly admitted that they did not emphasize or even discuss climate change or other environmental issues for fear of offending and driving away conservative parishioners (Szasz 2015: 163-64). Another study of religious individuals engaged in anti-mountaintop removal coal mining found that Episcopal priests who were participating never spoke about their involvement or concern from the pulpit (Witt 2016).

A perspective indebted to Emile Durkheim would want to know whether the religious environmentalism that does exist is primarily a reflection of the broader societies in which the religions are situated, given how they differ and change in different times and places, and if so, which elements, cultural and religious, tend to promote pro-environmental attitudes and behaviors. It might be, in other words, that those religious individuals and groups who do join the environmental bandwagon not because their religion directs them to but because they are already inclined by broader social or communal norms toward this or that social or environmental concern. Conversely, because some research indicates that traditionally religious people are often less environmentally concerned and engaged than the societies in which they are situated, we would want to understand better why this is the case and what the specific levers are for such attitudes and actions.

The answer may be that despite perceptions that their religions enjoin environmentally responsible behaviors, competing needs and priorities, including mundane things such as fundraising for religious facilities and other more obviously religious endeavors, leave few if any resources for environmental engagements. More critical voices would ask, what interests and market forces drive the decision about which environmental statements are issued and which initiatives are undertaken? For, as societies become more secular, religious leaders worry about how to retain

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members. It may be, therefore, that some religious environmentalism reflects a strategy to retain or gain members by getting in synch with trending values and concerns.

Not only is there a dearth of evidence that religious greens are playing a leading role in promoting effective environmental protection movements, they do not appear to contribute significantly to the environmental movement in general. Indeed, read carefully, even the many articles celebrating the individuals and groups who are promoting religious environmentalism speak more of the *promise* of what is unfolding, rather than about its significance or effectiveness.

It remains to be seen, for instance, whether Pope Francis, who has become the most passionate papal advocate for environmental protection and chose his papal name in part for this reason, will be any more effective than his predecessors in mobilizing Catholic Christians, let alone inspiring to action those outside of Catholicism. In a short (unscientific) essay published in *Science*, Partha Dasgupta and Veerabhadranm Ramanathan (2014) asserted that the pope's initiatives (a year before the encyclical was released) were highly significant. Although some, like these two scientists, have been highly positive in response to Francis's pro-environmental exhortations, given the many themes that appear to hinder this-worldly environmental concern among Christians, as well as because previous statements regarding environmental responsibilities by religious elites have not significantly influenced individual congregations and parishioners, we do not yet know whether this pope's efforts will bear long-term fruit, and there is reason for skepticism (Vidich and Bensman 1968: 234-35; Szasz 2015: 163-64).

That Pope Francis has been influenced by liberation theology, which has been strongly opposed by most of the Church hierarchy since its emergence, and is seen by its critics as distracting people from the Church's most central pastoral and spiritual priorities, suggests that winning over his flock will be difficult. The first survey in the United States after Francis issued his 2015 environmental encyclical, for example, did not bode well for his agenda: it showed a precipitous drop in his popularity (70% to 59%), which was especially steep among Catholics and political conservatives (Swift 2015), presumably because the environmental and social justice causes he was promoting are highly controversial.[37] Two national public opinion surveys conducted in 2015 (one after Francis's appearance in the United States) showed that a growing number of American Catholics and evangelicals acknowledge that

37. The reason for the drop was not analyzed, but it is likely Francis's endorsement of consensus climate science and denunciations of income inequality played a role.

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climate change is occurring and that action is warranted, but fewer agree that human behaviors are causing it (Mills, Rabe, and Borick 2015; Maibach et al. 2015). A subsequent study documented strong resistance among conservative Catholics to the pope's assertion that climate change is anthropogenic, and that many Catholic Christians think environmentalism promotes politically and spiritually dangerous pantheism or neopaganism (Vincentnathan, Vincentnathan, and Smith 2016). As shown previously, even when religious leaders would like to promote awareness of anthropogenic climate change and action in response, they are often reluctant to do so. As a Catholic priest in a small town in Wyoming where coal mining is the economic backbone of the community candidly admitted, he is 'in no hurry to preach climate change from the pulpit' because his 'bread and butter is the people here' in his parish (Schrank 2015). Finally, perhaps further tempering enthusiasm about the 2015 surveys that showed a modest increase in concern about climate change among US Christians, a study released in early 2016 found (again) that the least religious individuals show greater concern about climate change than religious ones (Roser-Renouf et al. 2016).

Our review of extant research has shown that religious ideas and practices from a wide range of religions often obscure environmental understandings and hinder environmental concern and action. This is unsurprising because, although there is some evidence they sometimes promote pro-social and pro-environmental behaviors, many of them put a priority on responding to the immediate existential concerns and material needs of devotees. But the common assumption that religions promote pro-social behaviors may be overstated or simply wrong. In a study by Decety et al. (2015), in all of the six countries where the research was conducted (Canada, China, Jordan, Turkey, United States, and South Africa), although religious parents thought their offspring were more empathetic and concerned for justice than the children of non-religious parents, the opposite proved to be true, for the children from religious families demonstrated less altruism and more punitive behaviors. This study provides another reason for skepticism that the world's predominant religions will come either to the social or environmental rescue. But complicating this picture are two broad studies. In one, a study of people from diverse religious communities in eight different countries around the world, researchers found that those who believe in moralistic, punitive, and all-knowing gods were more likely to be impartial and to engage in pro-social behavior than those who do not believe in such beings (Purzycki et al. 2016). Another study, which focused on *environmentally concerned* consumer choices, found that 'belief in an involved God and biblical literalism decrease the likelihood' of environmentally

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friendly consumer behavior but surprisingly to many, the strength of religious identity and regularity of religious attendance appeared to increase environmentally friendly consumer behavior, and even modestly reduce the effect of political conservatism and 'mute' its anti-environmental impact on conservative Christians (Peifer, Khalsa, and Ecklund 2016: n.p.). So, it may be that those who take their religion more seriously, rather than just assenting to traditional theological understandings, are more likely to be pro-environmental. More research into such a possibility is needed to clarify any such dynamics.

Despite such possibilities, it is clear that in various ways the so-called world religions offer divine rescue from this world or its sufferings through spiritual disciplines and meritorious reincarnations, and that such religions tend to devalue our material, planetary home. For many traditional Christians, Earth has no ultimate importance or moral value, but is only the 'stage on which each individual's eternal fate, either in heaven or in hell, is determined' (Zaleha and Szasz 2015: 24). As put in a Depression Era Protestant hymn, 'This world is not my home, I'm just a passing thru [*sic*]' (Brumley 1938); or as put similarly by Christian bible scholar Donald Holdridge who, after arguing that it is arrogant for humans to think they can control nature, stated in a way typical for religious conservatives:

> God sovereignly manages the environment of planet earth, preserving it and the rest of the universe for a time of literal fire to eradicate every last vestige of evil. Humanity cannot save the planet, neither can mankind destroy it. The earth will be dissolved by God in His providential time, and be replaced by a pristine brand new planet, never to be polluted by sewage, sin, disease or death (Holdridge 2016: 43).

With such theology, as the evangelical theologian and anthropogenic climate change denier Calvin Beisner put it in a 2006 interview, all humans should be primarily concerned about the eternal fate of their souls, not the temporary fate of this planet (Zaleha and Szasz 2015). But as important as the notion of God's sovereign power may be for theists, it is the predominant view of most of the world's religions that human beings are of greater moral and spiritual value than other organisms, and thus, at least when conflicts arise, human needs and desires should trump even the existence of many living things.

Religions are malleable, of course, and they vary in different times and places, so it could be that the world religions will yet mobilize in strong, pro-environmental ways. If this happens it may be in part a response to highly creative green social movements and artistic productions that are emerging globally.

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Many of the studies we have surveyed, however, demonstrate that certain individuals and groups derive spiritual meaning from nature, and express and promote such spiritualities and pro-environmental values and behaviors based on them. Some of these individuals are involved in the world's predominant religions and incorporate scientific understandings and concern for biodiversity and other environmental values into their existing religions. This illustrates that these traditions are malleable—but they are not infinitely so. Few among the scientifically literate, for example, accept globally prevalent religious beliefs that divine beings control nature and humans can do so also, if indirectly, by appealing to or pleasing these beings through prayers, rituals, or other religious means.[38] Many such individuals end up leaving these traditions but little is known about the extent of this dynamic or where such individuals end up with regard to their understandings of the world and the proper human place in it, although recent research suggests that in the US-American context they are increasingly ending up among those with no affiliation with traditional religious institutions, and this exodus is occurring at an increasingly rapid rate (Zaleha and Szasz 2015).

Our analysis of the research indicates, in contrast to findings related to the world's predominant religions, that there are cultures and traditions, some old, others new and emerging, for which reverence for nature and corresponding ethical mores are central. These include those indigenous societies that have developed their own scientific understandings, sometimes independent of Western scientific reductionism, and other times deeply incorporating Western science as well. These also include a variety of nature spiritualities, some whose participants self-consciously understand themselves to be involved in a nature religion that enjoins Earth care. Others may not define themselves as spiritual or religious but find—through personal experiences in nature, and/or through the sciences—awe, wonder, belonging, meaning, and ethical guidance. Not uncommonly (but to an extent unknown), some who leave their religious traditions end up being drawn to or constructing meaning and ethical understandings based on science, especially where people are well-educated scientifically. A significant amount of our research review thus

38. It is often the case that what a religious tradition provides as an environmentally friendly theme or practice it negates with an unfriendly one. When religious people have become more strongly environmental, it is because they prove adept at bricolage, fusing ecological understandings to their religions and letting go of contrary religious ideas when present. This requires what in any religious tradition could be considered to be a liberal hermeneutic—one open to hybridity, to taking insights wherever they are to be found, and to recognizing that every time and place has limits to knowledge and wisdom.

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provides support for Taylor's historical and ethnographic argument in *Dark Green Religion* (2010b) that nature-based 'dark green' spiritualities, although nascent and relatively small compared to the world's long-standing, predominant religions, are gaining adherents and cultural traction around the world, promoting pro-environmental policies and behaviors, and exercising at least some political influence.

Much remains to be learned, however, about the role of traditional religions and other religion-resembling social phenomena in nature–human relationships. With regard to the world's predominant religions, important questions include, for example: How malleable are these traditions or subsets of them, and what makes them so? How durable will they or subsets of them be as adherents incorporate evolutionary and ecological understandings into what they care about and know? Put differently, what are the possibilities and limits to hybridizing traditional religious beliefs and values with scientific understandings and the sustainability-oriented values derived from them?[39] With regard to the various types of (non-indigenous) nature spiritualities, significant questions are: How rapidly and extensively are they growing? To what extent are they or some of them exercising cultural and political influence? What are their continuities, discontinuities, and relationships with indigenous peoples and perceptions about their spiritualities and ethics?

With regard to all nature-engaged social phenomena, a significant question that deserves investigation is: What are the signs and possibilities of an emerging civil earth religion or planetary civilization in which people with very different metaphysical understandings could find common ground, recast themselves as citizens of the Earth (whatever other identities they may hold), and sincerely work together to create sustainable and equitable societies?[40] Moreover, if this is not a mere

39. We are aware, of course, of claims that one cannot derive values from facts, scientific or otherwise, and although we do not agree with such claims we cannot contest them here. Rather, we will simply note that many people believe one can and must work from facts to values, for from where else can values emerge? Certainly Albert Schweitzer did this in his own reverence for life ethics, as did Carl Sagan in *Pale Blue Dot* (1994). And the primatologist Frans de Waal has persuasively demonstrated that human morals are the product of primate and mammalian evolution and the inborn sense of fairness produced by natural selection (1996, 2005), giving solid foundation to the biophysical origin of at least some human values.

40. Those who developed the notion of civil religion say it refers to a generic, non-sectarian religiosity that promotes social solidarity and patriotism within nation states. For a classic exposition see Robert Bellah (1992); however, he later became pessimistic that such political religion might in fact be prophetic and progressive, as he had hoped. The possibility that a civil earth religion might evolve in which its

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fantasy, what sorts of communicative strategies might work to evoke and deepen human connections with other organisms and Earth's living systems? What interventions might inspire action to ensure their flourishing and resilience?

These are not idle questions. If White was correct in his central assertion that religion decisively shapes environment-impacting behaviors, then a much more comprehensive research agenda is warranted into whether, to what extent, and if so how, religion and religion-resembling social phenomena hinder but also might play a positive role in the development of environmentally sustainable biocultural systems.

Acknowledgments

We are grateful to Lucas F. Johnston, Robin Globus Veldman, Kyle Whyte, Evan Berry, Joe Witt, James Miller, Jonathan Engleman, Robert Boschman, Joy H. Greenberg, Hans Geir Aasmundsen, and two anonymous reviewers for their helpful comments and suggestions on the initial draft of this article. A small portion of this article was integrated into an article we co-authored (Taylor et al. 2016) and is reprinted here with permission of the publisher. Taylor is grateful for the Fellowship and to the research assistants at the Rachel Carson Center at the University of Munich for supporting the early phases of this research.

adherents come to understand themselves as citizens of the biosphere as a whole that is worthy of reverent care is developed by the political theorist Dan Deudney, who labeled the idea 'terrapolitan earth religion' (1998) and later, 'planetary earth civilization' (Deudney and Mendenhall 2016), along with Taylor (2010a; 2010b: 195-99). Using different terminology, Freya Mathews (2011) argued in a complementary way that the twin root of ethics and religion can be found in longstanding cultural stories about the human place on earth, as well as in newly invented arts and rituals, all of which can evoke and promote what she called a 'biospheric myth'. Such a myth can be shared by all, she optimistically concluded, regardless of the metaphysical beliefs people hold.

Such possibilities as these theorists contemplate might appear more or less plausible depending on one's assessment of the strength of the biophilia hypothesis (E.O. Wilson 1984; Kellert and Wilson 1993; Kellert 1995), and such possibilities are especially interesting in the light of assertions that religion can confer group-survival benefits (D.S. Wilson 2002).

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