

## Chapter 9

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# *Old Growth and a New Nature: The Ambivalence of Science and Religion*

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This is a chapter about ideas, specifically the ideas we invoke to justify—to ourselves and/or others—saving nature. An emphasis on ideas may seem incongruous in a book about old-growth forests, but what we will be doing is not so much thinking about old growth as thinking about *thinking about* old growth. Ideas are like vehicles: some get you farther than others, some allow navigation through varied terrain, some are much more beautiful than others. I suggest that the better we think about thinking about old growth, the farther we'll go in saving nature, the more varied terrains of nature we will successfully navigate, and the more beautiful our journey will be.

A key to this journey comes in realizing that the ideas we invoke to justify our treatment of nature often involve a mixture of science and religion. Consider environmentalist appeals on the public stage regarding old-growth forests of the Pacific Northwest. This outreach often invokes science to demonstrate that old-growth forests are ecological gems, eminently worthy of protection. But there is something more, something deeply felt in the beautiful imagery accompanying many old-growth publications, something violated by depictions of clearcut forest landscapes. Perhaps spiritual sentiment is not explicitly brought forward in public environmental discourse relative to scientific facts, but nonetheless you comprehend that these forests are not just materially significant as sources of carbon

sequestration, hydrological regeneration, faunal habitat, and so forth. They are, more fundamentally, *spiritually* significant; above all others they can claim the title of sacred groves, and whether you consider yourself religious or not, their sacredness is—at least as much as the apparent facts of environmentalist outreach—indisputable.

The combined effect of these two dimensions is far more powerful than either component alone. Environmentalists could defend old-growth forests as critical stores of ecosystem services, but this is not an argument that moves people. Environmentalists could, conceivably, defend old-growth protection using only the sacred groves argument, but they would quickly be dismissed as preachy and impractical. Albert Einstein once famously observed (1954), “Science without religion is lame, religion without science is blind”; I would submit that in the old-growth case, science without religion is sterile, and religion without science is quixotic.

From the use-whatever-works viewpoint, the more the merrier: if we can best defend old-growth protection by appealing to science *and* religion, then by all means let us do so. One immediate objection to this approach is that science and religion can readily be invoked to support rather different policy ends. After all, forest management regimes responsible for old-growth decline have generally championed their reliance on scientific rationality, and the religious zeal of manifest destiny was long a resonant tone in the subduing of American forests (Williams, 1989).

Citing this back and forth of invoking science and religion to defend whichever policy one supports is usually followed by some sort of critical comparison to determine who has the high ground. But this is not what I intend to do here. I wish to demonstrate that both have played key roles in our understanding of environmental issues such as the old-growth controversy in the twentieth century. I will do so by means of empirical data I gathered in 2002 in a nationwide survey. My findings suggest that science and religion are both deeply tied to American environmentalism in general.

These findings challenge us to reevaluate the trilogy of science, religion, and environmentalism, perhaps nowhere more so than with that quintessential icon of late twentieth-century American environmentalism, the old-growth forest. As we struggle to understand and evaluate our environmental impacts from the last century and come to terms with how we should collectively act in the next, we need equally to rethink the roles of science and religion in informing our relations with nonhuman nature. In so doing, we may discover a new iconography of old-growth forests, one respectful of their potent symbolism as both sacred groves and ecological

treasures. However, we need also to be more willing to acknowledge the long shadows of these scientific and religious icons and the complexities of blending them so freely.

### Science, Sacred Nature, and American Environmentalism

The standard story of recent American environmentalism is that it is an outgrowth of scientific discoveries of a natural world imperiled by human practices: think, for instance, of Rachel Carson's *Silent Spring* (1962), a vivid account of the deleterious impacts of the pesticide DDT. There is no doubt that scientific documentation of human impacts has played a critical role in contemporary environmentalism. But what of religion, of our sense of the sacred and its effect on how we live our lives? A 2002 nationwide survey I conducted suggested, surprisingly, that religion is as much a feature of contemporary environmentalism as science.

The survey involved a sample of roughly one thousand American adults, screened to represent the U.S. population by sex, age, and region. We included questions that gauged respondents' level of environmental concern in three ways: (i) To what extent did they self-identify as an environmentalist? (ii) How concerned were they about major environmental issues such as air quality or biodiversity loss? (iii) How much did they engage in typical proenvironmental behaviors such as practicing energy conservation or giving money to related causes? Other questions had them appraise their background in and affinity with science: How much science did they study in school? What do they think of scientific rationality?

A more complex set of questions was asked about religion because religion is a concept with many meanings. In addition to questions examining religious beliefs and behavior, what I was especially interested in was the notion of sacredness in nature. Preliminary analysis suggested that environmentalists maintained one of three general notions: the secular idea that nature is important but not sacred, the broadly Judeo-Christian idea that nature is sacred as created by God, and a third idea that nature is inherently sacred, one generally understood as inconsistent with our religious and secular western traditions. Interestingly, this last approach seemed to be especially prevalent among environmentalists, but no rigorous study had yet been done to establish its significance.

Based on interviews, I came up with fifteen candidate statements representing a spectrum of opinion on sacredness in nature, and in a preliminary survey narrowed them down to six; samples included "Nature is

the handiwork of God,” “Nature has an important spiritual dimension to it,” and “Nature is the result of material forces, not God.” These six were empirically boiled down to two primary variables, using a technique called factor analysis. The first put the secular and the Judeo-Christian notions on opposite ends of a spectrum. The second concerned inherent sacredness in nature.

Data from the survey allowed me to gain some statistically representative information about American environmentalists. Let’s focus on those who self-identified as environmentalist: this approach has limitations (e.g., we do not know whether a person who identifies as environmentalist actually “walks the talk”), but to the extent that the shoe fits we can expect some measure of sympathy and support for environmentalist values and practices. The top portion of table 9.1 suggests a surprising result: though we usually think that environmentalists come from a distinct sector of society, simple correlation analysis reveals very weak associations between environmentalist self-identification and demographic characteristics, including age, gender, education, and income. This means that Americans who think of

TABLE 9.1. Correlations between identification as an environmentalist and demographic, science, and religion characteristics.

	<i>Correlation<sup>a</sup></i>
Demographic characteristics	
Age	0.091
Education	0.081
Income	0.063
Gender	—
Science characteristics	
Self-identification as rational	0.089
Training in science	0.270
Trust in science	0.288
Religion characteristics	
Self-identification as religious	-0.068
Self-identification as spiritual	0.181
Belief in God	-0.121
Trust in religion	-0.074

NOTE: U.S. adult survey, June–July 2002 (N = 1,013).

<sup>a</sup> All listed correlations significant at  $p \leq 0.05$ .

themselves as environmentalist are not necessarily young or old, male or female, well or poorly educated, rich or poor.

Though American environmentalism apparently cannot be explained by demographic characteristics alone, to what extent can it be viewed as an outgrowth of scientific rationality and/or spiritual impulse? Table 9.1 presents selected results of correlations between environmentalist self-identification and measures related to science and religion. As regards science, environmentalists don't particularly think of themselves as more or less rational, but there is a moderate positive correlation with background in science as well as trust in scientific knowledge for guidance in life, so we do see some proscientific characteristics of environmentalists. These correlations, although not strong, are nonetheless stronger than those related to religion, which are quite varied: environmentalists don't necessarily self-identify as religious, only weakly identify as spiritual, tend only weakly to believe less in the existence of God, and place no more or less trust than others in religion for guidance in life. These findings are surprising as well: they tell us that there are many forms of religious preference among environmentalists in the United States.

So far, American environmentalism seems more an outgrowth of science than of religion. But this is not the full story: comparing tables 9.1 and 9.2, the highest correlation with environmentalism concerned neither science nor standard measures of religiosity but rather the respondent's attitude toward inherent sacredness in nature (a factor built from their response to several related questions). Table 9.2 correlates support for inherent sacredness with all three measures of environmentalism noted above, suggesting strong associations with each.

Table 9.2 includes both uncontrolled correlations and partial correlations designed to minimize the possible effect of other factors. Considering these other factors is crucial to avoid jumping to spurious conclusions: what if environmentalism is prompted not so much by a belief in sacredness of nature per se, but perhaps by some other factor (e.g., level of education or political orientation) that itself is associated with higher levels of belief in sacredness of nature? This possibility was tested via linear regression analysis (table 9.3), in which major candidate factors generally thought to affect environmental concern—demographic characteristics, political orientation, and theological conservatism—were entered into the analysis first, and only then was the attitude of nature as inherently sacred added to determine its explanatory power with all these other factors taken into consideration.

TABLE 9.2. Correlations between belief in sacredness of nature and environmental characteristics.

<i>Correlation type</i>	<i>Environmental self-identification</i>	<i>Environmental issues concern</i>	<i>Proenvironmental behavior</i>
Zero-order <sup>a</sup>	0.303	0.395	0.339
Partial <sup>b</sup>	0.274	0.362	0.303

NOTE: All correlations significant at  $p < 0.001$ .

<sup>a</sup> A zero-order correlation ignores the values of other variables.

<sup>b</sup> Partial correlations controlled for demographics (age, education, gender, income), political orientation, and theological fundamentalism.

The results were surprising: even following introduction of other possible explanations of environmentalism, the belief among environmentalists that nature is inherently sacred was so strong that it accounted for roughly half of all differences explained by these factors.<sup>1</sup> A comparison of beta values, which indicate how much each factor explains differences in environmentalism, in table 9.3 suggests the strong explanatory power of this belief. What this all means is that no matter one's age, education, gender, or income, no matter one's political or theological orientation, there is a highly powerful factor we can use to predict the level of environmental self-identification, concern, and (reported) practice among Americans, and it is the belief that nature is sacred.

If this belief and related practices constitute a religion of sorts, as one prominent religious scholar has already argued (Albanese 1990, 2002), then American environmentalism most definitely is a religion as well as a science. The historian Lynn White ironically prescribed a religious solution in his famous indictment of religion as the source of environmental problems (White, 1967; Proctor and Berry, 2005); maybe one need look no further than contemporary American environmentalism.

1. Total variance explained by all factors was between seventeen and twenty percent—not high, but not an unknown range in social science regressions. It should be noted, in comparing the relative contribution of other factors, that political orientation and theological conservatism were highly correlated ( $R = 0.343$ ), so adding political orientation to the regression analysis prior to theological fundamentalism greatly diminished the marginal explanatory power of the latter.

TABLE 9.3. Results of regression of three measures of environmentalist association (self-identification, concern for issues, and behavior) and demographic and political characteristics, and beliefs about the Bible and nature.

	<i>Environmental self-identification</i>			<i>Environmental issues concern</i>			<i>Proenvironmental behavior</i>		
	Beta <sup>a</sup>	R <sup>2b</sup>	Total R <sup>2</sup>	Beta	R <sup>2</sup>	Total R <sup>2</sup>	Beta	R <sup>2</sup>	Total R <sup>2</sup>
1. Demographic characteristics		0.016			0.023			0.020	
Age	0.112**			0.128***			—		
Education	—			—			—		
Gender	—			—			-0.062*		
Income	0.058*			—			—		
2. Political orientation		0.072			0.058			0.073	
Conservative versus liberal	-0.194***			-0.169***			-0.208***		
3. Theological fundamentalism		0.010			0.002			0.003	
Biblical literalism	-0.097**			—			—		
4. Nature sacredness		0.068			0.120			0.083	
Immanent sacredness	0.267***			0.357***			0.296***		
			0.166			0.197			0.179

NOTE: Independent variables entered as blocks in sequence as above. Political orientation and theological fundamentalism highly correlated ( $R = 0.343$ ), thus order of entry into regression reduces explanatory power of fundamentalism.

<sup>a</sup> Beta represents the amount that the dependent variable (environmentalism measure) changes when the independent variable (e.g., demographic) changes by one unit.

<sup>b</sup> R<sup>2</sup> is the fraction of the variation in the dependent variable that is explained by the independent variable(s).

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ; results omitted where  $p \geq 0.05$ .

## Old Growth and a New Nature: Embracing Ambivalence

These empirical results offer significant implications for how we characterize and interpret environmental sympathies and behaviors among Americans. There can be little argument that both science and religion (the latter founded on a deep belief in nature as inherently sacred) are powerful motivating forces in the environmental passions that made old growth such a central American policy issue in the 1980s and 1990s.

Yet what do the results of our survey of American adults mean in terms of policy disputes surrounding old-growth forests? For the avowed old-growth protector, they must sound pretty good: in terms of ecological peril and sacred resonance, many sympathizers would say, you can't get much better than an old-growth forest. Indeed, the surprisingly strong connection between environmentalism and notions of the sacred in nature yields a clear policy imperative of setting aside old-growth forests from logging. The reason is evident in the history of the term "sacred," of which one core definition found in the *Oxford English Dictionary*, tracing back nearly four centuries, is "Dedicated, set apart, exclusively appropriated to some . . . special [or religious] purpose." In the western sense of the word, then, sacredness trumps utility. You do not ask, "How much old growth do we need?" You ask, in effect, "Is it sacred?" If so, it must be set aside. Such overtly religious language is, of course, rarely used in the policy arena, but whether you look at environmentalist outreach or nationwide survey results, the significance of the sacred is undeniable.

To the environmentalist who is not unduly troubled by the above, let me trouble you a bit. Once we justify protecting old-growth forests for their near-unsurpassable ecological and spiritual value, what other landscapes would qualify for similar protection? What do we do about all the more ordinary landscapes, those we cannot set aside, those of rather plain ecological qualities? Perhaps you have won the battle in saving old growth but will lose the war on biophysical nature. In a similar vein, Michael Pollan once wrote, "We have divided our country in two, between the kingdom of wilderness, which rules about eight percent of America's land, and the kingdom of the market, which rules the rest" (Pollan, 1991: 189).

As further trouble: though science and religion seem to mesh conveniently in the case of old-growth forests, they may not always mesh in the minds of environmentalists. In our study, the correlation between background in science and a sense of nature as inherently sacred was statistically insignificant, implying that environmentalists come in all stripes. There are



all-science-no-religion environmentalists, there are all-religion-no-science environmentalists, and there are science-and-religion environmentalists, as well as shades of gray between these extremes.

Each of these alternatives has its downside. Consider, as a starter, the inclusive, integrative view that both science and religion point commonly to a unified vision supporting protection of nature. This view has enjoyed a considerable amount of recent support, evidenced for instance in several large joint statements of environmental concern signed by major world scientists and religious leaders (e.g., *Mission to Washington*, 1996; *National Religious Partnership for the Environment*, 2004). Yet the juxtaposition of the languages of science and the sacred leads to some difficult questions. What do you get when you mix the two: spiritual ecology? rationalist neo-Romanticism? Though the Internet abounds with self-proclaimed visionaries who weave science and religion together into seamless metaphysical and rhetorical wholes, most scientists I know would be less than comfortable with this outcome, and I take their concerns seriously.

A weaker form of support for both science and religion as inspirations for environmentalism, evidenced in the joint statements noted above, views them as separate but equally essential, much as the famous Einstein quote. Here the desire is not to unite science and religion but to create a tidy separation between them so that they may each serve significant but nonoverlapping roles. This view was formalized by the late Stephen Jay Gould, who argued that science and religion constitute “non-overlapping magisteria” of authority over the domains of facts and values, respectively (Gould, 1999). To think, however, that science is all about facts, and religion all about values, is to chop off the feet (perhaps even the heads!) of both on this binary Procrustean bed. To deny that values are embedded in science is to deny the cumulative scholarship of the history, philosophy, and sociology of science. To ignore the factual assertions—whether verified by empirical evidence or faith—of religious movements is to ignore some of their fundamental claims. Facts and values are separate only in a highly abstracted, fairyland version of reality, as I’ve argued at length elsewhere (Proctor, 1998a, 1999, 2005). No, science and religion bump up against each other precisely because they cannot readily be sent to their purified corners.

There is another alternative: simply do away with religion (or science) and environmentalism will be better off for having done so. Thus, Paul and Anne Ehrlich (1996) have warned how religion may “threaten rational scientific inquiry” underpinning environmental and other issues, and Prince Charles (2000) has worried about how religiously based notions of stew-

ardship for the earth have been “smothered by almost impenetrable layers of scientific rationalism.” Is the dual invocation of science and religion a zero-sum affair when the two are mixed, where hard, cold science disenchant nature, or woolly-headed inspiration trumps logic? The Ehrlichs and Prince Charles are not alone in their suspicions to this effect.

Whether one mixes or separates, whether one includes or excludes, all these proposed settlements to the question of science and religion have direct implications for how we know and care about biophysical nature. All are settlements in that they fix science, religion, and nature once and for all: nature as revealed only by science, nature as sacred, nature as a confluence of concern for the great traditions of science and religion. But all these settlements ignore the great contradictions of our time, the larger context of the old-growth issue. Here we are, a hyperconsumptive culture living in lumber-hungry homes twice the size they were in the 1950s, keen on the cult of the market that overlooks its impacts on all landscapes save those such as old growth that resonate deeply with science and spirituality.

Somehow it all makes sense when we focus on old-growth protection, but when we move further along this larger circle it makes no sense whatsoever.

## Forging a New Idea of Nature

This is why we need a new approach to nature and why this new nature will, among other qualities, be built on a new sense of science and religion. I propose we admit that nature is wonderfully complex and ultimately irresolvable, with an epistemological and moral dynamism revealed in part by the utter ambivalence of science and religion as joint authoritative voices on nature. The term “ambivalence” is from the psychological literature of the early twentieth century. It means, literally, “both strengths.” There is a strength to scientific knowledge, a strength to religious insight. But when you mix them you become ambivalent. Science and religion present us with a set of paradoxes about nature given their ambivalent guidance, and paradox may be a good thing to the extent that it instills a proper sense of humility on all sides of debates over saving nature (Proctor, 1998b, 2001).

What of this new nature as it applies to old-growth forests? It may lead us to be more tolerant of the differences one senses when reading the chapters that constitute this volume or even to a greater extent when listening to all the voices offering their opinion on management of old-growth forests. These differences may be, contrary to our wishes, as conceptually irresolvable as the mix of biochemistry texts and country churches that proved so

important to my upbringing. No one has the final word, as much as she or he may wish to do so. Old-growth forests do offer a measure of sacredness as well as carbon sequestration, but the sum of the two is not tidy and does not offer a clear resolution to policy battles over old-growth forests, no matter how much we wish it would.

Yes, ultimately we must agree on policy affecting the public old-growth forests we share, but if we are looking for the vast assemblage of facts and values about old-growth forests to steer us unequivocally toward a policy resolution, we are looking in vain. An ambivalent nature is anything but obvious, and anyone who claims otherwise in the case of old-growth policy is speaking with the very hubris an ambivalent nature belies.

Speaking of a new conception of nature thus involves speaking with a bit of a stutter in our authority. Old-growth forests become part of a humbling experience in that we cannot definitively trace a conclusive circle around them. They are certainly different, ecologically and spiritually, from other landscapes. Yet we would speak of the need to bolster protection of old-growth forests, or the need to remove protection from old-growth forests, with equal hesitancy, because we would realize that we base our argument around an ambivalent set of authorities.

This insecure terrain is not for the faint of heart. It may take genuine engagement among citizens, scientists, interest groups, and policymakers to rediscover a shared ground common enough to lead to lasting policy. But, to the extent that old-growth forests served as the icon of an ancient, settled nature at the close of the twentieth century, they may indeed help us usher in a new ambivalent nature in the twenty-first. If we indeed find, and learn to care for, this new nature in old-growth forests, we will surely find and care for it elsewhere.

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