

The Gospel According to Conservation Biology

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Introduction

The Society for Conservation Biology was founded in 1985 and its influential journal, *Conservation Biology*, was established soon thereafter in 1987. Subsequently, programs for the study of conservation biology were created at a number of leading American universities. The task of conservation biology has been to rework the goals and language of American environmentalism—at least with respect to endangered species, ecosystems, and other parts of “nature”—on a more scientific basis. The goal should now be the preservation and restoration of “biodiversity,” a term coined by conservation biologists in the 1980s. If the American environment is to be restored, the field of conservation biology will be among the main sources of expert knowledge and trained personnel.

In 1992, environmental historian David Takacs—who also describes himself as a “lifelong environmentalist”—interviewed 23 leading figures in conservation biology, including Michael Soule, Reed Noss, E. O. Wilson, Thomas Lovejoy, Paul Ehrlich, and Jerry Franklin. His purpose was to explore their reasons for becoming involved in the field, the methods of conservation biology, the values reflected in its efforts, the prospects for the future, and many other matters. Takacs assembled the materials from these interviews, conducted additional interviews specifically concerned with environmental issues in Costa Rica, and in 1996 published an insightful book, *The Idea of Biodiversity: Philosophies of Paradise*. The book includes Takacs’s broader reflections on the thinking of the conservation biologists he interviewed, as well as extensive direct quotes from his interviewees.

Takacs sees the rise of conservation biology, and the new focus on a goal of biodiversity, as a reflection in part of perceived problems with earlier environmental goals, especially the wilderness ideal of protecting wild nature that is seen as little touched by human hand. By the 1980s, there was a growing awareness that pre-European human impacts on the natural world in the Americas might have been much greater than previ-

ously suspected. In Costa Rica, for example, Takacs noted that “researchers are turning up pottery shards and crop residues that point to past civilizations where until recently we had imagined only wilderness.” More broadly, an environmental goal of “wilderness preservation . . . is redolent of class privilege, culturally rooted, and ontologically precarious.” In light of these and other concerns, by the 1980s there was a new perception that “plotting conservation around wilderness is a dubious strategy.” It also had the practical liability that by then many of the wildest areas were already included in the United States in the national wilderness system and a wilderness strategy offered little justification or guidance for environmental protection of the large majority of places that would never qualify as wild.

The Notion of Biodiversity

As Takacs explains, the questioning of a wilderness strategy was one element in a broader concern among biologists and other scientists with respect to “the negative connotations the word *nature* holds.” Nature was the subject of romantic poetry, transcendental philosophical speculations, and many other approaches that fell well short of the “scientific.” Yet, science is the

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greatest source of authority and legitimacy in American life. If environmental goals were to gain wider public acceptance, it might be desirable to put them on a firmer scientific grounding. Indeed, this was a main purpose of elevating the goal of “biodiversity” in place of the older and now seemingly less compelling environmental language of “nature, wilderness, natural variety, endangered species, and biological diversity.”

The central issue explored by Takacs in his interviews with conservation biologists was the definition of “biodiversity.” An expert in ecological processes, Don Falk, considered that biodiversity takes in “ecosystem functions, community processes, genetic diversity within species, and so on.” The editor of *Conservation Biology*, Reed Noss, stated that “it is life and all that sustains life.” When asked to give “biodiversity” a more precise definition, as a specific goal that might be achieved or not, even leading authorities in the field had difficulty. As Takacs reported, “little is concrete about most definitions of *biodiversity*.” One of those interviewed, the original founding editor of *Conservation Biology*, David Ehrenfeld, was skeptical of the very term itself, considering that biodiversity “has a broad appeal, like motherhood.”

Given such a broad scope, Takacs sought to examine how the idea of biodiversity might differ from the idea of nature (that is, what is separate from human activity). He concluded that for most conservation biologists there was in fact not much difference. The language of biodiversity mostly amounted to a rhetorical act of “scientizing the concept of nature.” Whether conservation biologists consciously intended this or not, their goals were actually political and social. As Takacs explains, “the word *biodiversity* is part of a convincing strategy—that is, it is designed to convince [the American public and political leadership] and has been quite convincing thus far” in terms of advancing traditional environmental purposes in a new language. Takacs summarizes the forces at play in the establishment of the new field of conservation biology:

Conservation biologists do not often go to bat for nature *per se*; they do not often describe nature in their writing. According to Neal Evernden, “The environmental advocate sits on the horns of a dilemma: the time honoured technique of invoking the authority of nature has been essential to the presentation of a persuasive argument, and yet that technique is now vulnerable to charges of fraud.” The term *nature* not only carries a multiplicity of confusing, often self-serving meanings; it also carries the taint of association with bleeding-heart liberal tree huggers. To be considered a “nature-lover” is not a compliment in many quarters. So rather than running to nature, biologists flee from it. Instead, they describe and defend biodiversity. It maintains a scientific aura of respectability while still meaning so many different things to so many different people, without having yet acquired the notorious etymological reputation of the word *nature*.

The leadership of the field of conservation biology has come predominately from biological scientists. However, unlike many scientists who are content to work in their laboratories, and to leave politics and policy making to others, most conservation biologists have been determined to make a difference in the world. That has been one of the distinct features of conservation biology and has required its members to think about many subjects that fall outside the scope of their own professional expertise or even outside science as a

whole. Conservation biologists have had to enter into political and economic realms and to try to understand—and influence—the workings of policy making processes in government. It has all involved, as Takacs notes, paying attention to a host of “multi-disciplinary concerns” that were brought together “under the rubric of biodiversity, . . . repackaged to unite amorphous, diverse endeavors in a streamlined, do-or-die conservation effort with biologists at the helm.”

Conservation Biology as Crusade

Takacs also explores the roots of this crusading spirit that animates the efforts of so many conservation biologists. Not surprisingly, the sources lie mainly outside the scientific method and the biological expertise possessed by members in the field. Indeed, despite its efforts to distinguish itself, conservation biology is sustained by powerful ethical ideas and spiritual values similar to those of the older conservation and environmental movements that sought to protect “nature.” Most conservation biologists, however, have not been particularly self-reflective about all this; they have not applied a scientific and analytical lens to explore the contents of their own powerful value feelings associated with biodiversity (and nature). This probably reflects in part the ambivalent feelings that might be aroused. Conservation biology advertises itself as belonging to the scientific community and as adher-

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ing to strict canons of scientific objectivity and value-neutrality. As Takacs notes, however, conservation biologists in actual fact “attempt to speak for values that go far beyond what one might think of as falling within their realm of expertise.” They engage in “public advocacy” in support of a powerful “ethical imperative,” one that encompasses many “extrascientific values.” One leading conservation biologist, Michael Soule, for example, espouses an “ecosophy” according to which “biological diversity, ecological complexity, and evolution are ‘good,’ . . . and biological diversity has value exclusive of any potential use to humans.”

Some of Takacs’s conservation biology interviewees were more self-aware than others in recognizing the tensions between their public advocacy and their strictly scientific roles. This tension showed up in the advice given to some young biologists without tenure that they might need to “wait before they engage in

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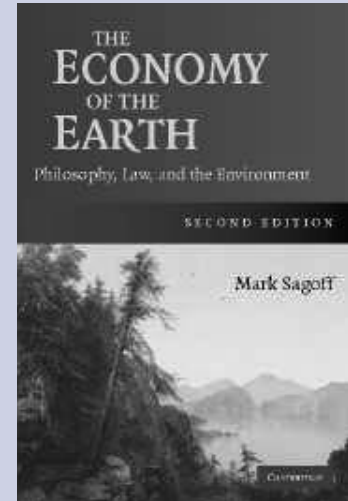
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This work offers a complete, thorough, and comprehensive revision of the first edition. *The*

Economy of the Earth is the best critique available of 'preference' and 'willingness to pay' as norms or criteria for environmental valuation. It is a provocative, constructive, and original analysis of debates over consumption, the role of science, and the concept of place in environmental ethics and policy.



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conservation activities as part of their professional lives." Walter Rosen, who originally came up with the term "biodiversity," stated his concern that "science is supposed to be objective, yet I, who am a scientist, nevertheless feel very strongly in this and that value." Moreover, there could even be an element of misrepresentation, Rosen acknowledged, because "if I'm going to be listened to, it's probably because I'm a scientist, even though I'm making a non-scientific assertion." Takacs suggests that one solution might be for conservation biologists to distinguish clearly in their public roles between their statements as scientists and their statements as citizens of the world who are advocating particular values and biodiversity policies. But then he acknowledges that in practice any such attempt to separate these two roles is probably unworkable.

Substantial portions of Takacs's book are devoted to exploring the contents of the powerful value systems that he finds underlying the public advocacy of conservation biologists. A number of conservation biologists agreed that biodiversity is so important to the world because of its "transformative value," a concept first developed by the environmental philosopher Bryan Norton. When a person is "surrounded by diversity," there is an identification "with the natural world; one is

inextricably part of it. The transformation of values occurs partly because if you are inextricable from the grand process of nature, by consuming it or altering it, you irrevocably hurt yourself."

Analogies to religion came readily to mind when conservation biologists spoke of the transformative power of experiencing biodiversity. Takacs comments that they "seek to encourage this 'conversion effect' by putting people in direct contact with biodiversity. Biologists may feel such conversion is possible because they themselves went through precisely this kind of transformation, usually in childhood." Indeed, there are parallels here to being born again in Christianity. E. O. Wilson relates that for him "natural history came like salvation at a very early age." Another conservation biologist, Thomas Eisner, describes a youth in which he was "exposed to the smell of the woods, to looking under rocks and looking under logs. And there was just an overwhelming feeling." Reed Noss expresses his sense that "many people do have that feeling, that there is a larger self. And when they're defending nature, they're defending that larger self."

A transformation is something that a person can describe as an actual event or experience that either

has or has not occurred in their life. Takacs also examines the importance of “intrinsic value” in the thinking of many conservation biologists. Given that intrinsic value by definition exists “apart from any human valuer,” it is not an observable and measurable event and, as Takacs notes, it goes “well beyond the realm of what we might expect scientists to acknowledge and defend.” Indeed, intrinsic value may have to be justified from “certain religious standpoints. If God or some other deity or sacred process created the natural world alongside humans, then all creatures are imbued with sacredness: all have intrinsic value” independent of any human thoughts or actions.

Thus, one way to understand intrinsic value is that it is outside any human scope because it is really the value that God has given to “His Creation.” When they talk about intrinsic value, many conservationist biologists may in essence be talking about following the commands of a Jewish and Christian God, even if mostly without realizing it. Paul Ehrlich, one of the

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conservation biologists who is committed to the idea of intrinsic value, does not ground his arguments in Genesis but he does do so far as to recognize explicitly that “this is fundamentally a religious argument. There is no scientific way to ‘prove’ that nonhuman organisms . . . have a right to exist.” Takacs notes the irony that many conservation biologists proclaim beliefs dependent on the existence of a God or other deity and yet “most biologists have no such religious views” that they can articulate in any detail.

At one point in his interview process, Takacs raised the subject of religion more explicitly, asking specifically about the role of “spiritual values” in the thinking of conservation biologists. This is a difficult area for many conservation biologists because “if it seems *a priori* odd that some scientists believe and preach a concept like intrinsic value that cannot be proven scientifically—indeed, it can barely be expressed at all—it may seem totally bizarre that scientists talk about biodiversity’s spiritual value.” Yet, perhaps the majority of the conservation biologists interviewed spoke in terms of having deep spiritual convictions relating to biodiversity. S. J. McNaughton described his powerful “spiritual experience” in once being surrounded by wildebeests and other nature on an African plain. Noss described his strong sense of “a

kind of spiritual or at least a nonrational connection to nature.” Noss hastened to add, however, that “I wouldn’t call it religious.” Takacs comments that many conservation biologists make similar distinctions, reflecting the fact that, among his interviewees, almost all “these biologists reject organized Western religion, sometimes quite forcefully.” Thus, they are willing to admit to having a strong sense of “spirituality” in the presence of nature while rejecting the idea of following any institutional Christian or other forms of “religion.”

While conservation biologists may not have a systematic theology, it was nevertheless evident to Takacs that ideas and reactions of a deeply religious character were central to the whole enterprise of conservation biology,

Such feelings run deep, infusing their bearers with sentiment. At a loss for language adequate to express this sentiment, they resort to the word one resorts to when one can’t explain something: *spiritual*. For these biologists and for many others, being in nature—surrounding oneself with biodiversity—can almost not help but bring about experiences to leave the senses reeling, the mouth agape. The incomprehensible complexity of it all: we can’t handle it. Our brains go numb when faced with such richness out there, so much bigger than ourselves. How can we help but feel awed? And biologists spend their lives digging deeper into the intricacies, developing profound awareness of both the mindblowing intricacies they have unearthed and the complicated skein they haven’t begun to entangle.

Although such religious experiences are widespread among conservation biologists, Takacs notes that many are reluctant to “speak out publicly because they feel they must preserve the boundaries between rational and intuitive, mind and body, science and emotion.” Crudely put, putting their intense religious feelings

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about biodiversity into the public view might blow their scientific cover. A few conservation biologists, admittedly, do think that this reluctance is a mistake; for one thing, the cause of conservation biology probably can not succeed unless its core values are more widely adopted among Americans, and this process of conversion will require a more explicit statement of the religious significance of biodiversity. Since “the values are there already,” Takacs say, “why not be honest, making conservation biologists’ work more accurate and holistic? Simultaneously, they’d be laying their

values bare for others to emulate." For one thing, there would be the possibility of a powerful political alliance with devout Christians who share much the same sense of awe in the presence of God's Creation.

In any case, there was no mistaking the fact that, among the conservation biologists Takacs interviewed, they "attach the label *spiritual* to deep, driving feelings they can't understand, but that give their lives meaning, impel their professional activities, and make them

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ardent conservationists. Getting to know biodiversity better takes the place of getting to know God better." Indeed, despite the reluctance of most conservation biologists to use the term "religion" in describing their own beliefs, this was mainly an act of linguistic camouflage. It was quite evident to Takacs that "some biologists have found their own brand of religion, and it's based on biodiversity." It might pose a threat of some outside critics speaking harshly of conservation biologists as being the new "eco-ayatollahs" but Takacs argues that conservation biology should now more courageously and honestly put its true religious face forward.

Environmental Creationism

Takacs does not explore, and few conservation biologists have sought to delve into, the specific theological sources of the powerful religious feelings of awe and reverence that these biologists experience in the presence of nature—or as they have now re-labelled it, in the presence of "biodiversity." When it comes to their "spiritual" side, conservation biologists have shown little interest in systematically investigating and analyzing the underlying sources—the very opposite, it might be noted, of their approach to the biological workings of the natural world that they study so intently. Such a formal analysis of their spiritual views would come within the realm of theology, a subject in which most conservation biologists have shown little interest and to which they have had little exposure.

Most conservation biologists have been brought up in a world in which the western religious tradition still resonates strongly, even when many of its institutional representatives in the temples and churches have been in decline. The Christian (and also Jewish) understanding of the world has survived in new forms, sometimes in total unawareness of the original source. It would

seem that the field of conservation biology is yet another example of this modern phenomenon of powerfully felt and expressed secular religions that operate without the traditional language of religion. While conservation biologists almost all reject Christian creationism, they may not have travelled as far as they are accustomed to thinking. The descriptions they give of experiencing biodiversity are little different from the classic Christian feelings of religious awe and reverence in experiencing the presence of "the Creation."

Indeed, it would seem that, like so many earlier ecologists and other environmental advocates for the protection of nature such as John Muir, most conservation biologists are also believers in one or another form of "environmental creationism." It is the experience of the creation, inspiring a deeply felt sense of encountering a true work of God, and coming to a greater understanding of God's thinking and His design for the world, that is so enrapturing to conservation biologists. No other explanation can adequately account for the intensity of their religious feelings in the presence of biodiversity. These feelings certainly do not come from "value-neutral" science.

Playing God Environmentally

The lack of theological introspection among conservation biologists in some cases has had the consequence of ensnaring them in a tangle of contradictions. In both the Christian religion and the gospel of conservation

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biology, the greatest sin is to play God in the world. Yet, conservation biologists also strongly advocate the contemporary environmental goal of restoring a state of the natural world as it existed before significant human alteration. Moreover, this goal has been widely adopted as a matter of government policy. Restoration of nature lies at the core of the ideas of "ecosystem management," now the official management philosophy of the US Forest Service, National Park Service, Bureau of Land Management and many other government organizations that deal with the natural world. In the western United States, where European settlement mostly did not occur until after 1850, restoration has often been defined operationally by these public land agencies to mean the recovery of the "pre-European" condition of the lands and other features of the environment.

The popularity of the restoration agenda has reflected its underlying creationism. If seldom stated this explicitly, both conservation biologists and the American public have in the back of their minds that restoration will successfully accomplish an act of “recreating the creation.” The problem here, however, is that this would seem to be yet another act of playing God—in this case environmentally. The restoration goal assumes that human beings have the same knowledge and the same capacity to recreate the natural world that God possessed in the beginning—in other words, if the restoration is really genuine, they would be seeking to become virtual new gods themselves.

Aside from this theological quandary, conservation biologists seem to be thinking of a static world, dating from the creation, that can then be restored and appreciated for its wonders in its original form. It is a way of thinking surprisingly similar—especially in light of their past mutual hostility—to the thinking of traditional Christian creationism. We see here once again the close affinity of conservation biology and Christian theology, the former providing perhaps a disguised but scientifically more acceptable way of delivering important messages of the latter.

Yet, at the same time, and seemingly unaware of any possible contradictions, conservation biologists advocate a strictly Darwinian understanding of the world, one with which Christian creationists have waged fierce battles. In a dynamic evolutionary world, moreover, what would be the meaning and purpose of restoration? What would be the restoration target point in time, even assuming the technical capacity to achieve it fully? Any particular choice of a target would seem rather arbitrary. While government agencies in the western United States have settled upon 1870 to 1890 as the moment when humans in effect began to play God there (the point at which Europeans arrived with their extraordinary scientific and economic powers), some people have suggested logically enough that the appropriate moment of original “true nature” in the West must have been much further back, preceding the arrival of native Americans as well.

Even assuming a time frame could somehow be specified, any objective to restore the creation would be a mere fantasy. In an evolutionary world, it will be impossible to single out any one past moment of the evolutionary process to declare that this was the actual moment of “the creation.” Whatever it might be called, and the terms used by conservationists biologists and environmentalists are numerous—including a uniquely “natural,” “healthy,” “sustainable,” “equilibrium,” “biologically diverse,” and so forth particular state of the world—it will be merely a fiction of the creation. Thus, even if it were somehow miraculously possible to restore a precise natural moment of the

past, the value of this “fake” human version of the creation would not be very great.

Nevertheless, large amounts of money are already being spent in the United States to “restore” the natural environment—and these levels of funding could well increase substantially in the future. It is unclear, to be sure, what is actually being “restored”—although we can say for sure that it is not the creation. In practice, restoration money will probably be spent to remove dams, canals, trails, bridges, power lines, and many other symbols of the past scientific management of nature for economic purposes. Formerly drained wetlands will be reflooded; rivers will be returned to their former channels; and many other similar steps will be taken. Symbolically, it will be a repudiation of our past false worship of the god of economic religion, the deity in whose name many of these physical manipulations of nature were mistakenly undertaken, brazenly challenging God’s authority. As far as the eventual environmental outcome on the ground, it is likely to be something that is brand new. Most of the heroic “restoration” efforts now being made will probably never result in a natural condition in the world that has ever previously existed before.

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be another practical side to all the spending. Owing to our worship of false gods, there is a strong contemporary sense that human beings have been sinning against nature—and also against the God above who is the author of the creation. Those who sin, as we know from the Bible and other traditional sources of religious knowledge, should acknowledge their past actions and reform their ways. The specific form in this case will consist of American society renouncing its ongoing destruction of nature and newly spending large amounts of money on restoration efforts. Even if the restoration does not succeed literally, the large financial sacrifices required will be a form of apology and restitution for the many evils committed against nature—the destruction of the creation—of the past.

Conclusion

Christian creationists have a well-developed and internally consistent way of understanding the arrival in

the world and the religious meaning of the creation. The problem for them is that the traditional biblical story is contradicted by Darwinism and other products of modern geological and biological scientific investigations. The conservation biologists who advance an environmental creationism experience virtually the same sense of religious awe and inspiration in the presence of nature—the creation—as their Christian counterparts. Yet, they also profess to be true scientists who look to Darwin and other modern science to understand nature. The result, however, would seem to be almost a schizophrenia in their thinking about the natural world. Many conservation biologists experience nature, on the one hand, as “the creation,” and yet also write professionally and talk about it in biological terms as the Darwinian product of billions of years of random mutation and other evolutionary workings.

These tensions within conservation biology come to the fore when it is necessary to consider the meaning of environmental restoration in practice. What is it that is being restored? In the event, it can not be “the creation.” It is not necessary, moreover, to restore a

the theological tenets of the environmental creationism underlying much of conservation biology, in short, the goal of restoring the natural world would seem to be rife with contradictions and incoherent.

Nevertheless, heroic human activities are taking place with a justification of “restoring” nature. If the results are likely to be problematic, it will be due to intellectual—really theological—confusion as much as any technical difficulties in reengineering past natural systems. Theology is not just a matter of living a moral life, or finding the path to a salvation in the hereafter. In putting the tenets of conservation biology into practice, a confused current theological understanding is likely to also produce wide policy and management confusions among the many government agencies that have to address issues of the true and correct relationship of human beings and nature.

In place of the misplaced goal of restoring the creation, we need a new theory of environmental and restoration “aesthetics,” recognizing that the practical results of government environmental spending are much more likely to be new forms of human “gardens,” rather than any recovery of wild nature. If environmental theology is to develop further in the future, this is one of the many topics—including many other complex issues relating to “appropriate” acts of environmental protection and restoration—to which it might apply newly refined methods of theological analysis.

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process of Darwinian evolution because the workings of evolution never stopped in the world—nor in principle could evolution ever be halted by human action. The goal might be to reset the evolutionary clock to a specific time frame preceding human impacts on the evolutionary result but it now appears that this would be many thousands or even millions of years ago and a particular choice would inevitably be arbitrary. Given

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Source: David Takacs, *The Idea of Biodiversity: Philosophies of Paradise* (Baltimore, MD: Johns Hopkins University Press, 1996).

