

Introduction: Humans as Dusty Earthlings¹

“REMEMBER THAT YOU ARE DUST, and to dust you shall return.”² So says the Catholic or Anglican priest while making crosses in black ash on the foreheads of kneeling parishioners. Called “the imposition of ashes,” this ceremony is performed on Ash Wednesday each year in liturgical churches around the world. It marks the beginning of Lent, a forty-day period of prayer and repentance that ends with the celebration of Christ’s resurrection at Easter. This declaration that we are dust recalls several passages of Scripture, all of which remind us of our humble state as part of God’s earthly creation.³ This is a vital truth. We humans *are* dust—physical beings, made of flesh and blood, arising from the soil of the earth and returning to it when we die. As these passages teach, and as this ceremony reminds us, *dustiness* or *physicality* is a basic fact of our human existence in this world. God has made it so.

I worked as a physician for over twenty years, and in that capacity I had many opportunities to observe my fellow humans in a variety of physical and spiritual conditions—in health and disease, in good times and bad. These experiences led me to question the traditional understanding I had been taught as a Christian, namely that humans are made up of two separate or separable entities: a material *body* and an immaterial or spiritual *soul*. (This understanding of human makeup is called body-soul dualism.) Again and again, I saw that physical things like chemicals (alcohol, drugs), broken bones, cancer, and pain could profoundly alter the spiritual life of people, and that spiritual things like

1. Throughout the book, please refer to the glossary for any word definitions you may need.

2. *Book of Common Prayer*, 265.

3. Gen 2:7, 3:19, 18:27; Pss 90:3, 103:14, 104:29; Eccl 3:20; 1 Cor 15:47.

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faith, courage, hope, love, guilt, ignorance, loneliness, forgiveness, and prayer could deeply affect the physical life. It seemed to me that if these two parts of us did exist, they were very closely bound together.

I also realized that the only way we humans can be or do anything in the world is *physically*—in our bodies. We experience the world only through our senses of sight, hearing, touch, taste, and smell, and the only way we can do anything in the world, including communicate, is through the use of muscles—of the face for facial expressions, our mouths, throats, and chests for speech, our fingers for writing, and our arms and legs for working, walking, or whatever. Without muscles, perhaps we could think, we could believe, we could pray, we could worship, we could have spiritual experiences, but we couldn't *do* anything with our thoughts, our belief, our worship, or our experiences, and no one else would know about them. So I surmised that thinking, believing, worshipping, and even spiritual experiences are *physical* in that they require a reasonably intact and functioning brain and body in order to happen in any meaningful way. I concluded that in this life, on this earth, our bodies and souls are so tightly bound together that they form *one whole person*. When we speak of “spiritual” and “physical” or “soul” and “body,” we are speaking not of separate entities or things but of different aspects or qualities of one, unified entity or thing—us, me and you. A unified, holistic understanding of human makeup, rather than a dualistic (body-soul) understanding, made a lot of sense.

On this point, it turns out that in recent decades, modern neuroscience—the study of the human brain and how it works—is discovering that human activities we traditionally attributed to the soul are, in fact, dependent on physical events in our brains and bodies.⁴ Prayer, worship, decision-making, creativity, morality, and spiritual experience all appear to depend on physical events and processes in our brains and bodies. We humans seem to operate as “brain-bodies.” Philosopher Thomas Nagel sums it up: “So far as we can tell, our mental lives and those of other creatures, including subjective experiences, are strongly connected with and perhaps strictly dependent on physical events in our brains and on the physical interaction of our bodies with the rest of the physical world.”⁵

4. Murphy, “Science and Society,” 126, 130.

5. Nagel, “Science and the Mind-Body Problem,” in *What Is Our Real Knowledge about the Human Being*, quoted in Jeeves and Brown, *Neuroscience, Psychology, and*

Also, biologists who study other animals are finding that we humans are not as different from them as we may have thought. Not only do we share DNA, proteins, metabolism, and a host of other chemicals and processes, we also share reasoning, self-awareness, future planning, choice, and social life. These things seem to occur, albeit in very simple or analogous ways, in nonhuman animals, affirming the physical nature that we share with them. In short, comparison with other animals shows that we too are animals—physical beings just like them.

I have a background in biology and have always enjoyed God's creation and his creatures. So ten years ago, when I began formal study of theology, I became interested in the theology of nature and how Christians approach the ecological problems of our day—how we are treating God's creation and his creatures. As I studied Scripture, I was impressed with the relevance and power of Christianity for ecology.⁶ I was perplexed, however, to find Christians more or less oblivious. This made no sense. It seemed to me that we, of all people, who worship the creator and redeemer of all things, ought to be concerned about God's earth and his creatures. So why are Christians not engaged?

I believe that a major reason for this is that we misunderstand who and what we are as humans and how we fit into God's world. We Christians tend to think that our spiritual "soul" life is more or less separate from our physical "body" life and that it is far more important. Similarly, we have tended to see the physical world as *outside of* or *peripheral to* our "real" lives that are confined almost exclusively to our relationship with God and other humans. In our minds and hearts we are separated (or alienated) from the rest of God's creation. Although in reality we are an integral part of God's creation, in our perceptions and practices, we tend to see the physical, ecological world as "out there," outside of the realm of primary concern, and ourselves as "in here," inside the realm of primary concern—our personal, social, and economic life. I suggest that a deeper grasp of our physicality and our involvement in and dependence on the physical world will help us better understand who and what we really are as human beings and will show us that

Religion, 131.

6. Throughout the book, I will use the words *ecology* or *ecological* where others would use the words *environment* or *environmental*. These better express, I think, the holistic nature of the ecosystems in which we live and our integral membership within them. See "ecology, ecological" in glossary.

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the physical-ecological world is important—vital, in fact, for our well-being and for our quest to live as God would have us live as his people in his world.

The Argument of the Book

So what am I trying to say in this book? My argument has four parts: (1) We are physical beings. (2) As physical beings we are embedded in and dependent on the physical world. (3) As embedded, dependent members of God's physical world, we are subject to all the ecological principles, patterns, parameters, and limits that define and circumscribe the existence of all God's creatures on his earth. (4) These realities have implications for our Christian ethics—how we should live in God's world. Let me unpack each of these in turn.

Part one says that we are physical beings. I have already touched on this, and in later chapters I shall present scriptural and scientific evidence for our physicality. Part two of my argument says that since we are physical beings, we are unavoidably embedded in and dependent upon God's physical, ecological creation. We cannot live or thrive on God's earth without the support and nourishment that its ecosystems provide. We are dependent, literally from moment to moment, on the planet's ecology. When we breathe, for example, we breathe out carbon dioxide that is absorbed by plants, and we breathe in oxygen that is entirely produced by those same plants. All that makes up our flesh—our muscles, bones, skin, brains, hearts—everything comes from and returns to the earth. All the food we eat comes from the earth, and all our waste, bodily and otherwise, must be absorbed and recycled by the earth's ecosystems. All the materials in our cars, clothes, buildings, computers, books, churches—everything comes from and returns to the earth. By necessity we *live within* and *depend upon* God's vast, earthly ecosystem—what we call the *ecosphere*. We humans form an integral part of this ecosphere. We are not outside of the ecosystem, and the ecosystem is not outside of our lives. We are unavoidably connected to other living and nonliving things—microbes, plants, animals, soil, rocks, wind, water, clouds, and all the natural cycles and processes that support and define life on God's good earth.⁷

7. Palmer, "Stewardship," 70.

This is summed up in the term *eco-physical*, a combination of the words *physical* and *ecological*. This neologism expresses, I believe, our basic nature as human beings, as *dusty earthlings*, denizens of this wondrous planet. We are physical beings, and as such we are ecological beings because, being *physical*, we must live within an ecosystem that supports and nurtures us. Our personal, social, economic, and, yes, our spiritual lives depend on our physical life and can only take place within the ecosystems of God's good earth. As theologian Larry Rasmussen puts it, "We live *in earth as earth*."⁸ *Earth is our home*.⁹

Part three of my argument says that, since we are eco-physical beings, we are subject to all the principles, patterns, parameters, and limits of earthly existence—what I call *ecological realities*. In order for us to flourish (Gen 1:28), and in order for all God's creatures to flourish with us (Gen 1:22), we must obey these ecological realities. The science of ecology studies the relationships and interactions of living things with each other and with their environments.¹⁰ It has developed a body of knowledge about these relationships and interactions including a set of principles, patterns, parameters, and limits (ecological realities) that apply to us humans just as they do to all creatures. We are not on the sidelines; we are *in* the game, so we have to play by the rules. Principles such as population growth patterns, resource limits, the carbon cycle, the water cycle, energy pyramids, and the law of entropy¹¹ govern our existence on this planet just as they do all living things.

The fourth and last part of my argument says that our eco-physical nature has implications for the kind of people we ought to be and how we ought to live in God's world. Knowing that we are eco-physical beings, embedded in God's eco-physical world, subject to its principles, patterns, parameters, and limits, helps us see how to live rightly and glorify God in our lives and in his world.

In summary, we are: (1) *physical beings*, therefore (2) *ecological beings*, therefore (3) we are subject to *ecological realities*, and finally (4) because of these things, we ought to be certain kinds of people as we live *in* God's earth.

8. Rasmussen, *Earth Community*, 276.

9. Jung, *We Are Home*, 69.

10. Molles, *Ecology*, 2.

11. This is a law of physics that is relevant to ecology. It is also called the second law of thermodynamics. I will discuss this in chapter 6.

Our Separation from Nature

At this point, you may be saying, “Of course we are physical beings, and we are part of the earth’s ecosystem. So why write a book about it?” Well, our eco-physical nature may be self-evident, but we don’t live as though it were so. Theologian Douglas John Hall says that the most important cause of ecological problems today is “humanity’s seeming inability to understand its essential solidarity with all other forms of life, and to act upon that understanding.”¹² Our economic system ignores the ecosphere within which it operates and on which it depends. Those of us who live in so-called developed societies such as the United States are living in a way that is overstressing the earth’s capacity to support us. We live almost all of our lives within our constructed human environments of electronics, plastic, steel, glass, and concrete, isolating ourselves from God’s natural world. We have used our wealth and technology to exclude nature from our lives and from our consciousness and so have lost touch with it. I recently saw a sign in the back window of a car with a large cross. Under it was the phrase, “Not of this world.” Indeed, this is how we live—as though we were “not of this world”—not eco-physical beings, not part of the ecosystem, and not subject to the ecological realities that define earthly existence as God has designed it. Douglas Hall again writes: “There is a growing consensus among all who consider the future of life on earth that unless humankind achieves some profound awareness of its dependence upon nature, the future will be bleak—if it *is* at all. Most of those who have arrived at that conclusion, from whatever process of investigation and reflection, would add that such an awareness entails the clear recognition of our full human participation in nature, that we are not supernatural, after all, but part of the very process that we are gradually destroying.”¹³ In other words, we need what Hall calls a “radical conversion to creaturehood.”¹⁴ We must “re-enter God’s creation.”¹⁵ This is what I am seeking to do in this book—to call us Christians back to our creaturehood, as God’s

12. Hall, *Professing the Faith*, 335.

13. *Ibid.*

14. *Ibid.*, 341.

15. Edward P. Echlin, “Let’s Re-enter God’s Creation Now,” quoted in Bauckham, *Living with Other Creatures*, 144.

children, to reenter our “God-given home,” as the great ancient church father Irenaeus called the created world.¹⁶

The Ecological Problem

Today, in the early twenty-first century, we face an array of ecological problems including population growth, overconsumption, maldistribution of resources, deforestation, land degradation, species loss, pollution, climate change, and so on. Some of these problems are controversial, but no one can deny that our relationship with God’s earthly creation is deeply troubled and that we Christians need to address it.

For decades now, environmentalists have used the term *environmental crisis* to refer to these problems, but I think the word *crisis* should be dropped. Historian J. R. McNeill correctly remarks, “It is impossible to know whether humankind has entered a genuine ecological crisis. It is clear enough that our current ways are ecologically unsustainable, but we cannot know for how long we may yet sustain them, or what might happen if we do . . . The future, even the fairly near future, is not merely unknowable; it is inherently uncertain. Some scenarios are more likely than others, no doubt, but nothing is fixed.”¹⁷ As McNeill says, our current way of life is not sustainable, but we cannot know how that non-sustainability will be ended—whether by catastrophe, by government fiat, or by thoughtful, deliberate action. Furthermore, our problem is not about a crisis per se; it is about how we understand our mode of existence, our way of thinking and living, our vision of ourselves, of the world, and of God.¹⁸ So instead of *crisis*, I prefer the term *Ecological Problem* coined by Francis Schaeffer in his 1970 book *Pollution and the Death of Man*.¹⁹ This is not to deny that we are facing a crisis. We are, although, as McNeill says, it is a slow, irregular, fluctuating, complex, and unpredictable one. But the “crisis” language of environmentalists has been in use now for forty years, and it is worn out. Furthermore, the word *crisis* suggests a climax after which, once it has passed, we can relax and return to “normal life.” This will never happen, and, as we

16. Santmire, *Travail of Nature*, 35.

17. McNeill, *Something New Under the Sun*, 358.

18. Hauerwas, *Vision and Virtue*, 36.

19. Schaeffer, *Pollution and the Death of Man*, 17.

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shall see, it misunderstands the ecology of the planet.²⁰ The Ecological Problem will be with us from now on, and the changes we need to make to address it will themselves always be changing. We will never be able to relax and return to “normal life.” Our very idea of “normal” must change. So the term *Ecological Problem* is more meaningful and useful. I capitalize it to emphasize its importance and enduring nature. Throughout this book I will use the term Ecological Problem to denote the array of difficulties that stem from our troubled relationship with the rest of God’s creation.

Today, we humans have grown numerous and powerful. Currently there are over seven billion of us on the planet, and we are consuming resources at ever-increasing rates. Our powerful science and technology allow us to exploit and manipulate God’s natural world, its creatures, and its processes, to the point that today, for the first time in history, we are actually changing the global ecosphere. “While local overuse of ecosystems has a long history (e.g., overfishing, deforestation, soil erosion), the global human economy has now become so large relative to the regenerative capacity of planet Earth, that it is now for the first time in human history confronting global limits.”²¹ There is not one corner of the earth’s surface that we humans do not live in, visit, or affect in some way—from the ocean depths to the stratosphere, from the Arctic to the Antarctic. As ecologists Peter Vitousek and Harold Mooney put it, “No ecosystem on Earth is free of pervasive human influence.”²² We are changing God’s earth and altering his design for it in ways that, because of our limited ecological knowledge, we do not understand.

The reach of our technological power is astonishing. For instance, the Deepwater Horizon oil rig that blew out in the summer of 2010, spilling some eight million barrels of oil into the Gulf of Mexico, was operating in water almost a mile deep and had drilled two miles below the ocean bottom. And oil companies talk of going much farther and deeper in the future to get more oil to support our ever-expanding appetite for energy.

We are impacting ecosystems around the globe through the widespread transport of nonnative species across the world. Global travel

20. Tarlock, “Nonequilibrium Paradigm in Ecology,” 1140, 1144.

21. Wackernagel and Kitzes, “Ecological Footprint,” 1032.

22. Vitousek and Mooney, “Human Domination of Earth’s Ecosystems,” 494.

and trade have increased exponentially in recent decades.²³ Materials and products are shipped to and fro around the world, and we think nothing of jetting off to faraway places for business or pleasure. But this increased trade and mobility has greatly increased the transportation of animals, plants, and microbes around the planet. All kinds of organisms hitch rides on and in vehicles, people, luggage, and cargo. The legal and illegal pet trade transports numerous exotic species to new places where they can escape and establish themselves. All this has the effect of homogenizing the ecosystems of the world, reducing diversity, and making ecosystems more uniform.²⁴ It is impossible to know what effects this “eco-globalization” will have on the specialized and unique organisms and ecosystems of God’s world.

Global ocean fisheries are under enormous pressure from large-scale industrial fishing. A study done in 2003 estimated that some oceanic wild fish populations have been reduced by as much as 90 percent.²⁵ A more recent report affirms that overfishing, pollution, habitat destruction, warming, and acidification of the oceans are putting enormous pressure on oceanic ecosystems.²⁶ Many fisheries are being maximally exploited or overfished.²⁷ Worldwide, we are “fishing down the food web” as we deplete larger species and turn to smaller ones in order to meet global demand for seafood and feed the rapidly expanding fish-farming industry. This level of exploitation is not sustainable in the long term.²⁸ The North Atlantic cod fishery collapsed in 1993 due to overfishing.²⁹ North Pacific wild salmon populations are severely depleted due to overfishing, pollution, mismanagement, and damming of rivers used by salmon for spawning.

23. The worldwide network of travel and trade requires enormous quantities of energy in the form of fossil fuels—oil and natural gas. In fact, it is the availability of these cheap, portable fossil fuels that has allowed the network’s development in the first place. As fossil fuels become more expensive and as pressure mounts to reduce the carbon emissions generated by their use, it is unclear how the worldwide network of travel and trade will adjust.

24. Thompson et al., “Frontiers in Ecology,” 22.

25. Myers and Worm, “Rapid Worldwide Depletion,” 282.

26. Rogers and Laffoley, *International Earth System Expert Workshop*, 5–7.

27. Garcia and Rosenberg, “Food Security,” 2869–71.

28. Pauly et al., “Fishing Down Marine Food Webs,” 860.

29. Myers et al., “Why Do Fish Stocks Collapse?” 91.

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We are exploiting water resources around the world at or beyond their limits. In his book *Water*, Steven Solomon writes: “Today, man has arrived at the threshold of yet a new age. His technological prowess has reached the point that he possesses the power, literally, to alter nature’s resources on a planetary scale, while soaring demand from swelling world population and individual levels of consumption among the newly prospering urgently impel him to use that prowess to extract as much water as he can. The alarming, early result is a worsening depletion of many of Earth’s life-sustaining water ecosystems, that, nonetheless, are not keeping pace with the growing global scarcity.”³⁰

At least forty-five thousand dams have been built worldwide, and more are under construction or planned.³¹ In the American Southwest, the once mighty Colorado River is now completely exploited. Some twenty dams have been built on it or its tributaries, and at times during the year, virtually no water arrives at its delta in the Gulf of California. As an exultant President Franklin Roosevelt said at the dedication of the monolithic Hoover Dam in September 1935, we have indeed thoroughly “conquered” the Colorado.

We are also changing the earth’s atmosphere. Our modern society is founded on fossil fuels (coal, oil, and natural gas) as our primary source of energy. The widespread burning of these fuels is putting billions of tons of carbon in the form of CO₂ into the atmosphere each year. Although most of this is absorbed back into the earth’s terrestrial and oceanic ecosystems, a proportion remains in the atmosphere. As a result, the concentration of CO₂ in the atmosphere has risen from about 315 parts per million (ppm) in 1959 to about 391 ppm in 2011, a 24 percent increase in 52 years.³² Carbon dioxide levels continue to rise at a rate of about 2 ppm per year, and this rate is accelerating. Global average temperatures have risen about 0.74 degrees Celsius or about one degree Fahrenheit over the last two hundred years or so. Anthropogenic climate change is controversial, and there is much uncertainty, but no matter what your opinion on it is, you have to admit that we

30. Solomon, *Water*, 489.

31. Malmqvist and Rundle, “Threats,” 138.

32. National Oceanic and Atmospheric Administration, “Mauna Loa Mean Annual Data.” According to Vitousek and Mooney, since the advent of industrialization and the widespread use of fossil fuel, atmospheric carbon dioxide has risen from about 280 ppm around 1800 to the current level of 389, an overall increase of roughly 39 percent (“Human Domination,” 494).

are changing the atmosphere and that we *don't know* what the outcome will be. Our emitting CO₂ (and other greenhouse gases) into the atmosphere, changing its chemistry, constitutes a gigantic planetary experiment. The unknown results of this could be detrimental to human life and the life of many other creatures. My point here is that we humans are actually doing this; we are literally changing the global firmament that God created (Gen 1:6–8). This is a remarkable example of our power and reach within the created order.

There is evidence that we humans may be using as much as a third of the total worldwide production of plants each year, and that this proportion is increasing.³³ That is to say, we are consuming about one third of the energy contained in all the leaves, stems, fruits, roots, and seeds produced by all the plants on earth each year. The data for this are approximate, but at the very least, they suggest that the rate at which we are using the ecosphere's photosynthetic resources is staggering and may not be sustainable in the long term. We may be beginning to press the limits of the earth's photosynthetic capacity to support us, and we may be inadvertently changing the very relationships and processes that constitute those limits without knowing what we are doing.

These are just a few examples of the ways in which we humans today are impacting the ecology of the planet. Currently the bulk of this impact results from the high living standards and consumer lifestyles of those who live in the so-called developed, industrialized nations of the world, such as those of North America and Europe. But other nations like China, Russia, India, and Brazil are racing to emulate us and are rapidly doing so. As a result, human pressure on God's ecosphere increases steadily. Biologist Peter Vitousek notes that "it is certain that a substantial number of components of global environmental change are now ongoing, and it is equally certain that they are human-caused."³⁴ Marine biologist Sylvia Earle writes that humans have "engulfed the rest of the living and physical world for food, water, minerals, and materials to build and operate the enormous infrastructure that supports civilization."³⁵

33. Van Houton and Pimm, "Various Christian Ethics of Species Conservation," 120; Rojstaczer, Sterling, and Moore, "Human Appropriation of Photosynthesis Products," 2550.

34. Vitousek, "Beyond Global Warming," 1870.

35. Earle, *World Is Blue*, 23.

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But at the same time, our knowledge of the ecology of the earth has not kept pace. There is much about the earth's ecology and natural systems that we do not understand. We are changing the ecosphere at an accelerating rate, but we don't know what the results will be. I am reminded of a teenage boy I once met at a school a few years ago. Belongings in hand, he was rushing down the hallway at top speed. I stopped him and asked him where he was going. He said, "I don't know where I'm going, but I'm going," and he ran off. We, the human race, are like this boy. We don't know where we're going with God's earth and ecosystems, but we're going.

Scripture teaches that God has given us humans power over his earthly creation (Gen 1:26–28), and he has commissioned us to take care of it (Gen 2:15). We are responsible before the Lord for this. Today, when we are so numerous and so powerful, in order to carry out this responsibility, it is imperative that we have a reasonable understanding of how the system works and how we humans fit into it. We are in control of God's earthly ecosystem, but we are also part of it. Any changes we make will redound to us and our descendants. The Ecological Problem is not just about people, animals, forests, and lands that are far away. It is about you and me, our families and friends, our homes and churches, our companies, jobs, goals, and dreams, in the cities and towns where we live. We are part of the ecosphere; the Ecological Problem is in every way *our* problem.

Christian “Physical Spirituality” and the Ecological Problem

We Christians often assume that reality—our lives and the world—consists of two domains: the spiritual realm and the physical realm.³⁶ This is usually taken for granted. That is, we automatically assume it to be true without question. We think of these as two different things that are related in certain ways but are separate from one another, or at least separable. To think of reality in terms of these two realms is a worldview called *dualism*. Dualism means dividing something into two parts—like I mentioned earlier about the dualism that sees a human as two parts: body and soul. There are many kinds of dualism around, but here I am talking about *spirit-physical* or *spirit-material dualism*—dualism

36. Probably many secular people think this way too.

that divides reality into two parts, spiritual and physical. We Christians usually think of the physical realm as subordinate to the spiritual realm. It forms a kind of background for the spiritual realm. The spiritual realm might include such things as church, prayer, worship, baptism, communion, evangelism, discipleship, religious experience, and certain personal ethics.³⁷ The physical realm might include such things as our bodies, food, cars, bank accounts, computers, cell phones, clothes, money, business, houses, shopping, and, last but not least, land, animals, plants, mountains, atmosphere, oceans, and ecosystems. We often think of God as primarily involved with the spiritual realm and not particularly concerned with the physical realm except at certain points like tithing or physical healing. Our spiritual life or “spirituality” concerns the spiritual realm and may (or may not) contact the physical realm at these points. But most of us do not think of our spirituality as involving such things as animals, plants, oceans, standards of living, energy use, consumption, recycling, agriculture, industry, or ecosystems.

I am claiming that we humans are inherently and unavoidably physical creatures. If this is true, then our spirituality must also be physical.³⁸ There can be no dualism—no two realms. The Bible and the Christian tradition, I believe, recognize this truth. Genuine biblical Christianity does not see the world as divided into the spiritual and physical. It is not dualistic but *holistic*. The spiritual and the physical are two *aspects* of one and the same reality, God’s whole creation. And furthermore, as in my second claim (argument 2, above), to be *physical* is to be *ecological*—integrated within the ecosystem. Thus, our *ecological life* is one and the same with our spiritual life. *To live spiritually is to live physically is to live ecologically*. By virtue of our eco-physical nature, our spirituality is inherently physical, dusty, organic, and biological. And if Jesus is Lord,³⁹ then he is Lord of all—of our eco-physicality and the ecosphere, of plants and animals, of food webs, the water cycle, and the carbon cycle, and of all that I will be talking about in this book. Therefore, for us holistic Christians, *the Ecological Problem is a spiritual problem just as much as it is a physical problem*.

37. Today, we sometimes call Christian discipleship “spiritual formation,” which, if we think in terms of the two realms, can convey the idea that it does not concern our physical lives or the physical world—except, perhaps, in certain restricted ways. But Christian discipleship or spiritual formation should involve all of life.

38. Van Dyke et al., *Redeeming Creation*, 125.

39. John 13:13; 1 Cor 12:3; Phil 2:11.

Christian Views of Human Nature

Christians hold a variety of views about human nature—what we humans are and how we are put together. This is what theologians call *human constitution* or *anthropology*. Views on this topic have changed over the history of the church and are controversial today among some Christians. Since I am arguing that we should understand ourselves as inherently physical, I want to briefly discuss this here.

As I noted, many Christians see humans as consisting of two parts: a spiritual *soul* and a physical *body*. These two parts are viewed as actual entities that can exist separately under certain conditions—after death, for example. The theological term for this is *body-soul dualism* or *dichotomism*. Some hold that the soul is the essential part of the human being and that the body is of secondary importance. The soul inhabits the body during life on earth, and then at death it departs, leaving the body and the earth behind. The soul ascends to heaven, a nonphysical, spiritual place where God dwells, a place other than earth, usually thought of as being upward, toward the sky. The soul then lives eternally with God in this nonphysical, spiritual state. This is called the doctrine of the *immortality of the soul*. Some Christians hold this state to be a temporary “intermediate state” of the soul and that, at some point in the future, Jesus will physically reappear on earth. There will be a resurrection of bodies, and Christian souls will then return from heaven and reinhabit these new bodies. They will then live for a period of time (a thousand years?) or eternally in a resurrected, physical state with Jesus as ruler of a transformed earth.⁴⁰ There are many variations of this view, and the role and importance of the body and the earth vary. But the point is that humans are seen dualistically as consisting of two parts, soul and body, which can be separated from one another, and that the body and the physical world tend to be viewed as of lesser importance.

Another important aspect of dichotomism is that certain human activities or functions may be understood as being done or caused by the soul rather than the body. These vary, but they may include such things as thinking, consciousness, belief in God, hoping, loving, moral decision-making, and spiritual life. These functions are sometimes cited as evidence of our having a soul and as that which distinguishes us from other animals.

40. I shall discuss my own view on eschatology, or the last things, in chapter 8.

Another view sees humans as consisting of three parts: spirit, soul, and body. This is based on 1 Thessalonians 5:23 where the Apostle Paul mentions “spirit, soul, and body.” This is called *trichotomism*, recognizing three parts to a human being, but it is probably a less widely held view.⁴¹

At the other end of the spectrum, some Christians hold that humans are completely physical beings, and there is no immaterial “spiritual” soul at all. Like trichotomism, this is probably a less commonly held view. It is sometimes called *monism*,⁴² meaning “one thing,” or *physicalism*, meaning humans are strictly physical beings.⁴³ On this view, the human being is constituted as a unitary, physical being and cannot be divided into parts, as in the dichotomist or trichotomist views. These monists or physicalists don’t deny that humans are spiritual beings and have spiritual life, nor do they deny our moral nature. They see spirituality and morality as aspects or facets of holistic, embodied human life.

Now you are probably thinking that I am one of this last kind, a monist or physicalist. Well, not quite. I will share my own (current) view momentarily, but whatever view we take, we must recognize that there are problems (in respect to Scripture, to science, or both) associated with all these views of human anthropology. Perhaps, if asked, many Christians would say they are in between body-soul dualism and monistic physicalism. They would say that humans do have separate bodies and souls but that both are closely connected and both are important.⁴⁴

41. For a lucid discussion of these various views of human constitution, see Erickson, *Christian Theology*, 538–45.

42. This monism is not the metaphysical cosmic monism of some religious ideas that sees all of existence as one thing. Here, I am referring to a view that only applies to human nature.

43. There is also a spiritual monism that views humans as strictly spiritual beings—that is, the human is an immaterial being who happens to be using a physical body to manifest himself/herself in the world. On this view, the body is merely a tool or vehicle used by the soul or spirit but does not constitute the person herself. As an explicit doctrine this view is uncommon, but it may occur implicitly more often than we realize, even among Christians.

44. In a recent study done among 250 undergraduate students at the University of Edinburgh, Scotland, 65 percent of respondents “agreed that ‘each of us has a soul which is separate from the body,’” and 70 percent believed “that some spiritual part of us survives after death” (Zeman, “Does Consciousness Spring from the Brain?” 294).

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As I noted above, the findings of science are making belief in body-soul dualism more difficult to hold.⁴⁵ Human actions and experiences that we have traditionally attributed to the soul are being found to involve physical processes in the body and brain, and we are finding that there are many activities that we thought were unique to humans (and therefore to our souls, because we often think that only humans have souls) that we now know to occur in other animals. Be that as it may, the point I want to make here is that, whatever view you hold about human constitution, whether you are a trichotomist, dichotomist, monist, or something else, you and I ought to agree that here and now, in this life, on this earth, we humans *are* physical beings, and as such we *are* integral parts of God's eco-physical creation.

As for my own view, although it continues to change, I cannot avoid the conclusion that we are inherently and fundamentally physical beings. To exist as a human is to exist physically—at least in this age, on this earth, as we are currently constituted. But I also possess an identity, a personality, a mind—or what might be called a plan, pattern, or paradigm—an organizational structure and process that identifies, defines, and expresses me. This identity or paradigm is *not* physical. It is that which persists over time as the physical matter of my body turns over from year to year, and that changes as I go through life, experiencing life, praying, learning, and growing in the Lord.⁴⁶ Perhaps it includes the base sequences of my DNA, my memories, certain patterns of neural networks and activity in my brain, ideas and concepts that are embedded in my neural networks and that make me who and what I am and by which others know me.⁴⁷ Perhaps this is what the Spirit of God works on to bring me closer to him (Phil 2:13). I would agree to call it a “soul” as long as we understand that it is fully embodied and cannot function in any meaningful way apart from the body. When I die, perhaps it is this identity or paradigm that passes on to inform my resurrected physical body in the new creation (Rom 6:5; Rev 21:1). Thus the

45. Theologian Wolfhart Pannenberg notes that during the nineteenth century, “the interpretation of humanity’s special place [in nature] as owing to a soul that is united to an animal body became increasingly dubious” (*Anthropology in Theological Perspective*, 27).

46. I have been told that almost all the matter in the human body turns over every seven years. If this be so, then it is this identity or paradigm that ensures that I am the same person today that I was seven years ago.

47. Fuster, *Cortex and Mind*, 6, 53, 251.

identity of that resurrected person will be me, and not another.⁴⁸ How this happens is a mystery that depends wholly on God, and although I do not understand it, I can trust God for it.

I realize that I have not fully explained my anthropology and that, like all anthropologies, it has its problems. (You may be thinking of some right now.) But my purpose is not to argue about human nature or to win you over to my view or to any particular view. What I want you to accept is *our physicality*—yours and mine. Whatever anthropology you hold, I urge that you accept the reality that we are inherently and unavoidably *physical*—and as physical beings we are inescapably *ecological* beings.

The Religious Nature of the Ecological Problem

A few pages back, I made the claim that the Ecological Problem is a spiritual problem. Many secular environmentalists agree. They say that it is not simply a matter of science, technology, politics, and economics—more government laws, more efficient machines, increased productivity, and better management of resources. No, they say it's a religious problem, a spiritual problem, a matter of our attitudes, moral values, and worldview—how we perceive ourselves and the world around us.⁴⁹ If we define religion as that set of beliefs that help determine our attitudes, goals, values, and worldview, then I think these people are correct—the Ecological Problem *is* a religious (spiritual) problem.

If this be so, Christians ought to have a lot to say about it. But our contribution has been limited due to several factors, one of which is our belief in spiritual-physical dualism that I mentioned earlier. But if, as I am arguing, our spirituality cannot be separated from our physicality and hence from our ecology, then we Christians agree with these secular folks that the Ecological Problem *is* a religious or spiritual problem. Theologian Ellen Davis notes that in the biblical worldview, “the physical, moral, and spiritual fully interpenetrate one another—in contrast to the modern superstition that these are separable categories.”⁵⁰

48. See Polkinghorne, *Scientists as Theologians*, 54–55.

49. See, for example, White, “Historical Roots of Our Ecological Crisis,” 1206; Oelschlaeger, *Caring for Creation*, 5; Huesemann, “Can Pollution Problems Be Effectively Solved by Environmental Science and Technology?” 285.

50. Davis, *Scripture, Culture, and Agriculture*, 9–10.

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In other words, in our bodily eco-physicality, the way we treat God's eco-physical creation and his creatures is a defining feature of our lives as Christians living in God's world.⁵¹ Theologian James McClendon sums it up well: "Our life as Christians is our life as organic constituents of the crust of this planet"⁵² (Gen 2:7; Ps 104:27–30).

Some Christians have thought that the Ecological Problem lies in the physical, secular, scientific, or political realm and, therefore, is separate from the "spiritual" or "religious" realm in which Christianity operates. Perhaps, in part, this stems from the separation of church and state so important to our American constitutional system. But if these secular environmentalists are correct that the Ecological Problem is religious, then addressing it is part of the "business" of Christianity. If we believe that Jesus Christ is Creator and Redeemer of all things (John 1:3; Col 1:19–20), then he is Lord of all the earth, its ecosystems and creatures too. As Scripture tells us, God is the creator and owner of the earth—the land and seas and all that is in them⁵³—and if we humans are indeed eco-physical beings embedded in the earth's ecosphere, then Christianity has everything to do with the earth, with its creatures, with its ecology, and with the human sciences, technology, economics, and politics that concern these things. This should be a matter of both private and public concern for all Christians. Our personal lifestyles and our public politics should demonstrate our commitment to a holistic conception of life and of God's creation. So for Christians, the Ecological Problem *is* a spiritual-physical-religious problem.

If the Ecological Problem is a religious-spiritual problem, then what is it about our religion or spirituality that is problematic? One extreme view advocated by a small minority of environmentalists is that our very existence is the problem. If we could just rid the earth of humans, they say, the world would be a better place. This, of course, is absurd. Humans are an integral part of God's creation (Gen 1:26, 2:15). As Scripture tells us, and as we shall learn from the science of ecology itself, we are not outsiders in relation to creation; we are part of it, part of the ecosystem. We belong here. Just as we humans would not be human without the earth, so the earth would not be the earth without us humans.⁵⁴

51. Valerio, "*L*" *Is for Lifestyle*, 37, 46.

52. McClendon, *Ethics*, 89.

53. Gen 1:1; Deut 10:14; Ps 24:1; Rom 11:39.

54. This may sound strange, but it is true. In chapter 6 we will look at the *new ecology* that sees humans as integral parts of the ecosystem.

Another view holds that the Ecological Problem is not religious at all. It is purely a matter of science, technology, and the free market. People of this persuasion are often thoroughgoing materialists or spiritual/material dualists. They may agree that there is a problem and that it lies with humans. But it is not spiritual or religious; it is physical and secular. Humans, they say, have insufficient scientific knowledge of the world, insufficient technological means to control nature (including us humans), and an encumbered market system, weighed down by regulation and government interference. The solution(s) to the problem will emerge spontaneously if we only unshackle the economy, free up industry, and unleash human creativity to develop more efficient engines, better cars, recyclable materials, better ways to exploit resources, genetically engineered organisms (humans?), and so on. In effect, this view is quasi-religious in that science/technology, human intelligence, and the free market system form a kind of tripartite “savior-god” that can solve all our problems and deliver us from all ills. No spiritual or religious change is needed. This optimistic humanism is very common. As a matter of fact, it is the dominant view in American society today, if not the world. It is a kind of unconscious faith that we hold as modern people, and probably, if truth be told, most of us modern Christians believe it too—if not consciously, then certainly in our attitudes and behavior. But this is not consistent with a biblical understanding, and it may even be idolatrous. While human creativity, better science and technology, and better management of markets are certainly needed, this view ignores the deeper spiritual, religious, and moral problems concerning our attitudes, values, priorities, perceptions, choices, worldview, and behavior in relation to God, his planet, and his ecosystems.⁵⁵

55. Modern technology has produced birth control pills that allow us to have sex as much as we want without its “normal” biological consequence—babies. I wonder if technology will come up with a pill that will allow us to eat all we want without its “normal” biological consequence—getting fat—or drink all the alcohol we want without becoming addicted or destroying our livers. Or, maybe it will produce some “selfishness” technology that will allow us to be as selfish as we want without any of its “normal” consequences—hurting other people and damaging the earth. Or maybe it will make any number of pills or surgeries or treatments to remove the consequences of our ignorance, foolishness, bad choices, excess, self-indulgence, and so on. I suppose modern science and technology might produce such pills or treatments in the future. But if they do, and we use them on ourselves, I wonder then if we will remain human in any meaningful sense, and I wonder too if it will truly solve the Ecological Problem, or any problem.

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Like all major human problems, the Ecological Problem stems from human sin—pride, selfishness, greed, disordered values, idolatry, disregard for God, disregard for other humans and for the creatures of God, and, as I am arguing here, a false understanding about who and what we are and how we fit into God’s world.

In what is without question the most influential work ever published in the modern era on Christianity and ecology, the late historian Lynn White, in a 1967 article in the journal *Science*, blamed the Bible and Christianity for the Ecological Problem.⁵⁶ His indictment has since been refuted, at least in part, but he was correct in saying that both the cause and the solution to the Ecological Problem are religious in character. “More science and more technology are not going to get us out of the present ecological crisis until we find a new religion or rethink our old one,” he wrote.⁵⁷ Max Oelschlaeger, a leading environmental philosopher, agrees that the Ecological Problem is, at bottom, religious (or spiritual) in nature: “My conjecture is this: *there are no solutions for the systemic causes of ecocrisis, at least in democratic societies, apart from religious narrative.*”⁵⁸ So the Ecological Problem is a spiritual-religious problem with a spiritual-religious solution. And in my view, biblical Christianity offers the best and most plausible solution.

There is a difficulty here, however. If, among the world’s religions, Christianity is indeed *the* religion that provides *the* best answer, if it is going to speak prophetically to the world by showing it something of how things ought to be, then we Christians are going to have to demonstrate these things to the world not only in the way we talk but also in the way we live. If it is true that spirituality and physicality are inseparable, then our spiritual commitments are physical commitments and should be visible in our physical (material) lives. Our attitudes, values, and choices expressed in our lifestyles and actions will have to point to the final redemption and healing of the earth that we hope for when Jesus comes again (Matt 19:28; Acts 3:21). If Christianity is a holistic faith, then our redeemed spirituality should be physically evident too. This is not to say that as Christians living more ecologically, we would usher in an ecological utopia or “save the planet.” Only God can do such things (Isa 65:17). Our calling is not to “save” the world but to be

56. White, “Historical Roots of Our Ecological Crisis,” 1203–7.

57. *Ibid.*, 1206.

58. Oelschlaeger, *Caring for Creation*, 5.

faithful to God and his revealed word and to live rightly in his world in a way that is consistent with who we are within his created order. True faith bears tangible (physical) fruit (Luke 6:43–49). As Francis Schaeffer wrote forty years ago: “Surely then, Christians, who have returned through the work of the Lord Jesus Christ to fellowship with God, and have a proper place of reference to the God who is there, should demonstrate a proper use of nature.”⁵⁹ But Christians have great difficulty with this. Like it or not, for us Christians in our eco-physical life, as in all aspects of life, if we talk the talk, we must walk the walk.⁶⁰ Our secular friends recognize the religious-spiritual nature of the Ecological Problem and the religious-spiritual nature of its solution. It is up to us to show them (not just tell them) what this is.

Finding Moral Guidance as Eco-Physical Beings Living in God’s Creation

The fourth part of my argument (argument 4, page 4) says that since we are subject to the ecological realities of earthly existence, we ought to be certain kinds of people and behave in certain ways. In other words, on the basis of scientific information from science, I am making moral claims about what kind of people you and I ought to be and how we ought to live.

But modern science, as we ordinarily think of it, can only tell us the *how* of the world—how things work, how things interact, and so on.⁶¹ It can make predictions about what might happen if we do this or that, but it cannot tell us what we *ought to do*. Because science is normally thought of as separate from moral concerns of value and purpose, it can offer no advice as to what moral actions we should take nor what kinds of virtues we should seek to embody. For example, ecologists can tell us that the population of bird species X is in danger of extinction because its population genetics, habitat distribution, and nesting patterns are such that its current population will probably not sustain itself. They can advise us on what measures we might take to improve its chances of survival, such as establishing protected habitats, but the ecologists

59. Schaeffer, *Pollution and the Death of Man*, 72.

60. Gushee, “Old-Fashioned Creation Care,” 51.

61. Polkinghorne, “Friendship.”

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cannot tell us whether or not we *ought* to preserve bird species X in the first place, nor *why* we ought (or ought not) to do it. These are questions of value, beliefs, and purposes to which science cannot speak.⁶² These must come from somewhere else.

For us Christians, the source of our values, beliefs, and purposes is, or ought to be, Holy Scripture and the theology it embodies. As theologian Loren Wilkinson writes: “Though science has vastly expanded our understanding of the ‘is’ of the cosmos, nothing in that vast picture of valueless fact gives our explanations or proscriptions any weight—unless there is a context beyond the universe of which we have some knowledge, however imperfect and incomplete. Christian orthodoxy is based on the fact that we do have some knowledge (mediated and imperfect) of such a ‘context’: it is contained in the texts of Christian Scripture.”⁶³ In other words, *God* has provided to us in Scripture the resources we need for moral life and action in his world. In the example of bird species X threatened with extinction, we would look to the Bible and its theology to answer the question whether or not we should try to preserve it. In Scripture, through stories, poems, speeches, songs, prophecies, letters, instructions, parables, and so on, God reveals to us information about himself, about ourselves, about his world, and about the values, beliefs, and purposes that provide the basis on which we can develop our ethics and determine what kind of people we ought to be and how we ought to live. Moreover, we Christians have an additional source for moral guidance in the person of Jesus Christ, the incarnation of God in the world, the ultimate archetype of humanity as it ought to be.

But it turns out that the Bible also tells us that by studying the natural world (something like the way scientists do) we will find it to be a source of wisdom for living.⁶⁴ In fact, by observing nature we

62. Conservation biology is a science that by its nature involves the moral imperative that humans ought to preserve other species. This does not, however, defeat the idea that modern science, as we currently understand it, does not make moral claims. Conservation biology’s sources for the values that warrant the preservation of species come not from science but from elsewhere—such as personal or religious beliefs. For good discussions of this issue, see Soulé, “What Is Conservation Biology?” and Van Dyke, *Conservation Biology*, 29–55.

63. Wilkinson, “New Story of Creation,” 31.

64. See for example Job 38–40; Ps 8:3–4; Prov 30:18–19, 24–28; Matt 6:26, 28–29; Luke 12:24; Acts 17:24.

can learn something of God. The Apostle Paul wrote, “For since the creation of the world God’s invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made, so that men are without excuse” (Rom 1:20).

The Bible says that God is the Creator of the world and all that is in it. If that is true, then God’s authority lies behind the order of creation as we find it. Thus, we Christians can accept information about the order of creation produced by scientific study and use it to help us determine how we ought to live in his world. We can affirm the validity of the sciences (biology, ecology, neuroscience, psychology, sociology, and so on) as sources of information to help us flourish and live rightly within God’s creation according to the principles, purposes, and values contained in our theology as it is expressed in Scripture and in the Lord Jesus Christ. In other words, the Christian moral perspective is holistic. We derive our morality not just from Scripture and theology but also from the physical world within the framework of Scripture and theology.

To clarify this point, I will cite two outstanding contemporary Christian thinkers. First, the distinguished American theologian Millard Erickson calls the earth a household, similar to a household or home in which a family might live together. He notes that the word *ecology* is made up of two roots: *eco* and *logy*. *Logy* means “the study of something”—like biology is the study of *bios* or life. *Eco* is derived from the Greek word *oikos*, which means “house” or “household,” suggesting the idea that the earthly creation is “one great household” in which all God’s creatures live together like a family.⁶⁵ The science of ecology, then, is the study of God’s *oikos*, his great earthly household, including its living (biotic) members and nonliving (abiotic) components and their relationships. In studying the *oikos*, ecologists (and other scientists as well) can provide us with the “house rules”⁶⁶ (what I am calling the patterns, principles, parameters, and limits, or ecological realities) that govern life within the household of creation for all its inhabitants, including us humans since we are members of the household just like all the other creatures. If we believe, as the Bible teaches, that God is the creator and designer of this earth and its ecosphere—or household, to use Erickson’s metaphor—then we accept that he has designed into

65. Erickson, *Christian Theology*, 511–12.

66. McFague, *Life Abundant*, 72, 122, 208.

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it certain principles, patterns, parameters, and limits about how things work in his household and what we ought or ought not do so that all may live together and flourish within it. That is to say, scientific information about how things work in God's earthly household has implications for how we ought to live and behave within it.

The eminent British theologian Oliver O'Donovan proffers the same idea using a different metaphor, the *order of creation*. Speaking against the idea that morality is simply subjective—whatever each of us decides on our own—he says that in creation, there is a “divinely-given *order of things* in which human nature itself is located. Although sinful humans have rebelled against this created order, it still stands and makes its claims upon us . . . The order of things that God has made is *there*. It is objective, and mankind has a place within it. Christian ethics, therefore, has an objective reference because it is concerned with man's life in accordance with this order. *The way the universe is determines how man ought to behave himself in it.*”⁶⁷ God is the Creator, and he has written into creation an “order of things”—“the way the universe is” as O'Donovan puts it. This “order of things” can be discovered and understood (imperfectly, of course) by us humans through scientific investigation. Christian morality—what we ought and ought not to do—should be concerned with ordering our lives “in accordance with this order.” Again, the way the created, ecological world *is* determines how we ought to live and behave within it. Ecological realities have moral implications.

O'Donovan notes that humanity has rebelled against the order of creation, but this does not nullify it; it is still *there*. We Christians, the redeemed people of God, are no longer in rebellion against it (at least, we are not supposed to be). Through Christ our relationship with God has been restored and with it all our other relationships, including our relationship with his creation. Thus, we seek to understand God's created order (ecosystem) through scientific study and to conform our lives, as best we can, to it, seeking within that context to embody the values, norms, and purposes that we derive from Scripture and Jesus Christ. O'Donovan continues, “By virtue of the fact that there is a Creator, there is also a creation that is ordered to its Creator, a world which exists as his creation and in no other way, so that by its very existence it points to God. But then, just because it is ordered vertically in this way,

67. O'Donovan, *Resurrection and the Moral Order*, 16–17; italics mine.

it must also have an internal horizontal ordering among its parts . . . It forms over against the Creator, a whole which is ‘creation’; and if there is any plurality of creatures within it, they are governed by this shared determinant of their existence, that each to each is as fellow-creature to fellow-creature.”⁶⁸ Humans are fellow-creatures among fellow-creatures, part of God’s creation, and as such are subject to the “shared determinants” of our shared, horizontal creaturely existence, that is, the ecological realities that God has established for his creation, as we, with all the creatures, seek to glorify God.⁶⁹

I want to distinguish my argument here from a more simplistic approach sometimes used by secular environmentalists. Perhaps you have heard them say something like, “Nature is always right.” They argue that we should formulate our ecological ethics according to whatever we find in nature. In effect, we should leave nature alone and stay out of it. But what we find in nature is sometimes not what we humans would want to follow morally. For instance, we occasionally encounter destructive storms, fires, earthquakes, and disease. In light of this, I find it hard to understand how these folks can sustain this argument. How can nature be “always right” if it has just wiped out a town in a storm or a species through disease? This is not the argument I am making. I am not suggesting that all that we find in nature is sufficient for building our Christian eco-ethics. Again, the purposes, norms, and values for our ethics come from Jesus, Scripture, and theology. I am drawing on the insights of Erickson and O’Donovan to show that insofar as God is creator and designer of the natural order, this order carries a measure of authority as a framework for our ethics. We apply our Christian ethics within the framework of creation, God’s *oikos* (Erickson), or his *created order* (O’Donovan).

I also would like to caution against making the opposite error. Instead of saying nature is always right, we could say that “since nature

68. *Ibid.*, 31–32.

69. Wolfhart Pannenberg cites a similar idea in Augustine’s concept of sin. For Augustine, the world is ordered hierarchically such that all things come from and return to God. Human sin consisted of an “inversion” of this order by human concupiscence (lust or distorted desire). Our egoism and lust for power lead to our disobedience of “the natural order established by the creator.” Augustine evidently held to this same idea of a divinely ordained order of nature that humans should obey (*Anthropology in Theological Perspective*, 94).

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is *amoral* it is acceptable for us to be *immoral*.⁷⁰ For example, since volcanoes and wildfires are natural and destroy forests and wildlife, we could say it is acceptable for us humans to do the same. Or, since species go extinct due to natural processes, we could say it is okay for us humans to cause extinctions. This is an equally unacceptable approach. Just as we cannot glean morality strictly from nature, so also we cannot glean immorality from it either. Again, our resources for moral norms are Jesus, Scripture, and theology. The context in which we must live out these norms is God's creation.

This brings up the question of natural evil. Nature as we find it embodies great beauty, complexity and grace, and it provides wondrous bounty for the flourishing of all God's creatures, including us. But we also find it sometimes indifferent to the welfare of humans and other creatures—sometimes even brutal and destructive. Storms, fires, earthquakes, and floods can devastate ecosystems and destroy human communities. Competition, predation, parasites, and disease can cause suffering and death. Ecological science has found that events and processes in nature that cause disaster or death can also cause rebirth and renewal. For example, periodic flooding is a normal part of the ecology of most rivers such that some riparian (streamside) plants are adapted to it and cannot reproduce without it. Also, floods deposit silt and mud over large areas, bringing nutrients and renewing the soil. Periodic fires have been found to be integral to the chaparral and coastal scrub ecosystems here in Southern California where I live. The seeds of several plants, for example, must go through a fire in order to germinate. But fires are destructive. Volcanic activity can produce beautiful mountains and renew the land with fertile ash but in the process can cause great destruction, death, and suffering. So we find that floods, fires, and volcanoes are both beneficial and destructive. Even death appears to be integral to ecosystem function. Dead plants and animals are broken down by decay and their nutrients recycled through the system, providing sustenance for new life. Death gives birth to life, and we humans, like all creatures, depend on this reality.⁷¹

70. Hamlin and Lodge, "Beyond Lynn White," 9–10. See also Pickett et al., "New Paradigm in Ecology," 82.

71. Jesus perhaps alludes to this in his comment about the wheat seed dying to give new life (John 12:24).

Traditionally, Christian theology has viewed natural evil as resulting from the fall of humans (Adam and Eve) in the garden of Eden. Their sin tainted all of created existence and led to the perturbations and evil that we see in nature today. But more recent scientific findings, as I have noted, make it difficult to maintain this view.⁷² So we see that the theology of natural evil—whether or not and how nature is fallen, the way in which it is affected by human sin, and the theological meaning of it all—is complex. It presents tough problems for Christian theologians. As our understanding of ecology improves, and as theologians continue their work, I believe our understanding will become more nuanced and mature. Perhaps the suffering and death of Christ on the cross for the sake of his creation (Col 1:20) and the hope embodied in the resurrection of Christ for the future healing and renewal of creation is a resource upon which we can draw as we address this problem. Unfortunately, time, space, and my own limitations do not allow us to explore this further here. We will have to move on. But I recognize the problem of natural evil and that it is germane to the topic of this book.⁷³

Finally, we should recognize that our knowledge of God's ecosystem is incomplete. The ecosystem is vast and complex. Ecology is a relatively young science, and its scientific principles are not as well developed as those of, say, physics or chemistry.⁷⁴ As we shall see, ecological information is often nuanced and probabilistic. Nevertheless, ecological principles, patterns, parameters, and limits are worked out well enough that we can use them as guidelines for how we ought to live in God's world. As ecologist David Orr has said, "We know enough right now to make far better decisions than we do about wildlife, ecosystems, and landscapes. That is to say, we do not lack for science or data . . . to make better decisions about our 'management of nature' or any number of other things."⁷⁵ Furthermore, recent philosophical analysis of the nature and process of scientific investigation has shown that most scientific knowledge is, in reality, probabilistic and uncertain anyway. And if we are honest, we can see that life itself is like that. As ecologists

72. Bauckham, *Bible and Ecology*, 160; Polkinghorne, "Kenotic Creation and Divine Action," 93.

73. For an exploration of this issue, discussions of various theologians and their ideas, and an attempted response, see Southgate, *The Groaning of Creation*.

74. Krebs, *Ecology*, 10.

75. Orr, "Retrospect and Prospect," 1350.

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study nature, they are learning more and more all the time. Next year they will understand things a little better than they do now. But for us dusty earthlings, there will *never* be perfect understanding or absolute certainty. God is perfect; we are not. God's knowledge is complete and certain; ours is incomplete and uncertain. Perfection and certainty are not "of this world," as we know it. As the Apostle Paul wrote, "Now we see but a poor reflection as in a mirror" (1 Cor 13:12). Besides, God has called us to obedience here and now with the information we have, and the Ecological Problem will not wait for "scientific proof" or "certain" answers. Eco-ethics is unavoidable. We must act because to not act *is* to act. We cannot get off the planet. Like it or not, agree or not, you and I *are* earthlings, and everything we are and do impacts the ecosystem on which we depend and which God charged us to take care of. We must learn as much as we can and do the best we can here and now in order to be faithful Christians and bring glory to God.

A Final Thought

Philosopher Anna Peterson notes that we modern Christians have struggled with our physical nature and our place in the physical world:

Christian uneasiness about physical bodies has been closely tied to ambivalence about the created world generally. Body and world are physical and transitory in contrast to the spiritual and eternal nature of the soul and of heaven. Christian orthodoxy, however, insists that a benevolent God created both physical bodies and the cosmos itself, which means that material creation cannot simply constitute a trap for spirit. Christian thinkers' efforts to understand the relationship between soul and body reflect the tradition's larger struggle to make sense of the relationship between the spiritual and the physical, between the things of God and the things of the world. These questions raise the ethical questions: What is the value of "this world"? How does God will humans to act in relation to the material creation? Underlying these questions is a central concern of theological anthropology: what is the place of humans, as both physical and spiritual creatures, in the created world?⁷⁶

76. Peterson, "In and Of the World?" 242.

This is what this book is about. As Christians seeking to follow Jesus and advance the kingdom of God in the world,⁷⁷ I invite you to join me so that together we can try to “make sense of the relationship between the spiritual and the physical” and “what is the place of humans, as both physical and spiritual creatures, in the created world.”

SAMPLE

77. Stassen and Gushee, *Kingdom Ethics*, 253.