

Excerpt from *Earth in Mind: On Education,
Environment, and the Human Prospect*

Love It or Lose It: The Coming Biophilia Revolution

David W. Orr

I have set before you life and death, blessing and cursing:
therefore choose life, that both thou and thy seed may live.
—Deuteronomy 30:19

“Nature and I are two,” filmmaker Woody Allen once said, and apparently the two have not gotten together yet (Lax, 1992, pp. 39–40). Allen is known to take extraordinary precautions to limit bodily and mental contact with rural flora and fauna. He does not go in natural lakes, for example, because “there are live things in there.” The nature Allen does find comfortable is that of New York City, a modest enough standard for wildness.

Allen’s aversion to nature, what can be called biophobia, is increasingly common among people raised with television, Walkman radios attached to their heads, and video games and living amidst shopping malls, freeways, and dense urban or suburban settings where nature is permitted tastefully, as decoration. More than ever we dwell in and among our own creations and are increasingly uncomfortable with nature lying beyond our direct control. Biophobia ranges from

discomfort in “natural” places to active scorn for whatever is not manmade, managed, or air-conditioned. Biophobia, in short, is the culturally acquired urge to affiliate with technology, human artifacts, and solely with human interests regarding the natural world. I intend the word broadly to include as well those who regard nature “objectively” as nothing more than “resources” to be used any way the favored among the present generation see fit.

Is biophobia a problem as, say, misanthropy or sociopathy, or is it merely a personal preference; one plausible view of nature among many? Is it OK that Woody Allen feels little or no sympathy or kinship with nature? Does it matter that a growing number of other people do not like it or like it only in the abstract as nothing more than resources to be managed or as television nature specials? Does it matter that we are increasingly separated from the conditions of nature? If these things do matter, how do they matter and why? And why have so many come to think that the created world is inadequate? Inadequate to what and for what?

At the other end of the continuum of possible orientation toward nature is “biophilia,” which E. O. Wilson (1984) has defined as “the urge to affiliate with other forms of life” (p. 85). Erich Fromm (1973) once defined it more broadly as “the passionate love of life and of all that is alive” (pp. 365–366). Both agree, however, that biophilia is innate and a sign of mental and physical health. To what extent are our biological prospects and our sanity now dependent on our capacity for biophilia? To that degree it is important that we understand how biophilia comes to be, how it prospers, what competencies and abilities it requires of us, and how these are to be learned.

Biophilia is not all that tugs at us. The affinity for life or biophilia competes with other drives and affinities, including biophobia disguised beneath the abstractions and presumptions of progress found in economics, management, and technology. Whatever is in our genes, then, the affinity for life is now a choice we must make. Compared

with earlier cultures, our distinction lies in the fact that technology now allows us to move much further toward total domination of nature than ever before. Serious and well-funded people talk about reweaving the fabric of life on earth through genetic engineering and nanotechnologies, others talk of leaving the earth altogether for space colonies, and still others talk of reshaping human consciousness to fit “virtual reality.” If we are to preserve a world in which biophilia can be expressed and can flourish, we will have to decide to make such a world.

The Origins and Consequences of Biophobia

In varying degrees humans have always modified their environments. I am persuaded that they generally have intended to do so with decorum and courtesy toward nature—not always and everywhere to be sure, but mostly. On balance, the evidence further suggests that biophilia or something close to it was woven throughout the myths, religions, and mindset of early humankind, which saw itself as participating with nature. In Owen Barfield’s words, people once felt “integrated or mortised into” the world in ways that we do not and perhaps cannot (Barfield, 1957, p. 78). Technology, primitive by our standards, set limits on what tribal cultures could do to the world, while their myths, superstitions, and taboos constrained what they thought they ought to do. But I do not think that early humans *chose* biophilia, if for no other reason than that there was no choice to be made. And those tribes and cultures that were biophobic or incompetent toward nature passed into oblivion through starvation and disease (Diamond, 1992, pp. 317–338).

Looking back across that divide, I think it is evident that tribal cultures possessed an ecological innocence of sorts because they did not have the possibilities or the knowledge given to us. We, in contrast, must choose between biophobia and biophilia because science and technology have given us the power to destroy so completely as well as the knowledge to understand the consequences of doing so. The divide was not a sharp break but a kind of slow tectonic shift in perception

and attitudes that widened throughout the late Middle Ages to the present. What we call “modernization” represented dramatic changes in how we regard the natural world and our role in it. These changes are now so thoroughly ingrained in us that we can scarcely conceive of any other manner of thinking. But crossing this divide first required us to discard the belief that the world was alive and worthy of respect, if not fear. To dead matter, we owe no obligations. Second, it was necessary to distance ourselves from animals who were transformed by Cartesian alchemy into mere machines. Again, no obligations or pity are owed to machines. In both cases, use is limited only by usefulness. Third, it was necessary to quiet whatever remaining sympathy we had for nature in favor of “hard” data that could be weighed, measured, counted, and counted on to make a profit. Fourth, we needed a reason to join power, cash, and knowledge in order to transform the world into more useful forms. Francis Bacon provided the logic, and the evolution of government-funded research did the rest. Fifth, we required a philosophy of improvement and found it in the ideology of perpetual economic growth, now the central mission of governments everywhere. Sixth, biophobia required the sophisticated cultivation of dissatisfaction, which could be converted into mass consumption. The advertising industry and the annual style change were invented.

For these revolutions to work, it was necessary that nature be rendered into abstractions and production statistics of board feet, tons, barrels, and yield. It was also necessary to undermine community, especially the small community, where attachment to place might grow and with it resistance to crossing the divide. Finally it was necessary to convert politics into the pursuit of material self-interest and hence render people impotent as citizens and unable to talk of larger and more important things.

To this point the story is well known, but it is hardly finished. Genetic engineers are busy remaking the fabric of life on earth. The development of nanotechnologies—machines at the molecular level—create possibilities for good and evil that defy prediction. How

long will it be until the genetic engineers or nanotechnologists release an AIDS-like virus? One can only guess. But even those promoting such technologies admit that they “carry us toward unprecedented dangers . . . more potent than nuclear weapons” (Drexler, 1987, p. 174). And immediately ahead is the transformation of human consciousness brought on by the conjunction of neuroscience and computers in machines that will simulate whatever reality we choose. What happens to the quality of human experience or to our politics when cheap and thoroughgoing fantasy governs our mental life? In each case, untransformed nature pales by comparison. It is clumsy, inconvenient, flawed, and difficult to move or rearrange. It is slow. And it cannot be converted to mass dependence and profits so easily.

Beneath each of these endeavors lies a barely concealed contempt for unaltered life and nature, as well as contempt for the people who are expected to endure the mistakes, purchase the results, and live with the consequences, whatever those may be. It is a contempt disguised by terms of bamboozlement, like *bottom line*, *progress*, *needs*, *costs* and *benefits*, *economic growth*, *jobs*, *realism*, *research*, and *knowledge*, words that go undefined and unexamined. Few people, I suspect, believe “in their bones” that the net results from all of this will be positive, but most feel powerless to stop what seems to be so inevitable and unable to speak what is so hard to say in the language of self-interest.

The manifestation of biophobia, explicit in the urge to control nature, has led to a world in which it is becoming easier to be biophobic. Undefined nature is being replaced by a defiled nature of landfills, junkyards, strip mines, clear-cuts, blighted cities, six-lane freeways, suburban sprawl, polluted rivers, and superfund sites, all of which deserve our phobias. Ozone depletion, meaning more eye cataracts and skin cancer, does give more reason to stay indoors. The spread of toxic substances and radioactivity does mean more disease. The disruption of natural cycles and the introduction of exotic species has destroyed much of the natural diversity that formerly graced our landscapes. Introduced blights and pests have or are destroying

American chestnuts, elms, maples, dogwoods, hemlocks, and ashes. Global warming will degrade the flora and fauna of familiar places (Peters and Myers, 1991–1992, pp. 66–72). Biophobia sets into motion a vicious cycle that tends to cause people to act in such a way as to undermine the integrity, beauty, and harmony of nature, creating the very conditions that make the dislike of nature yet more probable.

Even so, is it OK that Woody Allen, or anyone else, does not like nature? Is biophobia merely one among a number of equally legitimate ways to relate to nature? I do not think so. First, for every “biophobe” others have to do that much more of the work of preserving, caring for, and loving the nature that supports biophobes and biophilic alike. Economists call this the “free-rider problem.” It arises in every group, committee, or alliance when it is possible for some to receive all of the advantages of membership while doing none of the work necessary to create those advantages. Environmental free riders benefit from others’ willingness to fight for the clean air that they breathe, the clean water that they drink, the preservation of biological diversity that sustains them, and the conservation of the soil that feeds them. But they lift not a finger. Biophobia is not OK because it does not distribute fairly the work of keeping the earth or any local place.

Biophobia is not OK for the same reason that misanthropy and sociopathy are not OK. We recognize these as the result of deformed childhoods that create unloving and often violent adults. Biophobia in all of its forms similarly shrinks the range of experiences and joys in life in the same way that the inability to achieve close and loving relationships limits a human life. E. O. Wilson (1984) put it this way:

People can grow up with the outward appearance of normality in an environment largely stripped of plants and animals, in the same way that passable looking monkeys can be raised in laboratory cages and cattle fattened in feeding bins. Asked if they were happy, these people would probably say yes. Yet something vitally important would be missing, not merely the knowledge

and pleasure that can be imagined and might have been, but a wide array of experiences that the human brain is peculiarly equipped to receive. (p. 118)

Can the same be said of whole societies that distance themselves from animals, trees, landscapes, mountains, and rivers? Is mass biophobia a kind of collective madness? In time I think we will come to know that it is.

Biophobia is not OK because it is the foundation for a politics of domination and exploitation. For our politics to work as they now do, a large number of people must not like any nature that cannot be repackaged and sold back to them. They must be ecologically illiterate and ecologically incompetent, and they must believe that this is not only inevitable but desirable. Furthermore, they must be ignorant of the basis of their dependency. They must come to see their bondage as freedom and their discontents as commercially solvable problems. The drift toward a biophobic society, as George Orwell and C. S. Lewis foresaw decades ago, requires the replacement of nature and human nature by technology and the replacement of real democracy by a technological tyranny now looming on the horizon.

These are reasons of self-interest: It is to our advantage to distribute the world's work fairly, to build a society in which lives can be lived fully, and to create an economy in which people participate knowledgeably. There is a further argument against biophobia that rests not on our self-interest, but on our duties. Finally, biophobia is not OK because it violates an ancient charge to replenish the earth. In return for our proper use, the earth is given to humankind as a trust. Proper use requires gratitude, humility, charity, and skill. Improper use begins with ingratitude and disparagement and proceeds to greed, abuse, and violence. We cannot forsake the duties of stewardship without breaking another trust with those who preceded us and with those who will follow.

Biophobia is certainly more complex than I have described it. One can be both biophobic and a dues-paying member of the Sierra Club.

It is possible to be nature averse but still “like” the idea of nature as an abstraction. Moreover, it is possible to adopt the language and guise of biophilia and do a great deal of harm to the earth, knowingly or unknowingly. In other words, it is possible for us to be inconsistent, hypocritical, and ignorant of what we do.

But is it possible for us to be neutral or “objective” toward life and nature? I do not think so. On closer examination, what often passes for neutrality is nothing of the sort but rather the thinly disguised self-interest of those with much to gain financially or professionally. For those presuming to wear the robes of objectivity, the guise, in Abraham Maslow’s (1966) words, is often “a defense against being flooded by the emotions of humility, reverence, mystery, wonder and awe” (p. 139). Life ought to excite our passion, not our indifference. Life in jeopardy ought to cause us to take a stand, not retreat into a spurious neutrality. Furthermore, it is a mistake to assume that commitment precludes the ability to think clearly and to use evidence accurately. To the contrary, commitment motivates intellectual clarity, integrity, and depth. We understand this in other realms quite well. When the chips are down, we do not go to physicians who admit to being neutral about the life and death of their patients. Nor when our hide is at stake do we go to lawyers who profess “objective” neutrality between justice and injustice. It is a mistake to think that matters of environment and life on earth are somehow different. They are not, and we cannot in such things remain aloof or indifferent without opening the world to demons.

Biophilia

We relate to the environment around us in different ways, with differing intensity, and these bonds have different sources. At the most common level, we learn to love what has become familiar. There are prisoners who prefer their jail cell to freedom; city dwellers, like Woody Allen, who shun rural landscapes or wilderness; and rural folk who will not set foot in the city. Simply put, we tend to bond with what we know well. Geographer Yi-Fu Tuan (1974) described this bonding

as “topophilia,” which includes “all of the human being’s affective ties with the material environment” (p. 93). Topophilia is rooted less in our deep psychology than it is in our particular circumstances and experiences. It is closer to a sense of habitat that is formed out of the familiar circumstances of everyday living than it is a genuine rootedness in the biology and topography of a particular place. It is not innate, but acquired. New Yorkers have perhaps a greater sense of topophilia or habitat than do residents of Montana. But Montanans are more likely to feel kinship with sky, mountains, and trout streams. Both, however, tend to be comfortable with what has become habitual and familiar.

E. O. Wilson (1984) suggested a deeper source of attachment that goes beyond the particularities of habitat. “We are,” he argues, “a biological species [that] will find little ultimate meaning apart from the remainder of life” (p. 112). We are bound to living things by what Wilson described as an innate urge to affiliate, or “biophilia,” which begins in early childhood and “cascades” into cultural and social patterns. Biophilia is inscribed in the brain itself, expressing tens of thousands of years of evolutionary experience. It is evident in our preference for landscapes that replicate the savannas on which mind evolved: “Given a completely free choice, people gravitate statistically toward a savanna-like environment” (Wilson, 1984, p. 115). Removed to purely artificial environments and deprived of “beauty and mystery,” the mind “will drift to simpler and cruder configurations,” which undermine sanity itself (Wilson, 1984, p. 118). Still, biophilia competes with what Wilson describes as the “audaciously destructive tendencies of our species” that seem also to have “archaic biological origins” (p. 121). Allowing these tendencies free rein to destroy the world “in which the brain was assembled over millions of years” is, Wilson has argued, “a risky step.”

A third possibility is that at some level of alertness and maturity, we respond with awe to the natural world independent of any instinctual conditioning. “If you study life deeply,” Albert Schweitzer (1969) once wrote, “its profundity will seize you suddenly with dizziness” (p. 115).

He described this response as “reverence for life” arising from the awareness of the unfathomable mystery of life itself. (The German word Schweitzer used, *Ehrfurcht*, implies greater awe than is implied by the English word *reverence*.) Reverence for life, I think, is akin to what Rachel Carson (1965/1987) meant by “the sense of wonder.” But for Schweitzer (1972) reverence for life originated in large measure from the intellectual contemplation of the world: “Let a man once begin to think about the mystery of his life and the links which connect him with the life that fills the world, and he cannot but bring to bear upon his own life and all other life that comes within his reach the principle of Reverence for Life” (p. 231). Schweitzer regarded reverence for life as the only possible basis for a philosophy on which civilization might be restored from the decay he saw throughout the modern world. “We must,” he wrote, “strive together to attain to a theory of the universe affirmative of the world and of life” (Schweitzer, 1972, p. 64).

We have reason to believe that this intellectual striving is aided by what is already innate in us and may be evident in other creatures. No less an authority than Charles Darwin believed that “all animals feel wonder” (Darwin, 1977, p. 450). Primatologist Harold Bauer once observed a chimpanzee lost in contemplation by a spectacular waterfall in the Gombe Forest Reserve in Tanzania. Contemplation finally gave way to “pant-hoot” calls while the chimp ran back and forth drumming on trees with its fists (Konner, 1982, p. 431). No one can say for certain what this behavior means, but it is not farfetched to see it as a chimpanzee version of awe and ecstasy. Jane Goodall and others have described similar behavior. It would be the worst kind of anthropocentrism to dismiss such accounts in the belief that the capacity for biophilia and awe is a human monopoly. In fact it may be that we have to work at it harder than other creatures. Joseph Wood Krutch (1991), for one, believed that for birds and other creatures “joy seems to be more important and more accessible than it is to us” (p. 227). And not a few philosophers have agreed with Abraham Heschel (1990) that “as civilization advances, the sense of wonder almost necessarily declines” (p. 37).

Do we, with all of our technology, retain a built-in affinity for nature? I think so, but I know of no proof that would satisfy skeptics. If we do have such an innate sense, we might nevertheless conclude from the damage that we have done to the world that biophilia does not operate everywhere and at all times. It may be, as Erich Fromm (1973) argued, that biophilia can be dammed up or corrupted and can subsequently appear in other, more destructive forms:

Destructiveness is not parallel to, but the alternative to biophilia. Love of life or love of the dead is the fundamental alternative that confronts every human being. Necrophilia grows as the development of biophilia is stunted. Man is biologically endowed with the capacity for biophilia, but psychologically he has the potential for necrophilia as an alternative solution. (p. 366)

We also have reason to believe that people can lose the sense of biophilia. For example, in his autobiography, Darwin (1958) admitted that “fine scenery . . . does not cause me the exquisite delight which it formerly did” (p. 54). It is also possible that entire societies can lose the capacity for love of any kind. When the Ik tribe in northern Uganda was forcibly moved from its traditional hunting grounds into a tiny reserve, their world, as Colin Turnbull (1972) expressed it, “became something cruel and hostile,” and they “lost whatever love they might once have had for their mountain world” (pp. 256, 259). The love for their place the Ik people may have once felt was transmuted into boredom and a “moody distrust” of the world around them and matched by social relations that Turnbuhl described as utterly loveless, cruel, and despicable. The Ik are a stark warning to us that the ties to life and to each other are more fragile than some suppose and, once broken, are not easily repaired or perhaps cannot be repaired at all.

Much of the history of the twentieth century offers further evidence of the fragility of biophilia and of philia. Ours is a time of unparalleled human violence and unparalleled violence toward nature. This is the century of Auschwitz and the mass extinction of species, nuclear weapons, and exploding economic growth.

Even if we could find no evidence of a lingering human affinity or affection for nature, however, humankind is now in the paradoxical position of having to learn altruism and selflessness, but for reasons of survival that are reasons of self-interest. In the words of Stephen Jay Gould (1991), “We cannot win this battle to save species and environments without forging an emotional bond between ourselves and nature as well—for we will not fight to save what we do not love” (p. 14). And if we do not save species and environments, we cannot save ourselves; we depend on those species and environments in more ways than we can possibly know. We have, in other words, “purely rational reasons” to cultivate biophilia (Wilson, 1984, p. 140).

Beyond our physical survival, there is still more at risk. The same Faustian urges that drive the ecological crisis also erode those qualities of heart and mind that constitute the essence of our humanity. Bertrand Russell (1959) put it this way:

It is only in so far as we renounce the world as its lovers that we can conquer it as its technicians. But this division in the soul is fatal to what is best in man. . . . The power conferred by science as a technique is only obtainable by something analogous to the worship of Satan, that is to say, by the renunciation of love. . . . The scientific society in its pure form . . . is incompatible with the pursuit of truth, with love, with art, with spontaneous delight, with every ideal that men have hitherto cherished. (p. 264)

The ecological crisis, in short, is about what it means to be human. And if natural diversity is the wellspring of human intelligence, then the systematic destruction of nature inherent in contemporary technology and economics is a war against the very sources of mind. We have good reason to believe that human intelligence could not have evolved in a lunar landscape, devoid of biological diversity. We also have good reason to believe that the sense of awe toward the creation had a great deal to do with the origin of language and that early hominids *wanted* to talk, sing, and write poetry in the first place. Elemental things like flowing water, wind, trees, clouds, rain, mist, mountains, landscape, animals,

changing seasons, the night sky, and the mysteries of the life cycle gave birth to thought and language. They continue to do so, but perhaps less exuberantly than they once did. For this reason I think it not possible to unravel natural diversity without undermining human intelligence as well. Can we save the world and anything like a human self from the violence we have unleashed without biophilia and reverence for the creation? All the arguments made by technological fundamentalists and by the zealots of instrumental rationality notwithstanding, I know of no good evidence that we can. We must choose, in Joseph Wood Krutch's (1991) words, whether "we want a civilization that will move toward some more intimate relation with the natural world or . . . one that will continue to detach and isolate itself from both a dependence upon and a sympathy with that community of which we were originally a part?" (p. 165). The writer of Deuteronomy had it right. Whatever our feelings, however ingenious our philosophies, whatever innate gravity tugs at us, we must finally choose between life and death, between intimacy and isolation.

Biophilia: Eros to Agape

We are now engaged in a great global debate about what it means to live "sustainably" on the earth. This word, however, is fraught with confusion, in large part because we are trying to define it before we have decided whether we want an intimate relation with nature or total mastery, as Krutch (1991) put it. We cannot know what sustainability means until we have decided what we intend to sustain and how we propose to do so. For some, sustainability means maintaining our present path of domination, only with greater efficiency. But were we to decide, in concurrence with Krutch and others, that we do want an intimate relation with nature, to take nature as our standard, what does that mean? We must choose along the continuum that runs between biophilia and biophobia and between intimacy and mastery, but how can we know when we have crossed over from one to the other? The choices are not always so simple, nor will they be presented to us so candidly.

The options, even the most destructive, will be framed as life-serving, as necessary for a greater good someday, or as simply inevitable since “you can’t stop progress.” How, then, can we distinguish those things that serve life broadly and well from those that diminish it?

Biophilia is a kind of *philia* or love, but what kind? The Greeks distinguished three kinds of love: *eros*, meaning love of beauty or romantic love aiming to possess; *agape*, or sacrificial love, which asks nothing in return; and *philia*, or the love between friends. The first two of these reveal important parts of biophilia, which probably begins as *eros* but matures, if at all, as a form of *agape*. For the Greeks *eros* went beyond sensuous love to include creature needs for food, warmth, and shelter, as well as higher needs to understand, appreciate, and commune with nature (Bratton, 1992, p. 11). But *eros* aims no higher than self-fulfillment. Defined as an “innate urge,” biophilia is *eros*, reflecting human desire and self-interest, including the interest in survival.

Biophilia as *eros*, however, traps us in a paradox. According to Susan Bratton (1992), “Without *agape*, human love for nature will always be dominated by unrestrained *eros* and distorted by extreme self-interest and material valuation” (p. 15). What we love only from self-interest, we will sooner or later destroy. *Agape* tempers our use of nature so that “God’s providence is respectfully received and insatiable desire doesn’t attempt to extract more from creation than it can sustain” (Bratton, 1992, p. 13). *Agape* enlarges *eros*, bringing humans and the creation together so that it is not possible to love either humanity or nature without also loving and serving the other. *Agape* in this sense is close to Schweitzer’s description of “reverence for life,” which calls us to transcend even the most enlightened calculations of self-interest. Wouldn’t respect for nature do as well? I think not, and for the reason that it is just too bloodless, too cool, and too self-satisfied and aloof to cause us to do much to save species and environments. I am inclined to agree with Stephen Jay Gould that we will have to reach deeper.

What, then, do we know about deeper sources of motivation, including the ways in which *eros* is transformed into *agape*, and what

does this reveal about biophilia? First, we know that the capacity for love of any kind begins early in the life and imagination of the child. The potential for biophilia possibly begins at birth, as Robert Coles once surmised, with the newborn infant being introduced to its place in nature (Coles, 1971). If so, the manner and circumstances of birth are more important than is usually thought. Biophilia is certainly evident in the small child's efforts to establish intimacy with the earth, like that of Jane Goodall, age two, sleeping with earthworms under her pillow (Montgomery, 1991, p. 28), or John Muir (1988), "reveling in the wonderful wildness" around his boyhood Wisconsin home (p. 43). If by some fairly young age, however, nature has not been experienced as a friendly place of adventure and excitement, biophilia will not take hold as it might have. An opportunity will have passed, and thereafter the mind will lack some critical dimension of perception and imagination.

Second, I think we know that biophilia requires easily and safely accessible places where it might take root and grow. For Aldo Leopold it began in the marshes and woods along the Mississippi River. For young E. O. ("Snake") Wilson (1984) it began in boyhood explorations of the "woods and swamps in a languorous mood . . . [forming] the habit of quietude and concentration" (pp. 86–92). The loss of places such as these is one of the uncounted costs of economic growth and urban sprawl. It is also a powerful argument for containing that sprawl and expanding urban parks and recreation areas.

Third, I think we can safely surmise that biophilia, like the capacity to love, needs the help and active participation of parents, grandparents, teachers, and other caring adults. Rachel Carson's (1987) relation with her young nephew caused her to conclude that the development of a child's sense of wonder required "the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in" (p. 45). For children the sense of biophilia needs instruction, example, and validation by a caring adult. And for adults, rekindling the sense of wonder may require a child's excitement and openness to natural wonders as well.

Fourth, we have every reason to believe that love and biophilia alike flourish mostly in good communities. I do not mean necessarily affluent places. In fact, affluence often works against real community, as surely as does violence and utter poverty. By community I mean, rather, places in which the bonds between people and those between people and the natural world create a pattern of connectedness, responsibility, and mutual need. Real communities foster dignity, competence, participation, and opportunities for good work. And good communities provide places in which children's imagination and earthy sensibilities root and grow.

Fifth, we have it on good authority that love is patient, kind, enduring, hopeful, long-suffering, and truthful, not envious, boastful, insistent, arrogant, rude, self-centered, irritable, and resentful (I Corinthians 13). For biophilia to work, I think it must have similar qualities. Theologian James Nash (1991) for example proposed six ecological dimensions of love: (1) beneficence, e.g., kindness to wild creatures; (2) other-esteem, which rejects the idea of possessing or managing the biosphere; (3) receptivity to nature, e.g., awe; (4) humility, by which is meant caution in the use of technology; (5) knowledge of ecology and how nature works; and (6) communion as "reconciliation, harmony, koinonia, shalom" between humankind and nature (pp. 139–161). I would add only that real love does not do desperate things, and it does not commit the irrevocable.

Sixth, I think we know with certainty that beyond some scale and level of complexity, the possibility for love of any sort declines. Beneficence, awe, reconciliation, and communion are not entirely probable attitudes for the poverty stricken living in overcrowded barrios. With 10 or 12 billion people on the earth, we will have no choice but to try to manage nature, even though it will be done badly. The desperate and the hungry will not be particularly cautious with risky technologies. Nor will the wealthy, fed and supplied by vast, complex global networks, understand the damage they cause in distant places they never see and the harm they do to people they will never know. Knowledge has its own limits of scale.

Beyond some level of scale and complexity, the effects of technology, used in a world we cannot fully comprehend, are simply unknowable. When the genetic engineers and the nanotechnologists finally cause damage to the earth comparable to that done by the chemists who invented and so casually and carelessly deployed chlorofluorocarbons, they too will plead for forgiveness on the grounds that they did not know what they were doing.

Seventh, love, as Eric Fromm (1989) wrote, is an art, the practice of which requires “discipline, concentration and patience throughout every phase of life” (p. 100). The art of biophilia, similarly, requires us to use the world with disciplined, concentrated, and patient competence. To live and earn our livelihood means that we must “daily break the body and shed the blood of creation,” in Wendell Berry’s (1981) words. Our choice is whether we do so “knowingly, lovingly, skillfully, reverently . . . [or] ignorantly, greedily, clumsily, destructively” (p. 281). Practice of any art also requires forbearance, which means the ability to say no to things that diminish the object of love or our capacity to work artfully. And for the same reasons that it limits the exploitation of persons, forbearance sets limits on our use of nature.

Finally, we know that for love to grow from eros to agape, something like *metanoia*, or the “transformation of one’s whole being” is necessary. *Metanoia* is more than a “paradigm change.” It is a change, first, in our loyalties, affections, and basic character, which subsequently changes our intellectual priorities and paradigms. For whole societies, the emergence of biophilia as agape will require something like a *metanoia* that deepens our loyalty and affections to life and over time alters the character of our entire civilization.

The Biophilia Revolution

“Is it possible,” E. O. Wilson (1984) asked, “that humanity will love life enough to save it?” (p. 145). And if we do love life enough to save it, what is required of us? On one level the answer is obvious. We need to transform how and how rapidly we use the earth’s

endowment of land, minerals, water, air, wildlife, and fuels: an efficiency revolution that buys us some time. Beyond efficiency, we need another revolution that transforms our ideas of what it means to live decently and how little is actually necessary for a decent life: a sufficiency revolution. The first revolution is mostly about technology and economics. The second revolution is about morality and human purposes. The biophilia revolution is about the combination of reverence for life and purely rational calculation by which we will *want* to both be efficient and live sufficiently. It is about finding our rightful place on earth and in the community of life, and it is about citizenship, duties, obligations, and celebration.

There are two formidable barriers standing in our way. The first is the problem of denial. We have not yet faced up to the magnitude of the trap we have created for ourselves. We are still thinking of the crisis as a set of problems that are, by definition, solvable with technology and money. In fact we face a series of dilemmas that can be avoided only through wisdom and a higher and more comprehensive level of rationality than we have yet shown. Better technology would certainly help; however, our crisis is not fundamentally one of technology but one of mind, will, and spirit. Denial must be met by something like a worldwide ecological “perestroika,” predicated on the admission of failure: the failure of our economics, which became disconnected from life; the failure of our politics, which lost sight of the moral roots of our commonwealth; the failure of our science, which lost sight of the essential wholeness of things; and the failures of all of us as moral beings, who allowed these things to happen because we did not love deeply and intelligently enough. The biophilia revolution must come as an ecological enlightenment that sweeps out the modern superstition that we are knowledgeable enough and good enough to manage the earth and to direct evolution.

The second barrier standing in the way of the biophilia revolution is one of imagination. It is easier, perhaps, to overcome denial than it is to envision a biophilia-centered world and believe ourselves capable of

creating it. We could get an immediate and overwhelming worldwide consensus today on the proposition “Is the world in serious trouble?” But we are not within a light-year of agreement on what to do about it. Confronted by the future, the mind has a tendency to wallow. For this reason we can diagnose our plight with laser precision while proposing to shape the future with a sledgehammer. Fictional utopias, almost without exception, are utterly dull and unconvincing. And the efforts to create utopias of either right or left have been monumental failures, leaving people profoundly discouraged about their ability to shape the world in accord with their highest values. And now some talk about creating a world that is sustainable, just, and peaceful! What is to be done?

Part of our difficulty in confronting the future is that we think of utopia on too grand a scale. We are not very good at comprehending things on the scale of whole societies, much less that of the planet. Nor have we been very good at solving the problems utopias are supposed to solve without imposing simplistic formulas that ride roughshod over natural and cultural diversity. Except for some anarchists, utopianism is almost synonymous with homogenization. Another part of the problem is the modern mind’s desire for drama, excitement, and sexual sizzle, which explains why we do not have many bestselling novels about Amish society, arguably the closest thing to a sustainable society we know. How do we fulfill the need for meaning and variety while discarding some of our most cherished fantasies of domination? How do we cause the “change in our intellectual emphasis, loyalties, affections, and convictions,” without which all else is moot? (Leopold, 1966, p. 246) When we think of revolution, our first impulse is to think of some grand political, economic, or technological change; some way to fix quickly what ails us. What ails us, however, is closer to home, and I suggest that we begin there.

The Recovery of Childhood: I began by describing biophilia as a choice. In fact it is a series of choices, the first of which has to do with

the conduct of childhood and how the child's imagination is woven into a home place. Practically, the cultivation of biophilia calls for the establishment of more natural places, places of mystery and adventure where children can roam, explore, and imagine. This means more urban parks, more greenways, more farms, more river trails, and wiser land use everywhere. It means redesigning schools and campuses to replicate natural systems and functions. It means greater contact with nature during the school day but also unsupervised hours to play in places where nature has been protected or allowed to recover.

For biophilia to take root, we must take our children seriously enough to preserve their natural childhood. However, childhood is being impoverished and abbreviated, and the reasons sound like a curriculum in social pathology: too many broken homes and unloving marriages, too much domestic violence, too much alcohol, too many drugs, too many guns, too many things, too much television, too much idle time and permissiveness, too many off-duty parents, and too little contact with grandparents. Children are rushed into adulthood too soon, only to become childish adults unprepared for parenthood, and the cycle repeats itself. We will not enter this new kingdom of sustainability until we allow our children the kind of childhood in which biophilia can put down roots.

Recovering a Sense of Place: I do not know whether it is possible to love the planet or not, but I do know that it is possible to love the places we can see, touch, smell, and experience. And I believe, along with Simone Weil (1971), that rootedness in a place is “the most important and least recognized need of the human soul” (p. 43). The attempt to encourage biophilia will not amount to much if we fail to decide to reshape these kinds of places so that we might become deeply rooted. The second decision we must make, then, has to do with the will to rediscover and reinhabit our places and regions, finding in them sources of food, livelihood, energy, healing, recreation,

and celebration. Whether one calls it “bioregionalism” or “becoming native to our places” it means deciding to relearn the arts that Jaquetta Hawkes (1951) once described as “a patient and increasingly skillful love-making that [persuades] the land to flourish” (p. 202). It means rebuilding family farms, rural villages, towns, communities, and urban neighborhoods. It means restoring local culture and our ties to local places, where biophilia first takes root. It means reweaving the local ecology into the fabric of the economy and life patterns while diminishing use of the automobile and our ties to the commercial culture. It means deciding to slow down, hence more bike trails, more gardens, and more solar collectors. It means rediscovering and restoring the natural history of our places. And, as Gary Snyder (1974) wrote, it means finding our place and digging in (p. 101).

Education and Biophilia: The capacity for biophilia can still be snuffed out by education that aims no higher than to enhance the potential for upward mobility, which has come to mean putting as much distance as possible between the apogee of one’s career trajectory and one’s roots. We should worry a good bit less about whether our progeny will be able to compete as a “world-class workforce” and a great deal more about whether they will know how to live sustainably on the earth. My third proposal, then, requires the will to reshape education in a way that fosters innate biophilia and the analytical abilities and practical skills necessary for a world that takes life seriously.

Lewis Mumford (1946) once proposed the local community and region as the “backbone of a drastically revised method of study” (pp. 150–154). The study of the region would ground education in the particularities of a specific place and would also integrate various disciplines around the “regional survey,” which includes surveys of local soils, climate, vegetation, history, economy, and society. Mumford (1970b) envisioned this as an “organic approach to knowledge” that began with the “common whole—a region, its activities, its people, its configuration, its total life” (p. 385).

The aim was “to educate citizens, to give them the tools of action” and to educate a people “who will know in detail where they live and how they live . . . united by a common feeling for their landscape, their literature and language, their local ways” (Mumford, 1970b, p. 386).

Something like the regional survey is required for the biophilia revolution. Education that supports and nourishes a reverence for life would occur more often out-of-doors and in relation to the local community. It would provide a basic competence in the kinds of knowledge that Mumford described a half century ago. It would help people become not only literate but ecologically literate, understanding the biological requisites of human life on earth. It would provide basic competence in what I have called the “ecological design arts,” that is, the set of perceptual and analytic abilities, ecological wisdom and practical wherewithal essential to making things that fit in a world governed by the laws of ecology and thermodynamics.

A New Covenant with Animals: The biophilia revolution would be incomplete without our creating a new relationship with animals, one, in Barry Lopez’s (1989) words, that “rise(s) above prejudice to a position of respectful regard toward everything that is different from ourselves and not innately evil” (p. 383). We need animals, not locked up in zoos, but living free on their own terms. We need them for what they can tell us about ourselves and about the world. We need them for our imagination and for our sanity. We need animals for what they can teach us about courtesy and what Gary Snyder (1990) called “the etiquette of the wild” (pp. 3–24). The human capacity for biophilia as agape will remain “ego-centric and partial” until it can also embrace creatures who cannot reciprocate (Mumford 1970a, p. 286). And needing animals, we will need to restore wild landscapes that invite them again.

A new covenant with animals requires that we decide to limit the human domain in order to establish their rights in law, custom, and

daily habit. The first step is to discard the idea obtained from Rene Descartes that animals are only machines, incapable of feeling pain and to be used any way we see fit. Protecting animals in the wild while permitting confinement feeding operations and most laboratory use of animals makes no moral sense and diminishes our capacity for biophilia. In this, I think Paul Shepard (1993) is right: To recognize animals and wildness is to decide to admit deeper layers of our consciousness into the sunlight of full consciousness again.

The Economics of Biophilia: The biophilia revolution will also require national and global decisions that permit life-centeredness to flourish at a local scale. Biophilia can be suffocated, for example, by the demands of an economy oriented toward accumulation, speed, sensation, and death. But economists have not written much about how an economy encourages or discourages love generally or biophilia in particular. As a result, not much thought has been given to the relationship between love and the way we earn our keep.

The transition to an economy that fosters biophilia requires a decision to limit the human enterprise relative to the biosphere. Some economists talk confidently of a five- or tenfold increase in economic activity over the next half century. But Peter Vitousek and his colleagues have shown that humans now use or coopt 40% of the net primary productivity from terrestrial ecosystems (Vitousek et al., 1986). What limits does biophilia set on the extent of the human enterprise? What margin of error does love require?

Similarly, in the emerging global economy, in which capital, technology, and information move easily around the world, how do we protect the people and the communities left behind? Now more than ever the rights of capital are protected by all the power money can buy. The rights of communities are protected less than ever. Consequently, we face complex decisions about how to protect communities and their stability on which biophilia depends.

Biophilia and Patriotism: The decisions necessary to move us toward a culture capable of biophilia are, in the end, political decisions. But our politics, no less than our economy, has other priorities. In the name of “national security” or one ephemeral national “interest” or another we lay waste to our lands and to the prospects of our children. Politics of the worst sort has corrupted our highest values, becoming instead one long evasion of duties and obligations in the search for private or sectarian advantage. “Crackpot realists” tell us that this is how it has always been and must therefore always be: a view that marries bad history to bad morals.

Patriotism, the name we give to the love of one’s country, must be redefined to include those things that contribute to the real health, beauty, and ecological stability of our home places and to exclude those that do not. Patriotism as biophilia requires that we decide to rejoin the idea of love of one’s country to how and how well one uses the country. To destroy forests, soils, natural beauty, and wildlife in order to swell the gross national product, or to provide short-term and often spurious jobs, is not patriotism but greed.

Real patriotism requires that we weave the competent, patient, and disciplined love of our land into our political life and our political institutions. The laws of ecology and those of thermodynamics, which mostly have to do with limits, must become the foundation for a new politics. No one has expressed this more clearly than Vaclav Havel (1989): “We must draw our standards from our natural world. . . . We must honour with the humility of the wise the bounds of that natural world and the mystery which lies beyond them, admitting that there is something in the order of being which evidently exceeds all our competence” (p. 153). Elsewhere, Havel (1992) stated the following:

Genuine Politics . . . is simply a matter of serving those around us: serving the community, and serving those who will come after us. Its deepest roots are moral because it is a responsibility, expressed through action, to and for the whole, a responsibility . . . only because it has a metaphysical grounding: that is, it grows out of a conscious or subconscious certainty that our death ends nothing,

because everything is forever being recorded and evaluated somewhere else, somewhere 'above us', in what I have called 'the memory of being' (p. 6)

Conclusion

Erich Fromm (1955) once asked whether whole societies might be judged sane or insane. After the World Wars, state-sponsored genocide, gulags, McCarthyism, and the "mutual assured destruction" of the twentieth century there can be no doubt that the answer is affirmative. Nor do I doubt that our descendants will regard our obsession with perpetual economic growth and frivolous consumption as evidence of theologically induced derangement. Our modern ideas about sanity, in large measure, can be attributed to Sigmund Freud, an urban man. And from the urban male point of view, the relationship between nature and sanity may be difficult to see and even more difficult to feel. Freud's reconnaissance of the mind stopped too soon. Had he gone further, and had he been prepared to see it, he might have discovered what Theodore Roszak (1992) called "the ecological unconscious," the repression of which "is the deepest root of collusive madness in industrial society" (p. 320). He may also have stumbled upon biophilia, and had he done so, our understanding of individual and collective sanity would have been on more solid ground.

The human mind is a product of the Pleistocene Age, shaped by wildness that has all but disappeared. If we complete the destruction of nature, we will have succeeded in cutting ourselves off from the source of sanity itself. Hermetically sealed amidst our creations and bereft of those of The Creation, the world then will reflect only the demented image of the mind imprisoned within itself. Can the mind dotting upon itself and its creations be sane? Thoreau never would have thought so, nor should we.

A sane civilization that loved more fully and intelligently would have more parks and fewer shopping malls; more small farms and

fewer agri-businesses; more prosperous small towns and smaller cities; more solar collectors and fewer strip mines; more bicycle trails and fewer freeways; more trains and fewer cars; more celebration and less hurry; more property owners and fewer millionaires and billionaires; more readers and fewer television watchers; more shopkeepers and fewer multinational corporations; more teachers and fewer lawyers; more wilderness and fewer landfills; more wild animals and fewer pets. Utopia? No! In our present circumstances this is the only realistic course imaginable. We have tried utopia and can no longer afford it.

Sources

- Barfield, O. 1957. *Saving the Appearances*. New York: Harcourt Brace Jovanovich.
- Berry, W. 1981. *The Gift of Good Land*. San Francisco: North Point Press.
- Bratton, S. 1992, Spring. Loving Nature: Eros or Agape? *Environmental Ethics* 14, 1.
- Carson, R. 1987. *The Sense of Wonder*. New York: Harper. (Original work published 1965.)
- Coles, R. 1971. A Domain of Sorts. In S. Kaplan and R. Kaplan, eds., *Humanscape*. North Scituate, Mass.: Duxbury.
- Darwin, C. 1958. *The Autobiography of Charles Darwin*. New York: Dover. (Original work published 1892.)
- Darwin, C. 1977. *The Descent of Man*. New York: Modern Library. (Original work published 1871.)
- Diamond, J. 1992. *The Third Chimpanzee*. New York: Harper.
- Drexler, E. 1987. *Engines of Creation*. New York: Anchor Books.
- Fromm, E. 1955. *The Sane Society*. New York: Fawcett Books.
- Fromm, E. 1973. *The Anatomy of Human Destructiveness*. New York: Holt, Rinehart & Winston.
- Fromm, E. 1989. *The Art of Loving*. New York: Harper.
- Gould, S. 1991, September. Enchanted Evening. *Natural History*, p. 14.

- Havel, V. 1989. *Living in Truth*. London: Faber & Faber.
- Havel, V. 1992. *Summer Meditations*. New York: Knopf.
- Hawkes, J. 1951. *A Land*. New York: Random House.
- Heschel, A. 1990. *Man is not Alone*. New York: Farrar, Straus & Giroux.
- Konner, M. 1982. *The Tangled Wing*. New York: Holt, Rinehart & Winston.
- Krutch, J. 1991. *The Great Chain of Life*. Boston: Houghton Mifflin.
- Lax, E. 1992. *Woody Allen: A Biography*. New York: Vintage.
- Leopold, A. 1966. *A Sand County Almanac*. New York: Ballantine. (Original work published 1949.)
- Lopez, B. 1989. Renegotiating the Contracts. In T. Lyon, ed., *This Incomperable Lande*. Boston: Houghton Mifflin.
- Maslow, A. 1966. *The Psychology of Science*. Chicago: Gateway.
- Montgomery, S. 1991. *Walking with the Great Apes*. Boston: Houghton Mifflin.
- Muir, J. 1988. *The Story of My Boyhood and Youth*. San Francisco: Sierra Club.
- Mumford, L. 1946. *Values for Survival*. New York: Harcourt and Brace.
- Mumford, L. 1970a. *The Conduct of Life*. New York: Harcourt Brace Jovanovich.
- Mumford, L. 1970b. *The Culture of Cities*. New York: Harcourt Brace Jovanovich.
- Nash, J. 1991. *Loving Nature*. Nashville: Abingdon.
- Peters, R., and Myers, J. P. 1991–1992. Preserving Biodiversity in a Changing Climate. *Issues in Science and Technology*, 8, 2.
- Roszak, T. 1992. *The Voice of the Earth*. New York: Simon & Schuster.
- Russell, B. 1959. *The Scientific Outlook*. New York: Norton.
- Schweitzer, A. 1969. *Reverence for Life*. New York: Pilgrim Press.
- Schweitzer, A. 1972. *Out of My Life and Thought*. New York: Holt, Rinehart & Winston.
- Shepard, P. 1993. On Animal Friends. In S. Kellert and E. O. Wilson, eds., *The Biophilia Hypothesis*. Washington, DC: Island Press.

-
- Shepard, P., and Sanders, B. 1992. *The Sacred Paw*. New York: Viking.
- Snyder, G. 1974. *Turtle Island*. New York: New Directions.
- Snyder, G. 1990. *The Practice of the Wild*. San Francisco: North Point Press.
- Tuan, Y. 1974. *Topophilia*. New York: Columbia University Press.
- Turnbull, C. 1971. *The Mountain People*. New York: Simon & Schuster.
- Vitousek, P., et al. 1986, June. Human Appropriation of the Products of Photosynthesis. *Bioscience*, 36, 6.
- Weil, S. *The Need for Roots*. New York: Harper.
- Wilson, E. O. 1984. *Biophilia*. Cambridge: Harvard University Press.