

## from *The End of Nature*

**BILL MCKIBBEN**

Author of a dozen books about the environment, Bill McKibben (b. 1960) grew up in Massachusetts and attended Harvard University, where he was president of the *Harvard Crimson* newspaper. After college he joined the *New Yorker*, where he was a staff writer until 1987. His first book, *The End of Nature*, was published in 1989 after being serialized in the *New Yorker*. It is regarded as the first book about climate change for a general audience and has been printed in more than twenty languages. Among McKibben's other books are *Long Distance: A Year of Living Strenuously* (2000), *Enough* (2003), and *Wandering Home* (2005). In 2010, he published another national best seller, *Eaarth: Making a Life on a Tough New Planet*, an account of the rapid onset of climate change. It was excerpted in *Scientific American*. *Time* magazine has called McKibben "the planet's best green journalist," and the *Boston Globe* has said that he is "probably the country's most important environmentalist." He is currently a scholar-in-residence at Middlebury College in Vermont. The excerpt included here is from the conclusion of *The End of Nature*.

The inertia of affluence, the push of poverty, the soaring population—these and the other reasons . . . make me pessimistic about the chances that we will dramatically alter our ways of thinking and living, that we will turn humble in the face of our troubles.

A purely personal effort is, of course, just a gesture—a good gesture, but a gesture. The greenhouse effect is the first environmental problem we can't escape by moving to the woods. There are no personal solutions. There is no time to just decide we'll raise enlightened children and they'll slowly change the world. (When the problem was that someone might drop the Bomb, it perhaps made sense to bear and raise sane, well-adjusted children in the hope that they'd help prevent the Bomb from being dropped. But the problem now is precisely too many chil-

dren, well adjusted or otherwise.) We have to be the ones to do it, and simply driving less won't matter, except as a statement, a way to get other people—many other people—to drive less. *Most* people have to be persuaded, and persuaded quickly, to change.

But saying that something is difficult is not the same as saying it is impossible. After all, George Bush decided in the wake of the 1988 heat that he was an environmentalist. Margaret Thatcher, who in 1985 had linked environmental groups with other “subversives” as “the enemy within,” found the religion at about the same time, after the death of the North Sea seals and the odyssey of the *Karin B*, the wandering toxic-waste barge. “Protecting the balance of nature,” she said, is “one of the great challenges of the twentieth century.”

I've been using the analogy of slavery throughout this discussion: we feel it our privilege (and we feel it a necessity) to dominate nature to our advantage, as whites once dominated blacks. When one method of domination seems to be ending—the reliance on fossil fuels, say—we cast about for another, like genetic tinkering, much as Americans replaced slavery with Jim Crow segregation. However, in my lifetime that official segregation ended. Through their courage, men and women like Martin Luther King and Fannie Lou Hamer managed to harness the majority's better qualities—idealism, love for one's neighbor—to transform the face of American society. Racism, it is true, remains virulent, but the majority of Americans have voted for legislators who passed laws—radical laws—mandating affirmative action programs. Out of some higher motive (and, of course, some base motives, such as the fear of black revolt), whites have sacrificed at least a little potential wealth and power. It would be wrong to say categorically that such a shift couldn't happen with regard to the environment—that a mixture of fear and the love for nature buried in most of us couldn't rise to the surface. Some small but significant steps have been taken. Los Angeles, for instance, recently enacted a series of laws to improve air quality that will change at least the edges of the lives of every resident. Los Angelenos will drive different cars, turn in their gas-powered lawn mowers, start their barbecues without lighter fluid.

Most of my hope, however, fades in the face of the uniqueness of the situation. As we have seen, nature is already ending, its passing quiet and accidental. And not only does its ending prevent us from returning to the world we previously knew, but it also, for two powerful reasons, makes any of the fundamental changes we've discussed even more unlikely than they might be in easier times. If the end of nature were still in the future, a preventable possibility, the equation might be different. But it isn't in the future—it's in the recent past, and the present.



The end of nature is a plunge into the unknown, fearful as much because it is unknown as because it might be hot or dry or whipped by hurricanes. This lack of security is the first reason that fundamental change will be much harder, for

the changes we've been discussing—the deep ecology alternative, for instance—would make life even more unpredictable. One would have to begin to forgo the traditional methods of securing one's future—many children, many possessions, and so on. Jeremy Rifkin, in his book on genetic engineering, said there was still a chance we would choose to sacrifice “a measure of our own future security in order to represent the interests of the rest of the cosmos. . . . If we have been saving that spirit up for a propitious moment, then certainly now is the time for it to pour forth.”

But now isn't the time—now, as the familiar world around us starts to change, is the moment when every threatened instinct will push us to scramble to preserve at least our familiar style of life. We can—and we may well—make the adjustments necessary for our survival. For instance, much of the early work in agricultural biotechnology has focused on inventing plants able to survive heat and drought. It seems the sensible thing to do—the way to keep life as “normal” as possible in the face of change. It leads, though, as I have said, to the second death of nature: the imposition of our artificial world in place of the broken natural one.

The rivers of the American Southwest, in particular the Colorado, provide a perfect example of this phenomenon. Though Ed Abbey wrote about the entire Southwest, the one spot he kept returning to, the navel of his universe, was Glen Canyon dam. The dam, built a couple of decades ago near the Utah-Arizona line, is just upstream of the Grand Canyon. It backs up the waters of the Colorado into Lake Powell, a reservoir that rises and falls with the demand for hydroelectric power. The water covers Glen Canyon, a place so sweet Abbey called it “paradise”—and the description of his raft trip through the gorge shortly before the dam was finished makes the term sound weak, understated.

Since the degradation of this canyon stood in his mind for all human arrogance, its salvation would be the sign that man had turned the corner, begun the long trek back toward his proper station. (Blowing up the dam is the great aim of [Abbey's] Monkey Wrench Gang.) If we decide to take out the dam, it would signal many things, among them that perhaps the desert should not house huge numbers of people—that some should move, and others take steps to ensure smaller future generations. True, if we decide to take out the dam and the lake flowed away toward Mexico, it would “no doubt expose a drear and hideous scene: immense mud flats and whole plateaus of sodden garbage strewn with dead trees, sunken boats, the skeletons of long-forgotten, decomposing waterskiers,” Abbey writes. “But to those who find the prospect too appalling, I say give nature a little time. In five years, at most in ten, the sun and wind and storms will cleanse and sterilize the repellent mess. The inevitable floods will soon remove all that does not belong within the canyons. Fresh green willow, box elder, and redbud will reappear; and the ancient drowned cottonwoods (noble monuments to themselves) will be replaced by young of their own kind. . . . Within a generation—thirty years—I predict the river and canyons will bear a decent resemblance to their former selves. Within the lifetime of our children Glen Canyon and the living river, heart

of the canyonlands, will be restored to us. The wilderness will again belong to God, the people, and the wild things that call it home.”

Such a vision is, of course, romantically unlikely under any circumstances. 10 But the new insecurity that accompanies the end of nature makes it even more far-fetched. As we have seen, the projected increases in evaporation and decreases in rainfall in the Colorado watershed could cut flows along the river nearly in half. As a result, noted an EPA report, the reluctance in recent years to build big dams, for fear of environmental opposition, “may be re-evaluated in light of possible new demands for developed water under warm-dry climate change scenarios.” Specifically, “climate change may create pressure to build the Animas-LaPlata and Narrows projects proposed for Colorado.” In other words, where Abbey hoped for box elder and redbud more dams will bloom. The authors of *Gaia: An Atlas of Planet Management* are quite explicit about dam building. In a section on water conservation they put forth a lot of good ideas for fixing leaky mains and such, but they also sing the praises of damming rivers, a process that “can help satisfy a number of needs at once: it helps control flooding, provides the potential for generating hydropower, and stores water for a variety of purposes, including irrigation. The resulting reservoirs represent a multi-purpose resource, with potential for aquaculture and leisure activities.” A flood-washed paradise of cottonwood or a “multi-purpose resource”—that is the choice, and it is not hard to guess, if the heat is on, what the voters of Arizona will demand.

I got a glimpse of this particular future a few years ago when I spent some time along the La Grande River, in sub-Arctic Quebec. It is barren land but beautiful—a tundra of tiny ponds and hummocks stretching to the horizon, carpeted in light-green caribou moss. There are trees—almost all black spruce, and all spindly, sparse. A number of Indians and Eskimos lived there—about the number the area could support. Then, a decade or so ago, Hydro-Quebec, the provincial utility, decided to exploit the power of the La Grande by building three huge dams along the river’s 350-mile length. The largest, said the Hydro-Quebec spokesman, is the size of fifty-four thousand two-story houses or sixty-seven billion peas. Its spillway could carry the combined flow of all the rivers of Europe, and erecting it was a Bunyanesque task: eighteen thousand men carved the roads north through the tundra and poured the concrete. (Photos show the cooks stirring spaghetti sauce with canoe paddles.) On the one hand, this is a perfect example of “environmentally sound” energy generation; it produces an enormous amount of power without giving off so much as a whiff of any greenhouse gas. This is the sort of structure we’ll be clamoring to build as the warming progresses.

*But environmentally sound is not the same as natural.* The dams have altered an area larger than Switzerland—the flow of the Caniapiscou River, for instance, has been partly reversed to provide more water for the turbines. In September 1984, at least ten thousand caribou drowned trying to cross the river during their annual migration. They were crossing at their usual spot, but the river was not its usual size; it was so swollen that many of the animals were swept forty-five miles downstream. Every good argument—the argument that fossil fuels cause the

greenhouse effect; the argument that in a drier, hotter world we'll need more water; the argument that as our margin of security dwindles we must act to restore it—will lead us to more La Grande projects, more dams on the Colorado, more “management.” Every argument—that the warmer weather and increased ultraviolet is killing plants and causing cancer; that the new weather is causing food shortages—will have us looking to genetic engineering for salvation. And with each such step we will move farther from nature.



At the same time—and this is the second kicker—the only real counterargument, the argument for an independent, eternal, ever-sweet nature, will grow ever fainter and harder to make. Why? Because nature, independent nature, is already ending. Fighting for it is like fighting for an independent Latvia except that it's harder, since the end of nature may be permanent. Take out Glen Canyon dam and let the Colorado run free, let the “inevitable floods” wash away the debris? But floods may be a thing of the past on the Colorado; the river may, in effect, be dammed at the source—in the clouds that no longer dump their freight on its upper reaches, and in the heat that evaporates the water that does fall.

If nature were about to end, we might muster endless energy to stave it off; but if nature has already ended, what are we fighting for? Before any redwoods had been cloned or genetically improved, one could understand clearly what the fight against such tinkering was about. It was about the idea that a redwood was somehow sacred, that its fundamental identity should remain beyond our control. But once that barrier has been broken, what is the fight about then? It's not like opposing nuclear reactors or toxic waste dumps, each one of which poses new risks to new areas. This damage is to an idea, the idea of nature, and all the ideas that descend from it. It is not cumulative. Wendell Berry once argued that without a “fascination” with the wonder of the natural world “the energy needed for its preservation will never be developed”—that “there must be a mystique of the rain if we are ever to restore the purity of the rainfall.” This makes sense when the problem is transitory—sulfur from a smokestack drifting over the Adirondacks. But how can there be a mystique of the rain now that every drop—even the drops that fall as snow on the Arctic, even the drops that fall deep in the remaining forest primeval—bears the permanent stamp of man? Having lost its separateness, it loses its special power. Instead of being a category like God—something beyond our control—it is now a category like the defense budget or the minimum wage, a problem we must work out. This in itself changes its meaning completely, and changes our reaction to it.

A few weeks ago, on the hill behind my house, I almost kicked the biggest rabbit I had ever seen. She had nearly finished turning white for the winter, and we stood there watching each other for a pleasant while, two creatures linked by curiosity. What will it mean to come across a rabbit in the woods once genetically engineered “rabbits” are widespread? Why would we have any more reverence or affection for such a rabbit than we would for a Coke bottle?

The end of nature probably also makes us reluctant to attach ourselves to its remnants, for the same reason that we usually don't choose friends from among the terminally ill. I love the mountain outside my back door—the stream that runs along its flank, and the smaller stream that slides down a quarter-mile mossy chute, and the place where the slope flattens into an open plain of birch and oak. But I know that some part of me resists getting to know it better—for fear, weak-kneed as it sounds, of getting hurt. If I knew as well as a forester what sick trees looked like, I fear I would see them everywhere. I find now that I like the woods best in winter, when it is harder to tell what might be dying. The winter woods might be perfectly healthy come spring, just as the sick friend, when she's sleeping peacefully, might wake up without the wheeze in her lungs.

Writing on a different subject, the bonds between men and women, Allan Bloom describes the difficulty of maintaining a committed relationship in an age when divorce—the end of that relationship—is so widely accepted: “The possibility of separation is already the fact of separation, inasmuch as people today must plan to be whole and self-sufficient and cannot risk interdependence.” Instead of working to strengthen our attachments, our energies “are exhausted in preparation for independence.” How much more so if that possible separation is definite, if that hurt and confusion is certain. I love winter best now, but I try not to love it too much, for fear of the January perhaps not so distant when the snow will fall as warm rain. There is no future in loving nature.

And there may not even be much past. Though Thoreau's writings grew in value and importance the closer we drew to the end of nature, the time fast approaches when he will be inexplicable, his notions less sensible to future men than the cave paintings are to us. Thoreau writes, on his climb up Katahdin, that the mountain “was vast, Titanic, and such as man never inhabits. Some part of the beholder, even some vital part, seems to escape through the loose grating of his ribs. . . . Nature has got him at a disadvantage, caught him alone, and pilfers him of some of his divine faculty. She does not smile on him as in the plains. She seems to say sternly, why came ye here before your time? This ground is not prepared for you.” This sentiment describes perfectly the last stage of the relationship of man to nature—though we had subdued her in the low places, the peaks, the poles, the jungles still rang with her pure message. But what sense will this passage make in the years to come, when Katahdin, the “cloud factory,” is ringed by clouds of man's own making? When the massive pines that ring its base have been genetically improved for straightness of trunk and “proper branch drop,” or, more likely, have sprung from the cones of genetically improved trees that began a few miles and a few generations distant on some timber plantation? When the moose that ambles by is part of a herd whose rancher is committed to the enlightened, Gaian notion that “conservation and profit go hand in hand”?

Thoreau describes an afternoon of fishing at the mouth of Murch Brook, a dozen miles from the summit of Katahdin. Speckled trout “swallowed the bait as fast as we could throw in; and the finest specimens . . . that I have ever seen, the largest one weighing three pounds, were heaved upon the shore.” He stood there

to catch them as “they fell in a perfect shower” around him. “While yet alive, before their tints had faded, they glistened like the fairest flowers, the product of primitive rivers; and he could hardly trust his senses, as he stood over them, that these jewels should have swam away in that Aboljacknagesic water for so long, some many dark ages—these bright fluviatile flowers, seen of Indians only, made beautiful, the Lord only knows why, to swim there!” But through biotechnology we have already synthesized growth hormone for trout. Soon pulling them from the water will mean no more than pulling cars from an assembly line. We won’t have to wonder why the Lord made them beautiful and put them there; we will have created them to increase protein supplies or fish-farm profits. If we want to make them pretty, we may. Soon Thoreau will make no sense. And when that happens, the end of nature—which began with our alteration of the atmosphere, and continued with the responses to our precarious situation of the “planetary managers” and the “genetic engineers”—will be final. The loss of memory will be the eternal loss of meaning.



In the end, I understand perfectly well that defiance may mean prosperity and a sort of security—that more dams will help the people of Phoenix, and that genetic engineering will help the sick, and that there is so much progress that can still be made against human misery. And I have no great desire to limit my way of life. If I thought we could put off the decision, foist it on our grandchildren, I’d be willing. As it is, I have no plans to live in a cave, or even an unheated cabin. If it took ten thousand years to get where we are, it will take a few generations to climb back down. But this could be the epoch when people decide at least to go no farther down the path we’ve been following—when we make not only the necessary technological adjustments to preserve the world from overheating but also the necessary mental adjustments to ensure that we’ll never again put our good ahead of everything else’s. This is the path I choose, for it offers at least a shred of hope for a living, eternal, meaningful world.

The reasons for my choice are as numerous as the trees on the hill outside my window, but they crystallized in my mind when I read a passage from one of the brave optimists of our managed future. “The existential philosophers—particularly Sartre—used to lament that man lacked an essential purpose,” writes Walter Truett Anderson. “We find now that the human predicament is not quite so devoid of inherent purpose after all. To be caretakers of a planet, custodians of all its life forms and shapers of its (and our own) future is certainly purpose enough.” This intended rallying cry depresses me more deeply than I can say. That is our destiny? To be “caretakers” of a managed world, “custodians” of all life? For that job security we will trade the mystery of the natural world, the pungent mystery of our own lives and of a world bursting with exuberant creation? Much better, Sartre’s neutral purposelessness. But much better than that, another vision, of man actually living up to his potential.



As birds have flight, our special gift is reason. Part of that reason drives the intelligence that allows us, say, to figure out and master DNA, or to build big power plants. But our reason could also keep us from following blindly the biological imperatives toward endless growth in numbers and territory. Our reason allows us to conceive of our species as a species, and to recognize the danger that our growth poses to it, and to feel something for the other species we threaten. Should we so choose, we could exercise our reason to do what no other animal can do: we could limit ourselves voluntarily, *choose* to remain God's creatures instead of making ourselves gods. What a towering achievement that would be, so much more impressive than the largest dam (beavers can build dams) because so much harder. Such restraint—not genetic engineering or planetary management—is the real challenge, the hard thing. Of course we can splice genes. But can we *not* splice genes?

The momentum behind our impulse to control nature may be too strong to stop. But the likelihood of defeat is not an excuse to avoid trying. In one sense it's an aesthetic choice we face, much like Thoreau's, though what is at stake is less the shape of our lives than the very practical question of the lives of all the other species and the creation they together constitute. But it is, of course, for our benefit, too. Jeffers wrote, "Integrity is wholeness, the greatest beauty is / organic wholeness of life and things, the divine beauty of the universe. Love that, not man / Apart from that, or else you will share man's pitiful confusions, or drown in despair when his days darken." The day has come when we choose between that wholeness and man in it or man apart, between that old clarity or new darkness.

The strongest reason for choosing man apart is, as I have said, the idea that nature has ended. And I think it has. But I cannot stand the clanging finality of the argument I've made, any more than people have ever been able to stand the clanging finality of their own deaths. So I hope against hope. Though not in our time, and not in the time of our children, or their children, if we now, *today*, limited our numbers and our desires and our ambitions, perhaps nature could someday resume its independent working. Perhaps the temperature could someday adjust itself to its own setting, and the rain fall of its own accord.

Time, as I said at the start of this essay, is elusive, odd. Perhaps the ten thousand years of our encroaching, defiant civilization, an eternity to us and a yawn to the rocks around us, could give way to ten thousand years of humble civilization when we choose to pay more for the benefits of nature, when we rebuild the sense of wonder and sanctity that could protect the natural world. At the end of that span we would still be so young, and perhaps ready to revel in the timelessness that surrounds us. I said, much earlier, that one of the possible meanings of the end of nature is that God is dead. But another, if there was or is any such thing as God, is that he has granted us free will and now looks on, with great concern and love, to see how we exercise it: to see if we take the chance offered by this crisis to bow down and humble ourselves, or if we compound original sin with terminal sin.





And if what I fear indeed happens? If the next twenty years sees us pump ever more gas into the sky, and if it sees us take irrevocable steps into the genetically engineered future, what solace then? The only ones in need of consolation will be those of us who were born in the transitional decades, too early to adapt completely to a brave new ethos.

I've never paid more than the usual attention to the night sky, perhaps because I grew up around cities, on suburban blocks lined with streetlights. But last August, on a warm Thursday afternoon, my wife and I hauled sleeping bags high into the mountains and laid them out on a rocky summit and waited for night to fall and the annual Perseid meteor shower to begin. After midnight, it finally started in earnest—every minute, every thirty seconds, another spear of light shot across some corner of the sky, so fast that unless you were looking right at it you had only the sense of a flash. Our bed was literally rock-hard, and when, toward dawn, an unforecast rain soaked our tentless clearing, it was cold—but the night was glorious, and I've since gotten a telescope. When, in *Paradise Lost*, Adam asks about the movements of the heavens, Raphael refuses to answer. "Let it speak," he says, "the Maker's high magnificence, who built / so spacious, and his line stretcht out so far; / That man may know he dwells not in his own; / An edifice too large for him to fill, / Lodg'd in a small partition, and the rest / Ordain'd for uses to his Lord best known." We may be creating microscopic nature; we may have altered the middle nature all around us; but this vast nature above our atmosphere still holds mystery and wonder. The occasional satellite does blip across, but it is almost a self-parody. Someday, man may figure out a method of conquering the stars, but at least for now when we look into the night sky, it is as Burroughs<sup>1</sup> said: "We do not see ourselves reflected there—we are swept away from ourselves, and impressed with our own insignificance."

As I lay on the mountaintop that August night I tried to pick out the few constellations I could identify—Orion's Belt, the Dippers. The ancients, surrounded by wild and even hostile nature, took comfort in seeing the familiar above them—spoons and swords and nets. But we will need to train ourselves not to see those patterns. The comfort we need is inhuman.

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### Exploring the Text

1. At the beginning of the first section, Bill McKibben confesses that he is pessimistic. How does such a remark affect your reading of the selection?
2. He says in paragraph 5 that there are two reasons for pessimism. What are they? Paraphrase each. Do you agree? Explain why or why not.
3. What does McKibben mean by "the second death of nature" (para. 7)?

<sup>1</sup>John Burroughs (1837–1921), American naturalist and nature writer. — Eds.

4. What is significant about the quotation marks around such words and phrases as “multi-purpose resource” (para. 10), “environmentally sound” (para. 11), “management” (para. 12), “conservation and profit go hand in hand” (para. 18), and “planetary managers” and “genetic engineers” (para. 19)?
5. In paragraph 12, McKibben delineates where “[e]very good argument” will lead us. Do you think each of the arguments that McKibben presents is “good,” as he states? Do you think that the public at large would agree? Explain why or why not.
6. What is the nature of the argument McKibben advances in paragraph 14? Explain it according to the Toulmin model (see Chapter 3).
7. Identify the analogies McKibben develops in paragraphs 16 and 17. How effectively do they contribute to his position?
8. Do you think that the choice McKibben discusses in paragraph 22 is a likely one for humanity to take? Why or why not? Does McKibben think it likely? Explain.
9. McKibben confesses that perhaps there is room for hope if we take action now, casting *today* in italics (para. 24) in 1989. He then writes, “And if what I fear indeed happens? If the next twenty years sees us pump ever more gas into the sky, and if it sees us take irrevocable steps into the genetically engineered future, what solace then?” (para. 26). We now know what those twenty years (and more) have seen. Do you think that we can still “hope against hope,” as McKibben puts it? Explain.
10. What is the “brave new ethos” (para. 26) that McKibben suggests has arrived?
11. Why is our environmental problem unique when compared to the threats posed by the human cruelty associated with slavery or atomic warfare? Do you agree with McKibben that nature has ended? Why or why not?