

## ARE WE STEALING THE EARTH FROM GOD?

My beloved father, who for most of his life was an Elder in a fundamentalist church, would say that my message this morning is not really pulpit stuff because it does not use a parable or a beatitude or even the conventional terminology of the church. My response would be that I can hardly imagine a message more important for every human being on earth, and especially for those Christians and Jews who try to shape their lives by the great ideas expressed in the Bible. One of those ideas is found in a verse from the 24th Psalm, a verse which justifies my sermon and explains my title, and which I ask you now to hear carefully: “The world and all that is in it belong to the Lord” (TEV). Or, if you prefer an older version (KJV): “The earth is the Lord’s, and the fullness thereof.” If I understand language at all, those words are unequivocal. The Biblical view of planet Earth and its marvelous diversity and abundance is that it belongs to God. My argument today is that if you really do believe that idea, and the Scripture I just read which expresses it, then we are stealing from God in ways unprecedented in the history of the world.

I had not realized the extent of our thievery until I read recently a book called *The Diversity of Life*, written by Edward Wilson who is a distinguished professor of science and a curator in entomology of the Museum of Comparative Zoology at Harvard. His strong opinions about what we are doing to the environment are given a solid base by his prestige as winner of the National Medal of Science and a similar award from the Royal Swedish Academy of Science. *The New York Review of Books*, in a front-page article, describes Prof. Wilson as “a man of prodigious erudition,” an opinion you are likely to share if you read his book. I am not surprised that the *Boston Globe* describes it as “the most important scientific book of the year.” What surprises me is that it became a best-seller, which must mean that many readers did a little judicious skipping, because while the early chapters and the final section of the book are fascinating, it’s hard to imagine a large audience for the tough middle part on genetic drift, adaptive radiation, ecosystems, and the intricacies of evolutionary development. I would be willing to bet that a certain talk show host who dismisses people like Prof. Wilson as “environmental wackos” has not read this book, and I confess that in moments of unholy joy I have imagined a scenario in which that talk show host has to confront Mr. Wilson in a nationally televised debate. My sermon title came to mind, as I read the book, because without question Mr. Wilson would say that if this world does, indeed, belong to God, we are stealing it, destroying it, putting it at tragic risk, in ways unparalleled in the history of human life.

He tells how the species on planet Earth became so incredibly diverse, and why the threat to that diversity today is beyond the scope of anything we have known before. Five enormous extinctions have struck this planet over the past 400 million years, each requiring 20 to 100 million years of evolutionary repair to come back to normalcy. That time scale should give pause to people who say glibly that whatever we destroy, nature will restore. Some things, of course, it never would restore, and those it did would reappear in a time

scheme so enormous it has no meaning for us. The 6th great spasm of extinction, of the disappearance of species, is occurring now — caused this time almost entirely by humans.

Deeply concerned about what we may lose by the indiscriminate burning of tropical rain forests, Wilson tells of a 10-year experiment with a square patch of forest left standing in the midst of an area all around it which had been logged and burned. Early on, army ant colonies disappeared because there was not enough space to maintain their worker force. Along with them went five species of ant birds that make their living by following the ant swarms and feeding on insects driven forward by that march. Certain pollinating bees were hard hit, and Saki monkeys which eat fruit dropped out of the plot. Larger ground-dwelling animals simply walked away in a desperate need to find survival somewhere else. By late in the experiment, with wild pigs gone, there were no wallows in which tiny forest pools could form, and without the pools, three species of frogs failed to breed and disappeared. As mammal and bird populations declined, dung and carrion became scarcer, so that scarab beetles that feed on those materials diminished in numbers of species and individuals. Ants, birds, bees, beetles — who could possibly care if they disappear? Much of the power in Dr. Wilson's book is that he has a surprising answer.

Species are disappearing at an almost incomprehensible rate, but we are barely aware of that because most of them are out of our normal sight. If large mammals like bears or wolves are threatened, we hear about it, but not the small life forms in isolated places. The Brazilian parrot called the Spix macaw is the most endangered bird in the world, and one of the most beautiful: totally blue, darkest on top, with a greenish tinge on the belly and a black mask around lemon-yellow eyes. It was so prized by rare-bird fanciers that in the middle 1980's they were paying up to \$40,000 for a single bird. By 1987, four were known in the wild, and by late 1990 only a single male. The last one seen was desperate to breed, investigating nesting holes and showing all the signs of the breeding behavior driven by the instinct to survive.

It is our own success as a species that has brought on the crisis. Human beings have become 100 times more numerous than any other land animals of comparable size in the history of life, and we are ecologically abnormal: our species appropriates between 20 and 40% of the solar energy captured in organic form by land plants. There is no way we can draw on the resources of the planet to that degree without drastically reducing the survival chance of most other species. Everybody has read about the spotted-owl controversy and heard the angry remarks of loggers who say how silly it is to lose jobs over a handful of birds, but overlooked in the noise, Dr. Wilson reminds us, is the fate of an entire habitat: the old-growth coniferous forest, with thousands of other species of plants, animals and micro-organisms, the great majority of which are still unstudied and unclassified and may hold unguessable benefits for human life. Present in that forest is the western yew, the source of taxol, recently found to be one of the most potent anti-cancer substances ever discovered.

But is it really all that important, or do we only have some devoted naturalist here who has an obsession of no vital concern to the rest of us? For an answer, let's go back to the

tropical rainforests for a moment. During the 1980s deforestation soared to tragic proportions in the Brazilian Amazon, reducing those forests, with the richest and most numerous life forms on earth, to half their prehistoric size. People there now recognize three seasons: the dry, the wet, and the burnings. Armies of small farmers, peons employed by land barons, set fires to clear the land of chain-sawed trees and brush. One journalist described it this way: "At night, roaring and red, the forest looks to be at war." Put it this way: In 1989 the surviving rainforests occupied an area about the size of the contiguous 48 states of the U.S., and they were being reduced by an amount equivalent to the size of Florida every year. Wilson gives what he considers a conservative estimate of the number of species doomed each year: 27,000 – most of them seldom if ever seen by most of us — organisms, mostly. Bacteria. Microscopic creatures. But 74 species disappearing every day. Three every hour. 27,000 life forms vanished and not likely ever to appear again. And the question you have to be asking is, So what? We care about the stars among the species, the charming pandas and the giant redwoods, but a beetle, a flower, an almost invisible organism? So we smile at Mr. Wilson and say, "Keep calm. Life will go on."

And it will, after a fashion, but the professor, in the most exciting part of this splendid piece of research, tells us what we may be losing. The rosy periwinkle of Madagascar, for example, produces two alkaloids that cure most victims of two of the deadly cancers: Hodgkin's disease, mostly afflicting young people, and acute lymphocytic leukemia, which used to be a virtual death sentence for children. What if that plant had vanished before we discovered the blessing it held? What others disappear each day, forever, with benefits we have not yet had time to find? And if this all sounds too romantic for you, consider a hard and verifiable fact that might excite the most realistic capitalist: the income from the manufacture and sale of the two substances I just mentioned exceeds 180 million dollars a year.

Organisms, it turns out, happen to be superb chemists, having learned through millions of years. The leech has an anti-coagulant in its saliva which medical research has isolated and used to treat hemorrhoids, rheumatism, thrombosis, and contusions. Another substance, from the saliva of the vampire bat of Central and South America, is being developed to prevent heart attacks. It is said to open clogged arteries twice as fast as standard pharmaceutical remedies, with the advantage of restricting its activity to the specific area of the clot. Wilson gives a page-and-a-half list of pharmaceuticals derived from plants and fungi. These are a few of them: caffeine, camphor, codeine, digitoxin, L-dopa, morphine, penicillin, quinine, scopolamine, strychnine — the list is amazing. You read it, and suddenly the obliteration of species and habitat is hard to dismiss by a casual, "So what?"

A species of maize, a wild relative of corn, was discovered in the '70s by a Mexican college student near Guadalajara. It turns out to be remarkably resistant to disease, and unique among living forms of maize in possessing perennial growth. Its genes, if transferred into domestic corn, could boost domestic production around the world by billions of dollars. It was found just in time, however. Occupying no more than 25 acres of

mountain land, it was only a week away from extinction by machete and fire. Dr. Wilson is pragmatic enough to know that we are more likely to respond to economic considerations than to any others, so along with still undiscovered medical benefits he pitches the enormous cash potential of undeveloped fruits and vegetables being destroyed in the great forests. His best hope is that people desperate for a better life, or driven simply by greed, may see economic benefits greater than logging. He mentions a winged bean of New Guinea, rich in protein, and a soil fertilizer as well, and says that with a small amount of genetic improvement through selective breeding, it could raise the living standard of millions in the poorest tropical countries. But we need time, and on page after page one senses this great scientist's desperate fear that there will not be enough.

The poorest countries ruin their natural resources, wiping out their biodiversity in a scramble to meet foreign debts and raise their standard of living. The rich debt-holding nations aggravate the practice by encouraging a free market in poor nations while they provide subsidies to farmers at home. Wilson describes the infamous "hamburger connection" between the U.S. and Central America. By 1983, to exploit the great US market for beef, Costa Rican landowners created new pastures until only 17% of the country's original forest cover was left. For a while it was the world's leading exporter of beef to the U.S. But tastes changed, the market fell, and Costa Rica is now left with great scars of denuded landscapes and widespread soil erosion, and with part of its biological diversity gone forever.

Nothing complicates the problem more than that raging monster, overpopulation. We are projected to have three times as many humans on this planet by the middle of the 21st century, all wanting land, food, houses—all-consuming as no other life form in the history of the planet has ever consumed. If Bangladesh had 10 million instead of 115 million, its poor people could live on good farms away from dangerous floodplains in a natural and stable upland environment. But religious creeds have the power to ignore the awesome tragedy caused by overpopulation and to insist that birth control is against the will of God. If they are right, then God must be oblivious to the suffering caused around the world by there being too many of us — a tragedy getting worse every time the clock ticks.

Wilson is no woolly-headed dreamer. He knows that people are not likely to care about the wholesale destruction of life's rich diversity unless they can be convinced that they may be depriving themselves of potentially enormous benefits. Example: most coffee plantations in Brazil came from a single tree that originated in East Africa. In 1970 a deadly coffee rust appeared. It turned out that wild varieties of coffee still grow in Ethiopia, not yet destroyed, and in those varieties genes resistant to coffee rust were found and bred into the Brazilian and Central American crops just in time to save the industry. Example: the Merck laboratories, in a joint effort with Costa Rica, is marketing drugs from soil organisms. One of them, from a fungus, is Mevacor, an agent for lowering cholesterol levels. In 1990 Merck sold \$735 million worth of this substance alone. Example: a quarter of all prescriptions dispensed in the U.S. are substances extracted from plants. Another 13% from micro-organisms. But these are a tiny fraction of what may be out there. Fewer

than 3% of flowering plants have been examined for alkaloids: the periwinkle I mentioned earlier was found by merest chance. The neem tree of tropical Asia, virtually unknown in the developed world, has been called the “village pharmacy” because of its use for so many ailments by villagers. Scientists are beginning to think it may have remarkable benefits for us. How many other beneficent but still unknown species exist at this moment in imminent danger of final extinction by our destruction of bio-diversity? A rare beetle sitting on an orchid in a remote valley of the Andes may secrete a substance that cures pancreatic cancer. If you read at all, you know that 20% of the world’s freshwater fish are extinct or in grave danger, and that rich fishing grounds in the oceans have been so depleted by our indiscriminate harvesting that thousands of lifelong fishermen have gone out of business.

For many, it will be the weakest argument in favor of saving the diversity of life, but think of the emotional cost as we systematically destroy the living things of earth. We backpack, hunt, fish, birdwatch, grow flower gardens because we hunger to be in touch with nature. In the U.S. and Canada, more people visit zoos and aquariums than attend professional athletic events combined. They crowd national parks to see natural landscapes, watching for tumbling water and animals living free. Wilson calls it biophilia, the connections we subconsciously seek with the rest of life. How do you like imagining cities and suburbs from coast to coast, around the world? Where would you go to restore the spirit?

If I have caused you to forget it for a moment, this is a church. I stand in a pulpit. So the final question has to be: Would the Lord we honor in this room have cared about such things. I am absolutely convinced that the answer is Yes. You would expect the man who said that his Father’s concern embraced the fall of a single sparrow would care that from the 1940s to the 1980s, the population densities of migratory songbirds in the mid-Atlantic US dropped 50% and that many became totally extinct. Not because we went about shooting them, but because forests are being destroyed in the West Indies, in Mexico, and in Central and South America which are their principal wintering grounds. We are often simply unaware of the ripple effects on life of what we do in some remote other place. I think the man concerned about the prodigal son would care about our prodigal waste of the richness of his Father’s world. We need an ethic to save it. So leave, I beg you, with the text sounding in your ears: “The world, and all that is in it, belong to the Lord.” We need to be much more careful with it!

In the dark and desolate vastness of space, Eternal God, this blue and white planet of water and meadows and snowcapped hills is so beautiful to those who have seen it from space that it has left them breathless. We know now, better than ever, how fragile it is. Wake us up to be guardians and stewards of its rich beauty before we make it sterile. Amen

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