



*Solutions* for an  
Environment  
in  
*Peril*

EDITED BY ANTHONY B. WOLBARST

Environment

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Mounting evidence points to the dangers of climate change, the depletion of clean fresh water and rich topsoil, the transformation of vast tracts of forest into wastelands, and the eradication of countless thousands of species of animals and plants. These and other adverse processes are occurring throughout the world, at an ever-accelerating pace.

*Solutions for an Environment in Peril* collects the wisdom of some of the most influential men and women who are working both to reverse this global trend and to encourage others to help. In original essays—based on seminars they gave at the Environmental Protection Agency—these environmental leaders and thinkers assess the most important environmental problems and propose solutions for the future.

### Contributors

Kathryn Fuller • Senator Gaylord Nelson • Garrett Hardin • Ben Wattenberg  
William Ruckelshaus • David Brower • Jon Rousch • William H. Meadows • Ted Turner  
Thomas Lovejoy • Amory Lovins • Fred Smith • Jerry D. Mahlman • Senator Max Baucus  
Vincent Covello • Peter Sandman • Jane Goodall

"Anthony B. Wolbarst has gathered some of the most important environmental thinkers of our time. This provocative collection of essays contains timely expressions about the current state of the environment as well as ideas about how to address environmental issues."

—Frederick Steiner, Arizona State University, author of *The Living Landscape* and *Soil Conservation in the United States*

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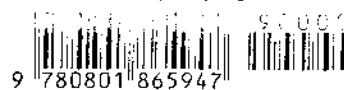
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ENVIRONMENTALISM

*Protecting the Environment via  
Private Property*

FRED L. SMITH, JR. There is an alternative to the traditional approach to environmentalism that must initially strike many

readers as foreign, paradoxical, or counterintuitive—the idea that the environment is protected best if it is protected privately. And yet that approach continues to draw serious attention, and it has demonstrated some significant successes.

I worked at the EPA in the 1970s, and many of the issues being debated then—pollution prevention, recycling, emission permits, hazardous waste management, pollution taxes—are still of great concern to the agency. But while many of the questions have remained the same, the answers to which I now subscribe are very different. When I was at the EPA, I was a strong environmentalist. I still am today. At that time, however, I had a deeper faith in the efficacy of government than I do now. That broad philosophical turn has influenced my thinking on environmental issues also.

My personal odyssey from True Believer to Skeptic is not unique. In Eastern Europe, Southern Africa, Central America, Russia, and even in the District of Columbia, people are questioning in field after field whether politics is the most appropriate means of advancing the public interest. Throughout the world, there is increasing reliance on the private sector and a greater tolerance for individual freedom, action, and responsibility. Moreover, the mood of the intellectual community has also changed; policy analysts are far more likely to consider the pros and cons of private versus political approaches. Whether such trends will continue is unclear, but at least for the moment, politics is in decline; individual voluntary arrangements are in ascendancy. This essay describes how these reforms might be extended into the environmental arena.

Garrett Hardin's 1968 article in *Science*, "The Tragedy of the Commons," serves as a useful template for examining many environmental problems. Hardin demonstrated that where there is open access to a commonly held resource, incentives for responsible stewardship will be

weak and the quality of the environmental resource will deteriorate. Hardin illustrated this principle with an example of a common grazing pasture. As long as grazing on the common pasture remains below carrying capacity, each herdsman may add another cow without negatively affecting the grazing of the other cows. Once carrying capacity is exceeded, however, every herdsman who adds another cow will realize a private gain but impose a social cost—the reduced grazing quality of the pasture—on the other herdsman. It is in the common interest of all herdsman to limit the number of cattle, but it is in the individual interest of each to graze as many cows as possible; whatever forage a herdsman leaves behind will not be conserved but will be exploited by neighbors "use it or lose it" attitude toward pasture management, under which each herdsman rushes to stock the pasture with his cattle before others do. The result is the tragedy of the commons, a rapid deterioration of the pasture. The tragedy is the inevitable outcome of uncoordinated, self-interested parties operating in an open access regime.

To Hardin, the tragedy of the commons could be resolved either politically or privately. The first approach requires that one establish a political agency with the authority to devise and enforce the rules necessary for wise range management. The private alternative requires that the rangelands be privatized, that the pasture be divided into plots, with a plot decided to each herdsman, and the rights then enforced through various mechanisms—fences, branding, legal recourse for trespass.

Despite Hardin's balanced treatment, few environmentalists are aware of how large a role private property constraints already play in environmental protection. Fewer still are aware of how this private environmental stewardship role might be expanded. In fact, many speakers in this series might view things quite differently. John Kenneth Galbraith, for example, noted that in America, our private homes are often beautiful but our public parks are frequently filthy. But, from that astute observation, Galbraith drew the conclusion not that we should privatize the public parks but that we should expand the power and scope of the public sector.

Barry Commoner argued that collective ownership of the public sector, production was vital. To Commoner, who still seems to believe that socialism is the wave of the future, this meant that environmentalists had best start using what he called the "s-word." Only socialism, he argued, could adequately protect the environment. Commoner went on to emphasize pollution prevention. Cleanups, he argued, was a waste of time. I can only wonder how Commoner deals with dirty dishes and underwear.

Jacques Cousteau presented the case for the Holy Trinity of modern environmental policy: stronger environmental regulations, an expanded environmental education program, and green consumerism. Paul Ehrlich tackled the problem of population, arguing that there were too many people in the world, and he spoke approvingly of China's stringent approach to family planning. Lester Brown thought that the environment was going down the tubes and that something should be done about it. He also was the first, I believe, in this series to bring up the now widespread concern over global warming.

While these individuals addressed a range of environmental issues, they shared a common vision. That vision is very powerful and dominates environmental policy today. Essentially, the view is that America's traditional institutional arrangements—limited government, individual liberty, free markets, reliance on private property—are inadequate for today's complex and vulnerable world. Pollution, they believe, is a natural result of individual self-interest operating in an insufficiently regulated marketplace. To them, and I would imagine to many others, free-market environmentalism seems an oxymoron.

One can argue, however, that the kinds of reform that are in ascendance in much of Eastern Europe will eventually reach even the EPA. My confidence is based on the fact that the correlation between economic freedom and ecological quality is just too strong to be ignored. For as almost everybody now realizes, Barry Commoner was wrong about the ecological superiority of socialism. Socialism not only fails economically; it also fails environmentally. Indeed, ever since the iron curtain came down, we have discovered that the former Soviet Empire's environmental problems in many ways are even more disastrous than its economic problems. Eastern European nations use far more energy and raw materials to produce steel, use more fuel in transporting goods around the country, use more pesticides and fertilizers to produce wheat. Why is that? Socialist countries were supposed to be operating for the good of all. The reason, I think, is clear. Waste, in a socialist economy, is a collective cost, and the incentives to reduce it are therefore minimal. Waste, in a capitalist economy, affects managers and owners directly; thus, the incentives to control wastes are more concentrated. Indeed, if Eastern Europe were to do nothing more than to reach our level of efficiency in use of raw materials and energy, their pollution problems would decline sharply.

Eastern Europe does not have a monopoly on environmental problems arising from political overreach. Within the United States, more

politicized sectors are characteristically less mindful of environmental values. When the private sector harvests timber, it seeks to minimize the number of felled trees; failure to do so leads to unsustainable production and to long-term losses. In contrast, the U.S. Forest Service routinely diverts large sums of taxpayer dollars to subsidize harvesting throughout the Rockies, Alaska, the southern Appalachians, and the upper Midwest that is not viable economically. Clearly, a free-market economy will build some dams and canals, but nothing the Corps of Engineers has constructed in the last forty years would survive any market tests that I know of. Capitalists do invest in third world projects, but only when they think they can turn a profit. Only the World Bank could think that the highways slicing through remote areas of Amazonian forests were an attractive investment.

Capitalism demands efficiency, and efficiency is an important environmental strategy. Wherever in the world we have had freer markets, we have also had a better managed ecology. Wherever we have had more political control, we have experienced greater ecological problems. To free-market environmentalists, the conclusion is clear: those who favor ecological protection (and I assume we all do) should seek to expand the role of private stewardship arrangements to those resources that have historically been denied its protection. We believe that those who take environmental values seriously should seek to transfer the world's wildlife, forest and grazing lands, streams and lakes, beaches and shore areas, even air sheds, to private groups who would be better able to assume stewardship responsibility for them.

Such a free-market environmental agenda represents a radical departure from current policy. And the idea is novel, or more accurately, it represents a novel application of a very old idea: individual responsibility. Minimally, the idea deserves far more consideration here at the EPA than it has received to date.

In developing the logic of that claim, I organize my remarks into four sections. First, I move from the abstract to the concrete in an examination of the plight of the African elephant, an issue that provides a good way of characterizing the two poles of environmental policy—the private and the political. The second section elaborates on these competing visions, contrasting the "market failure" rationale on which the case for political regulation is based with the "failure to allow markets" rationale underlying free-market environmentalism. The third argues the case for reform, noting the inherent problems of the traditional political approach to environmental protection. The final section outlines areas

where a property-rights approach seems immediately applicable and suggests necessary work to explore the concept more adequately. Let me begin by presenting the paradigm as paradigm and suggest why elephants need private property protection.

Most of us have heard much about the plight of the African elephant. Newspapers and television screens have been filled with disturbing pictures of the piled-up carcasses of these noble beasts. The typical explanation accompanying these images is that human greed, market forces, and unchecked selfishness are to blame. Americans, Japanese, Europeans, use ivory for trivial purposes: cufflinks, earrings, billiard balls, piano keys. As the West grows wealthier, such demands increase. Since affluence-driven demand increases ivory prices, there is increasing pressure to harvest these animals. The higher prices encourage poaching, in particular, which is very difficult to police, especially in the poor nations of Africa. Mindless consumerism thereby threatens the future existence of this species, at least in the wild.

The solution, it would seem, is obvious. Markets created the problem, so eliminate the markets and the threat to the elephants will disappear. And indeed, the United States and other nations have backed such a ban on the ivory trade through the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

But might not there be something wrong with the notion that high prices are a threat to anything? Economists, at least, view the world somewhat differently. When the price of a commodity goes up, more people will seek to profit from supplying it. This is true when one is dealing with haircuts, cars, or education. There is, however, one crucial difference with elephants — namely, poaching.

In the Wild West days of America, we also had a problem with poaching — we called it cattle rustling. In the mid-nineteenth century, Americans, flush with new wealth, developed an appetite for meat. That demand, coupled with improved transportation, made the meat trade very profitable. It also made poaching more lucrative. Poaching was largely restricted to the Great Plains, a region containing large cattle herds and relatively few policemen. That situation is similar to what Africa faces today: To combat rustling we could have banned the beef trade west of the Mississippi, as we have in the case of elephants. We could have taken this path, but of course we did not. Why not?

In America, we understood that what made rustling attractive also made ranching more attractive. Increased demand was more than offset by increased supply — which, in turn, stimulated more creative and ef-

fective anti-rustling efforts. As cattle ranchers gained revenue, they responded to the poaching threat by taking care to protect their cattle herds. They built more fences; they hired more cowboys and equipped them with superior weaponry and horses. More important, this dynamic not only encouraged ranchers to think more carefully about conserving their resources; it also encouraged the participation of people who had no direct concern for the welfare of cows. The demand for superior methods of protecting cattle was increasing, and the profits to be made by meeting that demand grew commensurably. Elaborate branding techniques and eventually barbed wire emerged in response to the increased demand for cattle protection. The end result was that while rustling was certainly widespread in the American West, it never became a serious problem. In America, private cattle herds flourished. There was nothing magic about this development — cattle were protected because there were incentives to do so. Had the cattle trade been outside the legal economy, had there been no private ownership, this outcome would have been far more problematic.

Consider, by contrast, the case of the American buffalo. Unlike cattle, the buffalo was not owned; it was the common heritage of humankind. As a result, the American buffalo was hunted into near extinction. The moral is clear: high prices, when the resource is owned, pose little threat to the survival of the resource. Increased values may encourage poaching, but they also encourage anti-poaching efforts, and the restoration of the balance typically moves in one direction. Private ownership links resources into a rich system of interactions that not only benefits us economically but also helps to protect our resources. Not surprisingly, the Competitive Enterprise Institute (CEI) and other free-market groups have concluded that elephants are far more likely to survive in Africa if they are treated more like cattle and less like buffalo.

Unfortunately, in most of Africa, this is not happening. Elephants remain essentially wards of the state. Richard Leakey of Kenya, the great hope of American environmentalists, has long been a champion of this policy and has been showered with praise throughout the world. But some of you may have seen the article that appeared in the *Washington Post* on October 1, 1989, "Save an Elephant — Buy Ivory." Randy Simmons and Zimbabwean wildlife game specialist Urs P. Kreuter undertook a comparative analysis of private and political approaches to protecting elephants. In eastern central Africa and in Kenya, in particular, government protects elephants. In those countries, elephant populations are plummeting, having dropped from about 800,000 a decade ago to

400,000 today. In contrast, Zimbabwean elephant populations have increased at about 5 percent a year over the last decade. Zimbabwe changed its wildlife law in a conscious decision to ensure that the elephant is worth more to the African farmer alive than dead. This has been very successful; unprecedented numbers of Africans have contributed to the preservation of elephants as a result.

Elephants are dying in Africa because they are being poached. They are being poached because the local people do not object to poaching. Consider that if the elephant has no value to the local people, it becomes a kind of giant rat. People get upset when the neighbor's dog runs in their backyard. Can you imagine how upset you would be if your neighbor's elephant broke into your yard? When elephants have only negative value, the poacher is a hero. In contrast, when the elephants can be harvested and create local wealth, poachers are not as tolerated as they once were in these areas. Robin Hood, who was, after all, a poacher, loses his popularity when he shoots the livestock of the poor rather than taking from the rich on crown reserves. Marshall Murpree, an official in the Zimbabwean Conservation and Parks Department, recently noted how even the language of the people has changed under this decentralized institutional arrangement. Locals used to talk about how our elephants are causing us a problem; now they talk about how our elephants have to be protected. Officials like Murpree now advise owners on the numbers of elephants they might cull, and the local tribesmen sometimes reject them for being too high. Locals act in a more conservative strategy than even the national government considers necessary.

Despite all of this, the United States Department of the Interior, yielding to the lobbying pressures of traditional environmental groups, continues to support the ban. Environmental groups have profited handsomely from the deaths of poached elephants, as they have used the emotional response to the images of poached elephants to generate funds and advance antitrust policies. If this ban is sustained, Zimbabwe and the other countries that were exploring novel conservation-through-use approaches to wildlife protection will find their tasks far more difficult. The result of continued bans will be a lose-lose situation. Africans will be unable to capture the economic value of the elephant deaths, and elephant populations will drop precipitously. Yet, it appears impossible to challenge the policy. Apparently, some environmentalists would prefer that elephants disappear under political management than flourish under private ownership.

An even broader objection to the idea of ownership exists — one based

on the grounds that it would seem to require that we domesticate nature, subjecting the flora and fauna of our planet to human control. We need to look at that from a slightly different perspective. The late Kenneth Boulding, perhaps the first ecological economist, once noted the fact that man is by far the most successful species this planet has yet produced. From that observation, he concluded that any species — any plant or animal — that does not *in some sense* become domesticated is doomed. Boulding was not, of course, limiting domestication to a plant placed in the backyard garden or an animal kept in a cage, but rather to the broader idea that humankind would have to relate to that species, to become a conscious steward. For Boulding, Noah's Ark is being played out in the modern world — only those species that Noah consciously elects to save are saved.

In a world of extensive environmental property rights, many resources would be protected by their owners. In such a world, elephants would be privately owned and the owners would decide how they were to be used, if at all. In the poorer areas of the world, such as Africa, economics is likely to be the dominant motive. There, elephants will be preserved if — and only if — they are worth more alive than dead. In wealthier nations, however, species may well be preserved because people like ourselves will care about their preservation, rather than because we expect to profit from that conservation. As the world becomes wealthier, such intrinsic valuations of nature are likely to become more important. The motivation will be less economic in nature than an aspect of humankind's collector instinct.

In any event, the role of private ownership is essential. Private property links humankind and nature and creates many reasons for us to care about the things we own. Consider that when the United States was discovered, there were on this continent two billion passenger pigeons and no chickens. Now there are two billion chickens and no passenger pigeons. The owned species survived; the species that was common property became extinct. Property rights worked for chickens. But property rights have also worked for goldfish and parakeets and colts and the thousands of pets and domesticated species that we own because we care about nature, not for economic purposes.

As we become wealthier, it becomes ever more possible for this intrinsic valuation process to protect an ever-expanding fraction of the world's resources. In the free-market environmental world, ownership of all wildlife would become feasible. Some people will own elephants just as people now own cats and dogs. In fact, this is not as strange as it sounds.

Former senator Lloyd Bentzen's brother is raising black rhinos in Texas right now. Black rhinos are an endangered species. Because this individual has both wealth and influence, he was able to obtain a breeding stock of this endangered species. He now possesses a captive breeding stock of rhinos that provide an insurance policy against their becoming extinct in Africa.

The image of dying elephants leads into a critical question: Do markets "fail," or have we "failed" to allow markets to operate? The elephant situation suggests that the idea of private property may serve an important ecological purpose. Moreover, it crystallizes competing visions of environmental protection. The dominant vision sees environmental problems as resulting from greed and capitalism run amok. The arguments are familiar — corporations cause pollution; capitalism causes cancer; only political action can possibly preserve environmental quality. The other approach — today a neglected alternative — argues that it is the very lack of private stewardship institutions (specifically, private property and the legal defenses necessary to give it meaning) that threatens the environment. Free-market environmentalists suggest we integrate (via an expansive policy of ecological privatization) into the market a broad array of environmental resources now largely defenseless.

Perhaps the greatest obstacle for the wide acceptance of private property approaches to environmental protection is the perception that "markets fail." Market opponents have long advanced such criticisms whenever a specific market failed to respond exactly (or as quickly) as we had hoped. In such cases, the critics have seen the case for political action as obvious — after all, the market had "failed." To the late Nobel Laureate George Stigler, this approach was akin to a singing contest in which the first singer delivers her performance — after which the judges carefully note her timbre, her diction with high notes and breathing control, and without any further ado, award the prize to the second singer. Before accepting market "failures" as *prima facie* justification of political intervention, we must compare the performance of political approaches. Certainly, it is unrealistic to compare real markets with theoretical ideals. Political institutions have their own "failures." A comparative institutional analysis — case by case, environmental problem by environmental problem — would find far fewer cases where political intervention was the "obvious" choice.

There are good reasons why free-market environmentalists are skeptical of the dominant political intervention approach to environmental protection. Everyone wants a world that is both free and clean. Most

people are concerned with both the house of humankind (the "economy") and the house of nature (the "ecology"). Our challenge is to find ways to integrate our growing emphasis on ecological values with our more established economic values. That integration must take account of the fact that many people in the world remain far poorer than we in the West. Free-market environmentalists suggest that ecological central planning is no more likely to advance ecological values than economic central planning was to advance economic values. Yet we fear that the dominance of the market failure model is taking us very far down that dead-end path.

Take the implication of the approach. The market failure model says that markets, while beneficial, nevertheless fail, and therefore political solutions for "externality" failures like pollution are essential. Of course, the logic requires that only those economic activities that have environmental consequences must be regulated. Unfortunately, it turns out that all economic activities have some environmental consequences; thus, we quickly find ourselves committed to regulating the entire world. That, of course is impossible, so we compromise by regulating certain sectors and pollutants. The resulting priorities inevitably exclude important concerns, which creates tensions and suspicions which can only be addressed by expanding the scope and severity of regulation.

Consider this example from Irish history. For a period of time, land tenure in Ireland was restricted to nine-year leases. The nine-year lease had a very predictable pattern. For the first three years, the leaseholder would busily repair the damages done by the prior possessor. For the next three years, the holder would manage the property thoughtfully. For the last three years, he would exploit the property because any further investments would only benefit the next leaseholder.

Institutional arrangements create incentives that affect the time horizon. Permanent, transferable property rights create powerful incentives to consider the future impact of current actions. Under a stable private property rights regime, even if one is eighty or ninety years old, one can still sell that property or leave it to one's children. Thus, one still considers the question of how present actions affect future values. The ability to transfer ownership encourages even the shortsighted and the elderly to consider such trade-offs.

The literature on the problems of economic central planning and its difficulties is extensive and persuasive. Central planning fails because a central authority cannot amass the knowledge needed to set priorities — do we want more wheat or more pump-nickel bread? Do we want less

nitrogen oxide or less sulfur dioxide? We have sought to address this problem by creating an array of specialized environmental laws that champion the reduction of specific pollutants or the protection of specific environmental amenities. Yet, such agencies have no way of engaging in meaningful trade-offs when their actions cause (to some degree) environmental harms elsewhere, as they inevitably do. The result is an inconsistent and highly variable control program with no ready logical defense.

In brief, the case against central planning is the impossibility of mobilizing, in any timely sense, the dispersed information that is essential to the smooth functioning of a modern society. Absent such information, there is no way to design the incentives essential to coordinate individual actions. The empirical case against central planning is readily available from the experiences of Russia, Eastern Europe, and the third world.

That knowledge was hard-won. When I began my training as an economist, there was a prevailing view that America faced a difficult choice. We could retain our decentralized free enterprise system and suffer an inevitable loss of economic growth. Or, we could follow the lead of the planned economies, trade in our outmoded freedoms, and reap massive gains in efficiency and wealth. Efficiency and freedom were, it appeared, mutually exclusive. The Soviet Union, Eastern Europe, and even the planned economies in the third world were slated to be the wave of the future. For many years, World Bank statistics and leading economic texts (including that of Paul Samuelson) reported that this was actually occurring. It did not, of course. The central planning of socialism proved incapable of mobilizing the energies and the genius of a dispersed and diverse population. Similarly, the most heavily planned central economies — those of Eastern Europe and the Soviet Union — fell far short of the United States in advancing ecological goals.

The point, of course, is that in the last century — the century in which environmental values became salient — America came to view resource management as a political, not a private, issue. Private ownership of resources — as a way of advancing the public interest in environmental and other resource management areas — was and has continued to be neglected. Rather than allowing newly valued or discovered resources to pass quickly into private hands via homesteading and privatization, the tendency has been to manage such resources collectively via political rules and regulations. Resources that came into public prominence prior to the Progressive Era (around the onset of the twentieth century) remained largely in private hands; newer resources came under state con-

trol. Thus, underground oil reserves are largely in private hands, while underground water supplies (aquifers) are typically managed politically. Ronald Coase, the Nobel Prize economist, discussed this tendency in his work on the use of the electromagnetic spectrum for radio broadcasting, a resource that first became economically valuable in the early part of the twentieth century. Initially, the resource was privately homesteaded by early broadcasters, but Progressive Era politicians viewed this as a mistake and moved to nationalize the spectrum and place it under the newly formed Federal Communications Commission. Today, steps are underway to reexplore the privatization option. I would argue that a similar reappraisal of the role of private stewardship is overdue in an array of environmental areas.

The fatal flaw of the centrally planned economy is lack of knowledge, a problem that is becoming more pronounced in environmental policy. In today's sophisticated economy, EPA policies are too crude to address effectively the full array of environmental problems. The first wave of EPA programs consisted of hasty responses to massive discharges of a small number of air, water, and ground pollutants from a limited number of point sources. Even such crude interventions could achieve some results, although some data indicate that America was enjoying environmental improvements through local ordinances and fuel switching far before the EPA was created (as suggested by the work of Indur Gokhary, an economist at the Department of the Interior, included in CEI's publication *True State of the Planet* and again in our just published *Earth Report 2000*). In any event, the EPA now seeks to control minimal discharges of a vast array of residuals from hundreds and thousands of minor sources in dispersed locations. The knowledge, enforcement, monitoring, and coordination problems arising from this complexity make it clear that we need to find more creative ways of addressing environmental problems.

Another problem with technocratic governance is the lack of stability. Today, the environmental movement is a dominant political force, and few dare to challenge the EPA's decisions. But politics is fickle; today's hero may be tomorrow's villain. Consider the "energy crisis" of the Carter administration. Jimmy Carter, by all accounts, was a green president. But when the energy crisis arose, Carter shifted emphasis, seeing energy self-sufficiency as paramount. His administration moved to accelerate the approval of energy production facilities, to reduce environmental restrictions, to increase funding for a wide array of alternative energy technologies (the Synfuels Corporation), and to increase access to public



lands for energy exploration purposes. All this from an environmentally sensitive leader!

Environmentalists should be cautious. A political consensus is always fragile and often ephemeral. Today's polls indicate that people will pay any price for any trivial amount of cleanup, but recent political history is replete with the wrecked careers of politicians who were assured by polls that they were shoo-ins. To pin one's hopes on something as fickle as polls is dangerous, especially when those same surveys show that few people rank environmental issues as among the most significant.

Moreover, most environmentalists seem to believe that environmental priorities can be determined objectively and carried out effectively by the EPA. That is naive. The EPA is a political agency, and its priorities are determined politically: professional input has little weight in this process. Indeed, that was the conclusion of a 1987 EPA internal study entitled "Unfinished business," which compared environmental priorities as assessed by EPA professionals with what was actually realized in the budget and staff allocations that programs received. The study asked a simple question: If environmental policy professionals were given total discretion, where would resources likely be allocated? They then examined where resources were actually committed. As a first approximation, the two priority rankings were almost inversely correlated. Those programs that were politically salient and had received considerable media attention received the most resources, despite the fact that EPA professionals considered them less urgent. In politics, perceived reality dominates; the sensational trumps the serious. This problem means that shifting political emphasis, as was the case with the Carter administration, and sensationalized media coverage have a profound influence on EPA policy. The agency is, to some extent, at the mercy of its interest groups.

A system that plays political favorites will not view all pollution equally. Pollution by politically powerful groups will be discounted because of those groups' political clout. Enforcers will target those polluters already viewed as villains and will be more lenient toward groups perceived as virtuous. When a super tanker releases millions of gallons of crude, going after the oil company is fine; it makes us feel good. It is easy and it attracts favorable headlines, but it fails to recognize that most river pollution comes from municipalities and farms, not from industrial cleanup facilities. Why? The obvious answer is that it is much easier to haul an industrialist into court than it is to haul in a city mayor. (Coming after mayors who face many problems and who enjoy much public sym-

pathy may make the EPA look like a bully and does nothing for the hero image sought by crusading attorneys. Common-law remedies that allowed downstream interests to enjoin pollution by any party may well prove a far more effective strategy for protecting water quality than this errant political process.

Current law, moreover, makes the EPA the tall guy no matter what happens. The agency is always set up to look feeble and stupid. Congress passes regulatory laws filled with wonderful statements: zero pollution, 100 percent cleanup, eliminate all waste in America. These are often written in the spirit of utopian idealism and typically are unsuitable for practical implementation. Yet they become laws, and sooner or later they are not met. When they are not met, what happens? According to Michael Greve: "The EPA's inevitable failure to meet statutory goals and deadlines strengthens the environmental movement's ability to sustain its momentum. It is very easy for the public to understand the environmentalist point. Once again, the government has failed to keep its promise. It is much harder for the other side to explain that the government cannot possibly have kept those particular promises even under the most favorable of circumstances; and the assertion that failure was built in just doesn't even register as credible." The consequence of such failures is not policy reform but the assignment of even more stringent standards to the EPA: more draconian timetables and penalties, the extension of old untenable standards, and further reduction of its operating flexibility, lest it repeat the same mistakes.

One last point—while our EPA is not responsible for the global environment, the global environment does concern us greatly. And here the tragedy of America's sole reliance on political means of environmental protection is perhaps more explicit. We have adopted an environmental policy that does not export very well. Our approach, for better or worse, has required that we spend hundreds of billions of dollars over the last three decades and that we mobilize large numbers of highly skilled technocrats, engineers, and scientists in industry and government agencies, federal and state EPAs. We are fortunate in that the bureaucracies charged with administering the rules are relatively honest—not a characteristic often attributed to third world bureaucracies. Since the rules that the EPA produces are largely the result of interest group politics, and since industry can be expected to play an aggressive role in seeking to hold down costs, the current strategy also requires that a countervailing force (an independent public interest environmental movement) be in position to aggressively police EPA conduct and policy.

The wisdom of applying this policy domestically is questionable, and it clearly could not work in most of the third world. Third world countries do not have hundreds of billions of dollars to spend on anything, much less the environment. They do not have a surplus of highly trained technical people. And the dangers of requiring civil servants in the third world to resist the financial temptations involved in pollution control should be considered very carefully. Given the scarcity of resources and the lack of civil liberties in many of these countries, the likelihood that an aggressive independent force will prove effective at disciplining governmental actions in these nations is even more fanciful. Thus, those concerned about protecting all of "Spaceship Earth," rather than just its first-class cabins, must find more creative ways of addressing environmental issues. Fortunately, there is an effective alternative — free-market environmentalism based on private property rights.

The EPA has two distinct missions: environmental risk management and environmental property management. First, it is responsible for addressing a wide array of environmental risk issues — the regulation of technologies, processes, plants, waste disposal, biotechnology, all of those kinds of questions. The broad market approach in these areas involves thoughtful principles of legal defense against prospective harm and an institutional setting in which the risks of regulation are compared with the risks that the regulation supposedly reduces. That issue is important, but I will focus here on the EPA's second role, that of environmental property manager, and how that role might better be handled by private property arrangements.

Consider, for example, what should be done about resources in sensitive environmental areas, such as oil in the Arctic National Wildlife Refuge (ANWR). The debate over the ANWR is representative of a typical development issue in environmental politics. It also illustrates well the tendency in such political areas to exaggerate one's case. Here, energy developers have argued that failure to develop the ANWR endangers national security and will impose massive costs on the American economy. But environmentalists are equally guilty of hyperbole, arguing that carbon herds will perish if even one additional well intrudes into this massive area. In such political "debates," both parties argue the most extreme position that appears plausible. That reflects the zero-sum nature of politics. Neither side gains anything by recognizing any legitimacy in its opponent's claims. The resulting stalemate often goes on forever, while the ecological and economic values involved remain at risk.

The free-market environmentalist views such a stalemate as stemming from the lack of property rights. Were the resource owned by some party — be it Exxon or the Wilderness Society — there would be far stronger incentives for compromise. Indeed, free-market environmentalists have long argued that we would get more oil from Alaska if the lands in question were owned by the Wilderness Society — and that they would do a better job of protecting the ecological values there than would the Interior Department.

An excellent example of how private property better reconciles environmental and economic values is that of the Rainey Wildlife Refuge. This 28,600-acre bird sanctuary, owned by the National Audubon Society, is in the extensive wetlands of coastal Louisiana, located above a natural gas and oil field. Interestingly, oil companies approached the Audubon Society, declaring their interest in drilling on their refuge. The society rejected the proposal at first but then elected to permit drilling under careful guidelines so as to minimize environmental impact. Both parties were able to reconcile an economic and an environmental goal, because as private property owners they had every incentive to do so. If the Audubon Society had taken the purist path, they would have forgone the royalty payments of a producing hydrocarbon field, and thus been less able to address their many other concerns. Had the oil company ignored environmental values, they would not have gained the right to drill.

There are numerous stories demonstrating ecological sensitivity where companies, power companies in particular, cultivate buffer zones around their plants. Often these buffer zones are used for environmental purposes. Utilities need the buffer zones for safety reasons or as wetlands for thermal cooling operations, but they gain goodwill by managing them for ecological purposes. Again, this illustrates the linkage between economic activities and the environmental concerns of others — something that a decentralized institutional structure facilitates. Environmentalists do not have to care anything about economics to become better economists; market-oriented groups need not worry about the environment in becoming better environmentalists. The need to reach voluntary agreements encourages each side to understand better the values of the other; to consider seriously values that are not their own.

Private ownership, moreover, decentralizes decision-making. Many different choices will be made in similar circumstances. This fosters experimentation. Some people will arrive at solutions that would not occur to most of us; some will take decisions that would be rejected by the

majority. In a world of private property, unpopular values can be protected. In the political world, a resource will only be protected if it garners sufficient support, generally a majority of the population.

A good example of the ability of private property to protect minority values is Hawk Mountain, in Pennsylvania. Raptors (birds of prey, including hawks, falcons, eagles, and owls) were not well regarded in America early in the twentieth century; they were viewed as vermin. The Audubon Society, the premier conservation group of the time, had little interest in protecting hawks. Their plate was already filled with the demanding task of protecting songbirds, birds of plumage, and game birds. Nobody, it appeared, was willing to stand up for hawks — except for one individual, Rosalie Talcott, in New York City, who championed the birds of prey and deplored their slaughter. She lobbied the government, but at the time, the government, serving agricultural interests, was paying bounties to reduce hawk populations to “protect” game bird populations. Nor could she persuade the Audubon Society to broaden its horizons. She was, however, able to buy land. She and her friends bought a mountain ridge in Pennsylvania where hawks congregated on their southern migration. By buying that land, posting it, and fencing it, she and her few friends were able to reject the tastes of the majority and protect the birds. Now, of course, we all agree with her, but that is almost seventy years later.

Speaking of birds, a critic once asked me to consider this horrific scenario in my perfect property rights universe: Suppose that a wealthy individual elected to purchase a rare bird and then barbecue it. What would I say to that?

My reply was that the possibility does exist; anything is possible. But, we do not spend much time worrying about people buying van Goghs (or even the work of the local neighborhood artist) and then using them for dartboards. There may be people in the world who might buy resources to destroy them, but such people are rare and are unlikely to command any large fraction of the world's resources.

Under a private property regime mistakes will be made, but mistakes will also be made in a political world. The Glen Canyon Dam was not a private sector decision; the roads cutting through the Amazon rain forest were not privately financed. Again, mistakes are going to be made in the private sector; they are going to be made in the political sector. The question is, which institutional arrangements reduce the likelihood and seriousness of such mistakes? In which institutional setting are errors most likely to be discovered and corrected? Arguably, the wide variety of

choices made in the private sector result in much more learning, much greater ability to do better over time.

A British fishing club, The Pride of Derby, demonstrates how property rights can prevent stream pollution. In England, clubs own the right to fish along some rivers and are thus sensitive to pollution concerns. When the Pride of Derby's salmon populations began to decline because of upstream pollution, the angling club brought a suit against the primary polluter, who happened to be a municipality. The municipal government argued that its interests outweighed those of the club; the club prevailed, and the court ordered an injunction.

If we could transfer such fishing rights to more groves around the world, especially in the third world, the fishermen in these regions would be equipped with a relatively inexpensive self-regulating mechanism to protect their rivers and lakes. Our view is that the ocean reefs in the South Pacific, the Indian mountaintops, river valleys in the Amazon, whales, elephants — all will benefit if we can find ways of engaging private individuals to protect resources today rather than trying to persuade the government to take action in some distant tomorrow.

Or consider the EPA's efforts to protect groundwater. Many groundwater studies find that it is being rapidly and seriously depleted and contaminated. What to do about it? Typically, the answer is a form of national land-use planning. Well, do we really want Washington, D.C., or even the fifty state capitols, to plan the use of every plot of land in the United States? Both state and national land-use planning would encounter the central economic planning problems discussed earlier — before we rush to endorse that approach, we should explore ways in which the resource might be owned and managed privately.

To see how this might be done, consider how the oil industry manages its underground liquid resource pools of oil. Oil is managed through a process called unitization. Oil pools are typically located under the surface of multiple plots of land; as a consequence, many different individuals can hold a property stake in a single deposit. This is the case with many natural resources; the difference with oil is that individual extraction from the pool imposes externalities on all other oil field owners. The externalities are threefold. First, individual extraction siphons from the entire pool, not just that which lies directly beneath the surface of the individual's property. Second, each oil field owner has every incentive to pump as fast as possible because if you do not, your neighbor surely will. This encourages premature and ultimately wasteful extraction. Third, because pumping costs are directly proportional to pool pressure, any

decrease in pressure (the natural result of pumping) increases the cost of extraction.

The oil industry addressed this problem through unitization. Unitization consists in the multiple owners of the fill forming a "unit," a form of cooperative management agreement to which the individual property rights are transferred. The individual owners are then reimbursed according to the contractual terms bringing them into the unit. The unit manager then decides which wells will be operational, which will be closed down, and which will be used to flood the field with water to increase extraction levels. By overcoming the coordination problems, the unit manager acts as a conservator of the resource. Unitization reduces the incentives for waste and premature extraction and fosters a more conservative method of resource use. Is it possible that this kind of idea could be applied to aquifers? No one knows, because no one has yet looked at this issue very deeply.

How do you handle large lakes, rivers, and oceans? Property rights solutions in these areas are not apparent; there are no well-developed models to address these problem areas. One avenue, however, is to note that one does not need to own a whole resource to protect it. After all, pollution occurs somewhere before it occurs everywhere. What type of resource protection might be provided the Chesapeake Bay, for example? There are limited applications of property rights in the Chesapeake. Virginia has ownership rights in oyster beds, as does Washington State. Oyster bed owners might act like the fishing clubs in England, becoming sensitive to early indications of pollution. We are a long way from the English paradigm, because only parts of those resources are currently owned, and only certain parts are available for appropriation. However, some promising case studies of how such limited property rights schemes might be extended even here have been highlighted by the Center for Private Conservation.

A number of new technologies that reduce the costs of monitoring and policing such areas have emerged in recent years. The use of branding technologies like sonar and satellite tracking invite the possibility of whale ownership; autonomous underwater vehicles enable the herding of fish schools; and the development of artificial reefs and aquaculture permits fishermen to "fence" in their resources.

My conclusion from all of this is that the environmental values that motivated the creation of the LIPA are important, but the agency and its supporters have, to date, been uncreative about addressing them. The

predominant view in environmental policy today is, if it isn't political, it isn't real. Regulations and other coercive measures are viewed as the only way to protect our environment.

But free-market strategies should become a part of the toolchest of any serious environmentalist. How else can we escape the current dilemma in which the environment is everyone's problem, in which we continue to charter fecklessly about the need to preserve humankind's common heritage? Protecting our common heritage does not result in effective action and does not tap very much into our available daily energies.

One story that epitomizes the problems of the socialist solution emerged from the Soviet Union. If a cow owned by a collective farm gets sick, who stays up every night taking care of it? The answer, all too often, is no one. (This is to be contrasted, of course, with how people acted on the very small private plots that persisted under communism.) No one is going to take care of Spaceship Earth if we do not create incentives and institutions that will encourage people to do so. They could, and should, be employed far more widely than is currently the case.

Free-market ideas have done much to advance economic welfare around the world. Free market environmentalism might similarly free the entrepreneurial energies and creativity of the people of the world to advance ecological goals. It is time to explore that option further.