

NATURAL RESOURCES,  
THE ENVIRONMENT,  
AND HUMAN WELFARE

*Edited by*

**Ellen Frankel Paul, Fred D. Miller, Jr.,  
and Jeffrey Paul**



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## INTRODUCTION

Modern industrial societies have achieved a level of economic prosperity undreamed of in earlier times, but on the view of the contemporary environmental movement, this prosperity has come at the cost of serious degradations to the natural world. For environmental advocates, problems such as resource depletion, air and water pollution, global warming, and the loss of biodiversity represent dire threats to the well-being of human societies and the planet itself. But just how serious are these threats, and how should we go about confronting them? Do environmental problems call for more extensive governmental controls over industrial activity, energy policy, and the like, or is it possible to find solutions by harnessing the incentives of the free market?

The essays in this collection address these questions and explore related issues. Some of the essays examine how markets and property rights can be used to manage natural resources or regulate harmful emissions. Some look at the basic relationship between human beings and the natural world, asking whether human technology should be viewed as a part of nature or as something alien to it. Other essays address the current controversy over global warming, seeking to determine whether alleged anthropogenic changes in the Earth's climate justify extending governmental controls over industry, agriculture, and energy production, or whether economic freedom and innovation can help us to ameliorate and adapt to changes in climate, whether natural or man-made. Still other essays examine the role of government in preserving threatened or endangered species, or in regulating new technologies such as genetic engineering.

The collection opens with several essays that explore how property rights regimes and common law principles can be brought to bear to solve environmental problems. In "Liberty, Property, Environmentalism," Carol M. Rose begins with the observation that property and the environment are generally considered to be opposites. The environment is usually thought to consist of resources (such as the atmosphere and the oceans) that are unowned, and hence subject to the well-known tragedy of the commons. Historically, advocates of environmental protection have opposed treating natural resources as private property, relying instead on governmental measures that control and limit access to such resources. In recent years, however, systems of property rights have been employed for purposes of environmental protection, a development that appears to vindicate the view that property rights evolve along with the need for resource management. In particular, cap-and-trade programs have been proposed and implemented to control greenhouse gases that are thought

to contribute to global warming. Rose considers some of the limits of property regimes as solutions to environmental problems. Such regimes have a number of possible drawbacks: Potential participants in property regimes may not be able to come to an agreement regarding the appropriate system of rights for a given resource. If they do come to an agreement, the resulting property regimes may be weak or ineffective, or may be aimed at purposes inconsistent with environmental protection. Finally, methods for defining property may not work well for environmental resources such as water, air, or wildlife. Rose describes each of these problems in detail and discusses how they might apply in the case of cap-and-trade programs designed to limit emissions. She contends that property rights regimes, while imperfect, may offer substantial benefits in terms of environmental protection. The success of these regimes, she concludes, will depend upon the accountability and effectiveness of the governmental institutions put in place to support them.

In “Who Is the Invader? Alien Species, Property Rights, and the Police Power,” Mark Sagoff examines the conflict between property rights and environmental laws designed to control invasive species. Sagoff notes that governmental agencies such as the Centers for Disease Control in the United States have been effective at regulating the importation of species shown to be harmful to human health or agricultural interests. In recent years, however, environmental groups have urged governmental agencies to expand their regulatory efforts to non-native species that, in the judgment of these groups, pose a threat to native ecosystems. Sagoff argues that the occurrence of non-native species (e.g., weeds such as purple loosestrife or Japanese honeysuckle) on an individual’s property does not constitute a nuisance in the context of the common law. No one is injured by the presence of these species. He maintains that the control of non-native species does not constitute a compelling public interest; rather, it primarily represents the interests of conservation biologists and ecologists who hold that native ecosystems have an intrinsic value that is worth protecting. In the course of his essay, Sagoff describes a series of cases in agricultural law that established that government authorities may enter private property to destroy a tree or other species, but may do so only to protect a compelling public interest, such as the apple industry in Virginia or the citrus industry in Florida. Moreover, the government may do so only if it pays all the costs, including just compensation to the property owner. In light of this legal history, Sagoff argues that if government intrudes on private property in order to control non-native or invasive species, it must pay all the costs and indemnify the owner—contrary to what many state laws contemplate and environmental groups recommend.

The design of appropriate institutions to govern the use of natural resources is the subject of Andrew P. Morriss’s contribution to this volume. In “Politics and Property in Natural Resources,” Morriss observes

that contemporary discussions of natural resources tend to focus on increasing governmental control over industries that extract oil, minerals, and other resources from the environment. Advocates of more centralized control may have a number of objectives: they may wish to increase the public's share of the gains from natural resources via royalties and taxes; they may seek to regulate extractive activities to prevent environmental problems; or they may call for the outright expropriation of private investments. Morriss argues that such efforts at centralization are counterproductive, because the fundamental economic problem of natural resources is producing the knowledge necessary to locate and extract resource deposits. The public does indeed benefit when institutions enable the use of natural resources, but the benefit comes in the form of increased economic activity that results from the discovery of resources, rather than from royalties or expropriation. The key question in designing natural resource laws, Morriss suggests, has to do with their effects on the incentives to discover and manage resources. He goes on to argue that private property rights in natural resources are the best way to provide such incentives, and that property rights have the added benefit of reducing the levels of violent conflict that tend to arise when governments control access to resources. He concludes with a discussion of how best to deal with environmental problems related to resource extraction (e.g., pollution caused by mining operations), arguing that the combination of property rights and tort law principles (trespass and nuisance) can be used to effectively address these problems.

In "Two Theories of Environmental Regulation," John Hasnas challenges predominant attitudes toward the management of commonly held natural resources. According to the predominant view, the overexploitation of commonly held resources is an instance of market failure that calls for legislation to internalize the social costs that private activities impose on the environment. Hasnas argues that this analysis ignores the regulatory effect of the common law and is therefore unsound. The touchstone of contemporary debates on this issue is Garrett Hardin's classic 1968 essay, "The Tragedy of the Commons," which put forward three main points: (1) that resources held in common will be overexploited; (2) that this problem cannot be solved by appealing to the consciences of those exploiting the resource; and (3) that the only solution is to either privatize the resource or restrict access to it. The option of privatization, Hasnas maintains, has been largely overlooked by policymakers, who tend to favor restricting access to the commons through environmental legislation. Yet there is an alternative method of environmental regulation that relies on the evolutionary development of the common law as a means of privatizing the commons. Hasnas discusses the example of the sophisticated system of water rights that was developed through the common law in the United States in the nineteenth century, and he suggests that, over time, common law principles of nuisance and trespass could evolve

to deal with conflicts over air and water pollution and other environmental problems. He concludes that proper public policy analysis requires a comparative assessment of the efficacy of these two methods (legislation and the common law) for addressing any particular environmental issue. In many cases, and perhaps in most, such an assessment will show common law regulation to be superior to environmental legislation.

Environmental problems such as pollution are commonly understood in terms of “negative externalities,” that is, costs imposed on others but not taken into account by the economic agents who generate these costs. In “The End of the Externality Revolution,” A. H. Barnett and Bruce Yandle examine the concept of externalities and gauge its usefulness in understanding environmental issues. They show how the concept was developed in the early part of the twentieth century in the work of economic theorists like A. C. Pigou and Alfred Marshall, and how it was challenged in the 1960s and 1970s by James M. Buchanan, Ronald Coase, and other scholars. In terms of public policy, externalities like air and water pollution were taken to be instances of market failure that called for government intervention to ensure that those who benefited from economic activity were not able to pass the costs of their activity onto others. Yet Barnett and Yandle argue that economists who employed the theory of externalities often overlooked the importance of evolved legal and other institutions that formally and informally establish property and liability rules—rules that cause decision-makers to face the costs of their actions, including what otherwise could be external costs imposed on unwilling third parties. Moreover, economists were quick to recognize the imperfections of markets, but slow to acknowledge the flaws of political institutions, which were subject to the deleterious influence of special interest politics. It took public choice theorists such as Buchanan to show how the prospects of government failure might be more daunting than the failure of markets. In the course of their essay, Barnett and Yandle discuss how the failure to specify private property rights leads to the overuse of commonly held natural resources, and how the lack of clearly defined ownership limits the ability of interested parties to bargain or bring suit in order to resolve conflicts related to externalities. They conclude that the concept of externalities may be useful in limited circumstances, but that in most cases, negative externalities can persist only if governments prevent markets from working.

The collection continues with two essays that explore the relationship between human beings and the natural environment. In “Freedom and Dependency in an Environmental Age,” Andrew Dobson begins with a discussion of human nature, maintaining that human beings are both autonomous (i.e., capable of choosing our own ends and prescribing our own moral principles) and heteronomous (i.e., dependent for our survival on the natural world and on the communities in which we live). This view of human nature, Dobson suggests, calls for a reconsideration of the

nature of freedom. Modern liberalism tends to regard human beings as standing apart from nature; human freedom, on this view, allows us to choose our own ends rather than blindly pursuing ends that nature prescribes for us. The modern environmental movement, in contrast, sees human beings as dependent creatures embedded in a natural world of limited resources. To what extent, Dobson asks, is liberalism at odds with environmentalism? He describes four points at which the two views are likely to come into conflict. The first concerns personal liberty, where environmental concerns lead to calls for restrictions on consumption and mobility (e.g., limits on air travel, which contributes to greenhouse gas emissions that are thought to drive climate change). The second concerns autonomy: here, liberals regard their felt preferences as accurate indicators of their genuine interests and disapprove of governmental interference with individual preferences, whereas environmentalists seek to change individual attitudes and behavior. The third point of conflict concerns arguments over the “good life”: the question here has to do with whether environmentalism constrains our conceptions of the good life, or whether it is compatible with liberal pluralism concerning the nature of the good life. Finally, there is conflict over the ends and means of political association: liberalism is primarily concerned with establishing political procedures that allow individuals to live in harmony (whatever their individual ends), rather than trying to achieve particular objectives; but environmentalism seeks a particular objective, namely, bringing about sustainable ways of living. Dobson offers a detailed discussion of the historical context of the conflict between liberalism and environmentalism, and he concludes that we need to take our nature as partially dependent creatures seriously as we seek ways of negotiating our way through our environmental problems.

In “The Call of Nature,” Charles T. Rubin contends that environmental thinking generally vacillates between two conceptions of our relationship to nature: one conception assumes that human beings are simply a part of nature; the other assumes that what is natural is defined by what humans have not interfered with. The former view can lead us to a dangerous complacency about the impact of our actions on the environment; for example, if human technology is simply part of the natural order, then nature seems to place no limits on its use. In contrast, the latter view can lead us to believe that anything humans may do will disrupt the natural order, a view which is readily compatible with predictions that the activities of modern technological societies, if left unchecked, might lead to disastrous consequences for the environment and for human life itself. In extreme cases, this latter view can lead some environmental advocates to believe that human extinction (or at least a radical reduction in human population) might be a way to protect the integrity of nature. As an alternative to these views, Rubin puts forward a conception of human nature that recognizes that we naturally possess speech and reason, which



puts us in a unique position to articulate a concern for nature and to allow that concern to inform both our personal decisions and our public policies. In the course of his discussion, Rubin contrasts his view with the position of “Deep Ecologists” (who advocate a return to primitive, non-technological ways of life that would have less impact on the natural world) and with that of “transhumanists” (who advocate the use of genetic technology to redesign and improve upon human biological nature). He concludes that those who are concerned about the continued well-being of both humanity and nature need to rethink their assumptions and develop a new understanding of the human place within nature—one that recognizes the unique human ability to value the natural world.

The collection’s remaining essays look at specific environmental issues, including climate change, endangered species, and the use of genetically modified foods. Michael E. Mann reviews the science underlying the theory of man-made climate change in his essay, “Do Global Warming and Climate Change Represent a Serious Threat to Our Welfare and Environment?” He maintains that human activity, including the burning of fossil fuels and other industrial, agricultural, and land-use practices, has led to an increase in average global temperatures, and that observed changes in surface temperatures, prevailing winds, and rainfall patterns are consistent with human-caused climate change. Mann goes on to discuss computer models that predict climate changes based on various assumptions about future human behavior. These models suggest that a policy of “business as usual” (that is, a continuation of the historical pattern of increasing fossil fuel use) will lead, over time, to continued warming of the Earth’s surface, significant melting of the polar ice caps, rising sea levels, and an increase in the intensity of tropical cyclones. Mann argues that the impact of these changes—on natural ecosystems, human health, agricultural productivity, and the availability of fresh water—are likely to be dire. He argues further that the greatest negative impacts are likely to be felt by the citizens of developing countries, which lack the technological resources to deal effectively with these changes. He concludes his essay with a survey of various approaches for confronting climate change, including efforts to reduce our energy demands, to adapt to environmental changes that occur, and to offset human impacts on climate through large-scale geoengineering projects (e.g., the use of “solar shields” to reflect sunlight away from the Earth). In the end, he suggests, we will need to develop alternative energy sources, make significant lifestyle changes, and create incentive structures that reward environmentally responsible behavior by individuals, businesses, and governments.

In “History, Politics, and Claims of Man-Made Global Warming,” John David Lewis challenges the legitimacy of claims about anthropogenic climate change—and the policies that have been proposed to deal with it. The central questions in the current global warming debate, he contends,

are (1) whether nonscientists should accept claims of an imminent climate catastrophe as true, and (2) whether they should support the political proposals that follow on these claims. In response to the first question, Lewis presents a range of evidence that casts doubt on the theory that global warming is driven by human activity. For example, the central premise of the theory is that increases in levels of carbon dioxide in the atmosphere (due to the burning of fossil fuels) lead to increases in global temperatures. Yet evidence from the Earth's climate history, based on "proxy data" derived from tree rings, ice cores, and other sources, shows no correlation between average temperatures and carbon dioxide levels. Moreover, Lewis shows that the alleged "scientific consensus" backing the theory of man-made global warming is a myth, since hundreds of prominent scientists have raised significant objections to the theory. In response to the second question, Lewis argues that the political proposals put forward to alleviate global warming offer no viable alternative to the burning of coal, oil, and other fossil fuels. Solar and wind energy cannot provide the uninterrupted power that a stable electric grid requires, and the use of biofuels is likely to actually increase, not reduce, greenhouse gas emissions in the long run. Given the crucial role that large-scale energy plays in advanced Western economies, proposals to radically cut back on the burning of fossil fuels portend a major economic decline, as well as large and permanent losses of liberty for both individuals and businesses. In the United States, for example, a recent Supreme Court ruling requiring the Environmental Protection Agency to regulate carbon dioxide as a pollutant could potentially lead to a vast expansion of the agency's power—over everything from vehicle emissions to local building permits to agricultural production (since all of these activities involve the emission of carbon dioxide). Lewis concludes that claims about anthropogenic global warming are largely motivated not by science, but by a desire for governmental intervention in economic matters on a national and a global scale—and that neither these claims nor the political proposals attached to them should be accepted.

J. R. Clark and Dwight R. Lee defend the view that free market policies offer the most promising approach for dealing with global warming and other environmental problems. In "Suppressing Liberty, Censoring Information, Wasting Resources, and Calling It Good for the Environment," Clark and Lee argue that environmental policies in the United States and elsewhere are flawed in that they seek to confront environmental problems directly with mandates, restrictions, and subsidies. These policies ignore the power of liberty and market incentives to solve problems by fostering an impressive network of information transfer, increasing innovation, and expanding prosperity. Indeed, most environmental policies systematically suppress liberty, censor the communication of information, and retard innovation and prosperity, with the result that they provide less environmental quality at greater cost than would be possible other-

wise. Clark and Lee discuss a number of examples of such policies, including the policy of imposing fuel economy standards on the producers of automobiles—standards that lead auto manufacturers to waste resources by producing vehicles that consumers don't value. While the authors acknowledge that government mandates might be justified to prevent some cases of environmental harm—for example, when pollution problems pose clear, serious, and immediate threats—they argue that this is not true of global warming, and that the most effective response to concerns over carbon emissions may be limiting the discretionary power of government to take direct action and relying on the indirect effects of liberty and market incentives to move us beyond the petroleum age more quickly and efficiently than we would in the absence of such incentives. Clark and Lee conclude that even though liberty and markets alone will not do a perfect job of addressing environmental concerns, they are likely to do a far better job (and at lower cost) than government policies that seek to protect the environment by restricting freedom.

Jonathan H. Adler takes a critical look at the free market approach to environmental policy in his contribution to this volume, "Taking Property Rights Seriously: The Case of Climate Change." He notes that free market environmentalism, the view endorsed by many conservative and libertarian policy analysts, is grounded in the recognition and protection of property rights in environmental resources. However, despite this normative commitment to property rights, most self-described free market environmentalists adopt a utilitarian, welfare-maximization approach to climate change policy: they typically argue that the costs of mitigation measures (e.g., restrictions on carbon emissions) would outweigh the costs of climate change itself. Yet Adler argues that even if anthropogenic climate change is less than catastrophic, human-induced climate change is likely to contribute to environmental changes that violate traditional conceptions of property rights. From a global point of view, the actions of some countries—primarily industrialized nations—are likely to increase environmental harms suffered by other countries—less-developed nations that have not (as of yet) made any significant contribution to climate change. Free market environmentalists sometimes assume that aggregate human welfare would be maximized in a warmer, wealthier world, or that the gains from climate change will offset environmental losses. But Adler believes that such claims, even if demonstrated, would not address the normative concern that the consequences of anthropogenic global warming would infringe upon the rights of people in less-developed nations. In order to remedy these rights infringements, it may be necessary to institute a system whereby industrial nations compensate less-developed nations for the harmful environmental impacts of climate change (e.g., flooding due to rising sea levels). This sort of approach, Adler concludes, would respect property rights and would be consistent with the principles of free market advocates.

The next two essays examine the treatment of endangered species under U.S. law. J. Baird Callicott and William Grove-Fanning discuss the history and implications of the 1973 Endangered Species Act (ESA) in their essay, “Should Endangered Species Have Standing? Toward Legal Rights for Listed Species.” The ESA, considered to be America’s strongest environmental law, includes a “citizen suit” provision that permits private citizens or groups to sue on behalf of a threatened or endangered species, and Callicott and Grove-Fanning argue that, in effect, the ESA grants implicit intrinsic value, *de facto* standing, and operational legal rights to endangered species. The authors examine a number of legal cases that have gone forward in federal courts in the name of various species, including *Palila v. Hawaii Department of Land and Natural Resources* (1979), brought on behalf of a species of Hawaiian honeycreeper birds, and *Cetacean Community v. Bush* (2004), brought on behalf of whales and dolphins injured by U.S. Navy sonar systems. In the latter case, however, the Ninth Circuit Court of Appeals ruled that animals could not sue in their own name, and Callicott and Grove-Fanning go on to discuss the implications of this decision, as well as other setbacks for those who advocate granting legal rights to endangered species. In the course of their essay, the authors discuss various challenges to the Endangered Species Act, including challenges by conservative critics who object to the provision of the ESA that forbids the destruction of the habitat of protected species; enforcement of this provision, these critics argue, amounts to a “regulatory taking” of private property without just compensation, thus violating the Fifth Amendment of the Constitution. Although this argument has not yet found traction in the courts, Callicott and Grove-Fanning suggest that the future of the ESA remains insecure, since a conservative judiciary may seek to weaken the protections that the act affords to endangered species.

The extent to which the ESA imposes limitations on what landowners may do with their property is the subject of N. Scott Arnold’s essay, “The Endangered Species Act, Regulatory Takings, and Public Goods.” When private land is designated as “critical habitat” for endangered species under the ESA, possibilities for economic development are closed off, and the land may lose much or all of its potential value. Arnold sets out to determine whether critical-habitat designations require the compensation of landowners for this lost value. He begins with a discussion of the broader issue of regulatory takings, reviewing a series of legal cases that established the principle that compensation may be due when governmental regulations have the effect of reducing the value of private property. Based on these cases, Arnold attempts to set out some general principles for determining when compensation is required. In broad terms, compensation is owed when the government physically occupies private land, when it prevents all economically viable use of the land, or when the landowner’s legitimate investment-backed expectations are signifi-

cantly disappointed. No compensation is due, however, when a governmental regulation has a narrow police-power rationale—that is, when it is designed to protect the health, safety, or morals of the public. Arnold goes on to argue that this set of principles is incomplete, and that a further principle of fairness is required. The goods provided by regulatory takings, he argues, are typically public goods, and fairness requires that compensation should be paid when those who benefit from a regulatory taking (i.e., members of the public) bear virtually no costs and those who bear the costs (i.e., property owners) receive hardly any benefit. In the case of critical-habitat designations under the ESA, the benefit of the continued existence of threatened species of wildlife accrues to the general public, but the costs are borne by landowners, who are prevented from developing their property. Thus, Arnold concludes, landowners whose property is designated as critical habitat under the ESA should be entitled to compensation.

The collection's final essay—"Understanding the Precautionary Principle and Its Threat to Human Welfare" by H. Sterling Burnett—explores the so-called precautionary principle as it applies to technological innovations, such as the practice of genetically modifying food crops. In general terms, the principle states that when a new practice or technology brings with it the possibility of harm to human health or the environment, precautionary measures should be taken to prevent such harm—even if the scientific evidence concerning the harm is absent or uncertain. Burnett traces the history of the precautionary principle over the past several decades as it has become prominent in discussions of public policy, and he looks at how it has been incorporated in legislation in the United States and the European Union, and in international treaties. He goes on to argue, however, that the principle is fundamentally flawed and unsuitable as a basis for policymaking, for a number of reasons. It imposes an unreasonable burden of proof on advocates of new technologies, who are required to demonstrate that these technologies pose no possibility of harm. In focusing on the risks of innovation, it tends to ignore the risks associated with current practices and with natural products (e.g., naturally occurring chemicals and pesticides). Most significantly, proponents of the precautionary principle seem to assume that bans or regulations on new technologies will have no adverse health effects of their own. Yet, as Burnett points out, the use of genetically engineered crops in agriculture has the potential to increase yields dramatically, providing enormous benefits to the undernourished citizens of developing countries in Africa and elsewhere; this is a clear case where placing limits on technology could carry a profound cost in terms of human health. Thus, Burnett concludes that the precautionary principle should be rejected as a basis for public policy in favor of a more common-sense principle that would allow the restriction or regulation of technologies only after they have been demonstrated to cause harm.

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## INTRODUCTION

xv

Contemporary environmentalists often see governmental regulations, mandates, and subsidies as essential elements for solving environmental problems, while critics of this approach point to the virtues of economic freedom, property rights, and market incentives. The fourteen essays in this volume offer valuable contributions to ongoing debates over how best to deal with environmental issues.

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