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## Pollution and Property

*Comparing Ownership Institutions for Environmental Protection*

Environmental protection and resource conservation depend on the imposition of property rights (broadly defined) because in the absence of some property system – private, common, or public – resource degradation and depletion are inevitable. But there is no universal, first-best property regime for environmental protection in this second-best world.

Using case studies and examples taken from countries around the world, Professor Cole demonstrates that the choice of ownership institution is contingent upon institutional, technological, and ecological circumstances that determine the differential costs of instituting, implementing, and maintaining alternative regimes. Consequently, environmental protection is likely to be more effective and more efficient in a society that relies on multiple (and often mixed) property regimes.

The book concludes with an assessment of the important contemporary issue of “takings,” which arise when different property regimes collide.

DANIEL H. COLE is M. Dale Palmer Professor of Law at the Indiana University School of Law at Indianapolis, where he teaches and writes about the law and economics of property, natural resources and environmental protection. His publications include *Environmental Protection in Transition* (coedited with John Clark, 1998) and *Instituting Environmental Protection: from Red to Green in Poland* (1998), which received the prestigious AAASS/Orbis Polish Book Prize in 1999.

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For Marysia and Stefan

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## Preface

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The basic environmental problem is to prevent the overuse and abuse of “environmental goods,” including clean air, water, and wildlife, by controlling access and use. As control implies the assignment of private (individual or common) or public rights and duties with respect to otherwise open-access resources, this book posits that *all* approaches to environmental protection ultimately are property-based. On this view, even government regulation constitutes a property-based approach to environmental protection. Regulations impose private duties with respect to the use of environmental goods, and in doing so necessarily create concomitant public rights of enforcement. Consequently, the choice in environmental protection is not *whether* to take a property-based approach but *which* property-based approaches to use under various circumstances.

As to the latter question, there is no universal, first-best property-based solution to all environmental problems in all circumstances. This book assesses the utility of public, common, and private property-based approaches to environmental protection, and finds them all useful but within limits. Each has advantages and disadvantages, which may be maximized or minimized, respectively, depending on the ecological, institutional, technological, and cultural circumstances. One property system may work better than another in one set of circumstances, but compare very poorly under different conditions. No single property regime is demonstrably superior to all others, in all circumstances, across all dimensions of policy concern.

That conclusion should not surprise anyone. Yet much of the existing literature on relations between property and environmental protection either presupposes or argues normatively in favor of one property system or another, regardless of circumstance. This book, by contrast, seeks to describe relations between property and environmental protection more realistically, in their full complexity. Thus, its purpose is largely positive. The book also offers some normative arguments in favor of *multiple* property systems and admixtures of property systems. In part, those arguments constitute resort to a default position because of the difficulties

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inherent in predicting which property systems are likely to work best in different settings. The variables are too many and the *ex ante* uncertainty too great to reliably predict which approach would work best, except in the easiest – and, therefore, least interesting – cases. In more interesting and important cases, society’s decision to impose some property regime (or admixture of regimes), rather than some other, for environmental protection remains “in the nature of a social experiment.”

This work has roots in various disciplines, including law, economics, political science, and anthropology. Unfortunately, the increasing specialization of academic disciplines has created a situation in which the property literature of one field often goes undiscovered – or worse, ignored – by scholars in other disciplines. This is not invariably the case, of course. There are scholars who regularly cross disciplinary boundaries in search of what is worthwhile and useful, from whatever source. I count myself among them. Although I am first and foremost a legal scholar, I do not believe that a narrowly conceived legal analysis of relations between property systems and environmental protection would be either illuminating or very interesting. At the same time, I sense that an economic analysis of environmental protection devoid of considerations of law and other institutions, technology, ecology, and culture, is likely to be quite sterile and unrealistic. By combining legal and economic analysis, along with some lessons from anthropology – in short, by undertaking a New Institutional approach to the problem of environmental protection – this book’s *comparative institutional analysis* will hopefully prove to be more robust and realistic.

My thinking about the relations between property systems and environmental protection has been influenced by many writers, but three above all others: John Dales, Dan Bromley, and Elinor Ostrom. J. H. Dales’s *Pollution, Property and Prices* (1968) is a classic work in the environmental economics literature, but arguably should be even more influential – and for more reasons – than it is. Professor Dales is universally acknowledged as the originator of transferrable pollution rights as an environmental policy instrument. Ironically, he was not. An economist at the University of Wisconsin–Milwaukee named Thomas D. Crocker (1966, p. 81) recommended the very same thing in 1966, two years before Professor Dales published *Pollution, Property, and Prices*. Professor Dales’s fame is justly deserved, however, because he first analyzed tradeable pollution rights in a systematic way. In any case, there is much more to *Pollution, Property, and Prices* than tradeable pollution rights. It is in the best tradition of economic analysis – rigorous but realistic, analytical but humane, even humble. It is, in brief, a very wise book about the power and, just as importantly, the limitations of economic analysis for describing and resolving

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environmental protection issues. And its unique influence on my own thinking about those issues is manifest throughout this book, beginning with the title, which I chose in part as a tribute to Professor Dales.

Daniel Bromley is another economist who has greatly influenced my thinking on environmental matters. His book *Environment and Economy: Property Rights and Public Policy* (1991) first started me thinking about a comparative property systems-based approach to environmental protection. In contrast to many economists, Professor Bromley treats the law – and property law in particular – seriously, as an institution that shapes economic behavior. His analysis is, consequently, more nuanced and realistic than much of the economic literature on environmental policy.

I also owe a sizeable intellectual debt to the political scientist Elinor Ostrom, whose book *Governing the Commons* (1990) opened the eyes of so many scholars in various disciplines to the continuing role of common property systems in the contemporary world. In particular, her systematic, comparative institutional approach to assessing property regime choice for resource conservation has provided an extraordinarily useful framework for analysis. My approach, though perhaps less formal than her own, owes a great deal to her process for analyzing property problems and solutions.

This book was written, in almost equal measures, in Indianapolis, USA and Cambridge, UK. I owe several debts of gratitude in both locations. In Indianapolis, I am grateful to Dean Norman Lefstein and my faculty colleagues at the Indiana University School of Law at Indianapolis, who provided me with the means and the time, including successive Summer Research Fellowships and a six-month sabbatical in 2000, to research and write the book. Several colleagues and friends at IU, including Nicholas Georgakopoulos, Andy Klein, and Florence Roisman went above and beyond the call of duty, providing helpful comments on drafts of several chapters or the entire book.

In Cambridge, I am grateful first and foremost to Malcolm Grant, who arranged visitorships for me in the Faculties of Land Economy and Law from June to December of 2000. Malcolm possesses an almost unique combination of admirable traits: he is at once an accomplished scholar, an exceptional administrator, and a very kind person. Several of his colleagues on the Law Faculty and in the Land Economy Department were instrumental in helping me sort out various issues relating to this project. I am grateful especially to Simon Deakin, Timo Goeschl, Ian Hodge, and Joanne Scott. In addition, I want to thank Sanjay Peters of the Economics Faculty for being such a good friend and mentor in all things Cambridge.



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While in Cambridge, my family and I resided at Clare Hall, of which I am proud to be a Life Member. I would like to thank Clare Hall's former President, Gillian Beer, and the entire staff of the college, especially Elizabeth Ramsden, for making our stay in Cambridge so pleasant and memorable.

At Cambridge University Press, I am profoundly grateful to my editor and friend Finola O'Sullivan, who nurtured this project with great care and enthusiasm. Finola's assistant Jennie Rubio has also been extremely helpful, as has my copyeditor, Hilary Hammond.

Several individuals outside of Indiana University and the University of Cambridge, including Daniel Bromley, John Dales, Robert Ellickson, and Richard Lazarus, provided helpful comments on various chapters of the book. I am especially indebted to my friend and frequent collaborator, Peter Z. Grossman, who, to paraphrase Franz Joseph Haydn, is among the very best economists I know either personally or by reputation. Peter provided much needed encouragement as well as critical commentary on every chapter of the book. Finally and above all, I am eternally grateful to my wife, Izabela, and children, Marysia and Stefan. This book could not have been written without their constant support and love.

This book is the product of several years' thinking about the relations between environmental problems and property systems, which began when I was first invited, in 1996, to contribute an entry on "New Forms of Property: Property Rights in Environmental Goods" to the *Encyclopedia of Law and Economics* (2000). Since then, I have published several articles relating, in one way or another, to this topic. Each of those earlier works has found its way into this book, although none completely in its original form. Sentences, paragraphs, sometimes whole sections of previously published works are scattered here and there, throughout the various chapters. I am grateful to the following journals for providing permissions to reprint: Duke Environmental Law and Policy Forum, for "Clearing the Air: Four Propositions About Property Rights and Environmental Protection," *Duke Environmental Law & Policy Forum* 10 (1999); Indiana Law Review, for "The Importance of Being Comparative: the M. Dale Palmer Professorship Inaugural Lecture," *Indiana Law Review* 33 (2000); and Wisconsin Law Review, for "When is Command-and-Control Efficient? Institutions, Technology, and the Comparative Efficiency of Alternative Regulatory Regimes for Environmental Protection," *Wisconsin Law Review* (1999) (coauthored by Peter Z. Grossman).

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Latest Stories. Pollution and Property. Thursday, June 1, 1972. Oscar W. Cooley. Mr. Cooley is Associate Professor of Economics at Ohio Northern University. To own property is to have a measure of control over a definable portion of one's environment. If one has property, he has a degree of power to prevent his environment from being despoiled. Indeed, the purpose of property, it seems, is to enable man, the owner, to bring environment under control and make it yield up a maximum of satisfactions. Pollution and Property. Comparing Ownership Institutions for Environmental Protection. Get access. Guarding giants: resource commons quality and informal property rights in big-wave surfing. Empirical Economics, Vol. 54, Issue. 4, p. 1697. Land pollution is common, and it is important for us all to know about its crippling effects. Today, we have brought you the causes and effects of it. Land pollution is a serious problem that impacts humans, animals, and the earth. Without taking measures now to reduce pollution levels, permanent changes to the land can occur. The adverse changes to the environment due to land pollution are subtle, but the problem is much bigger than it appears.