PROPERTY AND EMERGING ENVIRONMENTAL ISSUES—THE OPTIMISTS VS. THE PESSIMISTS

CAROL M. ROSE*

Over the last generation, market-based or property-based mechanisms have been much discussed as a means to deal with environmental problems. A turning point in this discussion came with the United States' acid rain control legislation of 1990, a cap-and-trade program that has been widely heralded as a model for other kinds of market-based environmental programs.[1] While it was not the first environmental legislation of its type—New Zealand instituted a cap-and-trade program in fisheries in the mid-1980s[2]—the scope and apparent success of the U.S. Acid Rain Program breathed life into suggestions that economists had been making for many years.[3] More recently, market-based measures have been proposed for many other environmental resources, including not only other fisheries, but also wetlands, wildlife, grassland and forestry.[4] In particular, ideas for controlling greenhouse gases have steadily raised the possibility of property rights and trades in carbon emissions.[5]

Can property-based or market-based measures cure our environmental ailments? Some say yes, and some say no. In fact, some have been saying yes and others saying no for quite some time now, although they have said yes and no in different ways over time. This Article will recount several of the early cycles of the debate between

* Ashby Lohse Professor of Water and Natural Resource Law, University of Arizona Rogers College of Law; Gordon Bradford Tweedy Professor of Law and Organization (emer.), Yale Law School; J.D. Univ. of Chicago, 1977; Ph.D. Cornell Univ., 1970.

1. Clean Air Act, 42 U.S.C. §§ 7651–7651*o* (2006).

2. Dallas DeLuca, *One for Me and One For You: An Analysis of the Initial Allocation of Fishing Quotas*, 13 N.Y.U. L. J. 723, 754–55 (2005) (New Zealand adopted individual tradable quota systems for fish in 1985 and 1986.).

3. *See, e.g.*, J. DALES, POLLUTION, PROPERTY AND PRICES 93–97 (1968) (early discussion of tradable rights in pollution); Joseph Goffman, *Title IV of the Clean Air Act: Lessons for Success of the Acid Rain Emissions Trading Program*, 14 PENN ST. ENVTL. L. REV. 177, 177–178 (2006) (describing success of the United States Acid Rain Program).

4. *See, e.g.*, Jan Laitos, *The Problem with Wilderness*, 32 HARV. ENVTL. L. REV. 503, 556–57 (describing tradable rights schemes for variety of resources).

5. *See, e.g.*, William Boyd & James Salzman, *The Curious Case of Greening in Carbon Markets*, 41 ENVTL. L. 73 (2011) (optimistic discussion of possibilities for greenhouse gas trading schemes).

the Optimists and the Pessimists, because even the early discussions laid out some of the important possibilities—and the caveats—for property solutions to currently emerging environmental problems.

I. THE BIG BET

One early version of the argument between the Optimists and the Pessimists took the form of a bet. The bet was between the eminent and very well-known biologist Paul Ehrlich (and some colleagues) on the Pessimists' side, and on the side of the Optimists, an economist named Julian Simon, who at the time was much less well-known.[6] But first, some background: in 1968, Ehrlich published a book called *The Population Bomb*.[7] In this book, he made the gloomy forecast that, because of global population increases, the world was well on its way to running out of food. The book struck a chord with the environmentalist Zeitgeist of the late 1960s, and Ehrlich continued to expand and expound the main claim in other books and articles over the next several years. By the mid 1970s, he was arguing that the world was on the brink of running out of a number of essential resources.[8]

Meanwhile, Julian Simon was doing a slow burn. He had not believed the running-out thesis of *The Population Bomb* at the outset, and he could not believe that Ehrlich's Cassandra voice—joined by others in the "Limits to Growth" camp—continued to sound with so little challenge.[9] Simon, an inveterate collector of data, thought that the facts proved the thesis to be all wrong; population increases actually did not accompany greater poverty, but rather greater wealth. We are *not* running out, Simon asserted. And what is more, Simon was ready to make a bet on it.

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6. An extensive background story on Simon and the bet is that of Ed Regis, *The Doomslayer*, WIRED MAGAZINE, February 1997, 136, *available at* http://www.wired.com/wired/archive/5.02/ffsimon_pr.html; *see also* John Tierney, *Betting on the Planet*, N.Y. TIMES, Dec. 2, 1990. For more on Simon's intellectual approach, see Paul Dragos Aligica, *Julian Simon and the "Limits to Growth" Neo-Malthusianism*, 1 ELECTRONIC J. OF SUSTAINABLE DEV., Issue 3, 74 (2007) *available at* http://173-45-244-96.slicehost.net/public/journal_article/16.

7. PAUL R. EHRLICH, THE POPULATION BOMB (1968).

8. PAUL R. EHRLICH & ANNE H. EHRLICH, THE END OF AFFLUENCE: A BLUEPRINT FOR YOUR FUTURE (1974).

9. *See, e.g.*, PAUL R. EHRLICH, THE POPULATION BOMB (revised ed. 1971); EHRLICH & EHRLICH, *supra* note 8; somewhat later, PAUL R. EHRLICH & ANNE H. EHRLICH, THE POPULATION EXPLOSION (1990); *see also* DONELLA H. MEADOWS ET. AL., THE LIMITS TO GROWTH: A REPORT OF THE CLUB OF ROME'S PROJECT ON THE PREDICAMENT OF MANKIND (1972).

Thus came Simon's challenge. The opening salvo appeared on the pages of the prestigious *Science* journal in 1980, where Simon marshaled an impressive array of facts to argue that population increases had accompanied increasing rather than diminishing resource availability.[10] When Ehrlich and others responded that he was outrageously wrong,[11] Simon replied in the *Social Science Quarterly* with The Bet, repeated in the pages of his 1981 book, *The Ultimate Resource*.[12] In an open offer to the public, he said that he would stake $10,000 on a wager that prices would actually fall, not rise, for any set of minerals or commodities chosen by anyone who dared to take the wager, at any date the wager-taker chose—and he pointed to Ehrlich as one of the people who should "put their money where their mouth is."[13]

Ehrlich took the bait, and gladly, too, saying that he wanted to snap up this offer "before other greedy people jump in."[14] He and two colleagues agreed with Simon on a basket of commodities, all of which Ehrlich thought were going to rise in price substantially because of increasing scarcity: chromium, copper, nickel, tin, and tungsten. On paper, the three "bought" $2000 worth of each mineral, at the price on September 29, 1980, with the price to be compared to the price (adjusted for inflation) on September 29, 1990. The loser was then to pay the winner for the difference between the two prices—Simon would pay if prices rose, and Ehrlich would pay if prices fell.[15]

And who won? Simon won, hands down. Every single one of these commodities was cheaper, some by as much as two-thirds. The upshot of the episode was that in October 1990, Paul Ehrlich sent a check to Julian Simon for $576.07.[16]

How can this result have occurred? How did Simon know that he could bet on that basket of commodities? What Simon was betting

10. Julian L. Simon, *Resources, Population, Environment: An Oversupply of Bad News*, 208 SCIENCE 1431 (1980).

11. *See* letters by Paul R. Ehrlich and several others, 210 SCIENCE 1296–1305 (1980), and Simon's response, *id.* at 1305–08.

12. JULIAN L. SIMON, THE ULTIMATE RESOURCE 25–27 (1981) [hereinafter SIMON, THE ULTIMATE RESOURCE].

13. *Id.* at 27.

14. Paul R. Ehrlich, *An Economist in Wonderland*, 62 SOCIAL SCI. Q. 44, 46 (1981).

15. *Id.* at 46; JULIAN L. SIMON, THE ULTIMATE RESOURCE 2, at 35 (1996).

16. Regis, *supra* note 6.

on was human ingenuity—ingenuity that is sparked by economic incentives.[17] Take tin, for example: tin prices rise when more people want tin, or want more of it—say, when a new industrial power like China or India or Brazil starts to demand more. Producers start working the margins, turning to locations that are more difficult to mine, or that present higher transportation costs, or that have different kinds of ore. But a more general way to look at the result of higher prices is a little different, and implicitly, this is what Simon was betting on: *higher prices encourage inventiveness*. Engineers find better ways to extract in tricky locations, chemists find new ways to reduce ore, or scientists find something else that will substitute for tin. The upshot is that because of human ingenuity, the costs of commodities like tin do not rise when more people want more of them. Just as likely, they drop.

The check in the mail to Simon, of course, was not the end of the story. Thanks to the bet, Simon himself acquired some notoriety, as did his message. Our natural resources, he said, are not going to run out. The future will bring more, not less. Or, stated more technically, human intellectual capital will substitute for natural capital.[18]

Can the bet be generalized? Well, to some degree, it probably can be. Although Simon lamented that no one seemed to pay attention, the importance of human capital in total social wealth has impressed a number of authors over the last few decades.[19] But there is some room left over for the pessimists in all this, at least on the environmental front. Reconsider for a moment the resources involved in the bet: chromium, copper, nickel, tin, tungsten. Simon's claim applied not only to those minerals, but also expanded to encompass *environmental* resources. Air quality and water quality were among them, and presumably they could expand to include the other usual suspects like erosion, wildlife and wildlife habitat, not to mention greenhouse gases.

So, does the bet about metals really capture those environmental resources? There is at least one big difference between those metals and the usual environmental subjects, and that difference is property.

17. SIMON, THE ULTIMATE RESOURCE, *supra* note 12, at 44–45.

18. *Id.* at 211–14.

19. *See, e.g.*, Robert Solow, *An Almost Practical Step Toward Sustainability*, *reprinted in* 19 RESOURCE POLICY 162–72 (Sept. 1993) (describing matters like education and skill as part of total "capital" along with natural resources).

Somebody *owns* chromium, copper, nickel, etc. Moreover, someone owns the land where those metals are mined; someone else owns the product when it is made; someone else owns the substitutes when they are made. Owning those things makes it worthwhile to invest in new technology to extract and produce the metals and substitutes, because the owner gets the benefit of the investment. By the way, someone may own the technology itself, via the patent system—another factor that makes it worthwhile to invest in useful invention.[20]

But consider environmental goods like air or wildlife or groundwater: Who owns them? And who is going to invest in those resources if there are no property rights in them, and hence no specific payoff for investment? To be sure, someone *might* invest in unowned environmental resources, and no doubt many do, but they have to share the returns with all the other users—a situation that is likely to lead to underinvestment. The same is true of investing in *learning about* environmental resources: why learn about something if there is no return for doing so? To be sure, some people do, out of love of learning. This is not a trivial motivation. But unless it is supported by capital investment—usually spurred by hope of return—love of learning can only carry the learner so far.[21]

The point is that environmental goods are not like tin and tungsten. Environmental goods are commons-es, or at least they have significant commons or collective aspects, as the pessimists know very well. Resources open to general common use have an unfortunate proclivity toward overuse and underinvestment, because individual users neither suffer the full consequences of their overuse nor take the gain from their investment, and one might add, they have little incentive even to learn about environmental goods, for the same reasons.

Simon was aware of this problem, distinguishing owned "resources" from "pollution"—that is to say, pollution of unowned environmental goods—even though he did not dwell on the issue.[22] But others have. Perhaps because of its catchy title, the presentation that is probably best known is Garrett Hardin's "Tragedy of the Commons."[23] To be

20. *See* Carol M. Rose, *Scientific Innovation and Environmental Protection: Some Ethical Considerations*, 32 ENVTL L. 755 (2002) (linking scientific investigation to gains secured by property rights and describing knowledge gap for unowned environmental resources).

21. *Id.*

22. SIMON, THE ULTIMATE RESOURCE, *supra* note 12, at 129.

23. Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968).

sure, Hardin, the iconic theoretical pessimist, used a bad example when he picked the medieval commons as an illustration of the commons problem (or more properly designated, the "open access" problem);[24] the medieval common fields were in fact owned by defined groups, and their productivity lasted a thousand years. But Hardin's story has more resonance for environmental resources in which there is no owner and no restraint on access, and Hardin did list pollution among the important commons or open access issues—air pollution and water pollution, along with deforestation and wildlife mismanagement.

In retrospect, Ehrlich and his friends should not have bet on tin. They should have bet on coral reefs, or codfish on the George's Bank, or on the hole in the ozone layer, not to speak of the levels of carbon dioxide in the atmosphere. That is the environmental pessimists' answer to the Simon's victory in the great bet: the bet was about the wrong kind of resources. The bet may be a winner for Simon with tungsten, but it would not have been so successful with New England cod. The bet may have been a winner for tin, but not so good for the polar ice caps.

Simon himself argued that the air was getting cleaner too, and he implied that this occurred without the benefit of air pollution regulation, though he was not entirely straightforward on the matter.[25] But Simon wanted people to look at facts, not theories, and the facts, he said, were that environmental resources have been improving too.[26] But if so, he did not explain how it happened (if it did), and that is why theory is important: if we don't know how it happened, we don't know how to replicate the success. We *do* know how it happened with tin—property rights would drive investment in tin and substitutes for tin. We do *not* know with coral reefs, and in fact, coral reefs are not looking so good these days.

A more modest version of Simon's general view, and one that he apparently agreed with, is that developing areas suffer environmental

24. For the distinction between open access and commons, see ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION 23, 48–49, 222 n.23 (1990).

25. Regis, *supra* note 6 (saying that air quality had improved steadily with no notable difference when legislation had passed). On the other hand, Simon elsewhere did somewhat reluctantly attribute environmental improvement to public pressure for political measures; *see* SIMON, THE ULTIMATE RESOURCE, *supra* note 12, at 138–42.

26. SIMON, THE ULTIMATE RESOURCE, *supra* note 12, at 130–36.

degradation at the outset of the development process, but then improve as they grow wealthier and can devote more resources to the environment. The environment in this story is a kind of luxury good.[27] But even with this modified version of the optimistic story, it would be enormously helpful to know how and why improvement occurs. As people become wealthier, do they invest individually in the collective good of environmental protection, and if so, what induces them to do so? Do they take collective action—including legislation—to overcome the commons problems that environmental resources present, and if so, how do they overcome the collective action problem? In short, given that environmental goods are still commons-es even as wealth increases, what *does* drive environmental improvement?

And so, with the question of how environmental resources have been salvaged in the past, and more importantly, how they are to be salvaged in the future, we arrive at the second round of the battle, beginning with a new set of optimists.

II. FREE MARKET ENVIRONMENTALISM

Depletion of wildlife stocks? Pollution? Inroads on other environmental resources? No problem, says the proponent of Free Market Environmentalism. We can do everything with private initiatives, including preserving environmental resources, if we will just let the market work.

But of course the market needs something to make it work: it needs property rights, of course. That is because property rights are the instruments that induce investment, planning, effort, information gathering, and of course trade. Why do property rights encourage those activities? They do so because with property rights, the owner takes the payoff from intelligent and appropriate investment, and she pays the price for foolish or wasteful behavior. In technical terms, property rights internalize externalities.[28]

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27. *See, e.g.*, Daniel C. Esty, *Bridging the Trade-Environment Divide*, 15 J. ECON. PERSP. 113, 115, 119 (2001) (describing Kuznets curve literature); *cf.* Douglas A. Kysar, *Some Realism About Environmental Skepticism*, 30 ENVTL. L.Q. 223, 249–52 (2003) (describing relation between wealth and environmental improvement, with some caveats); for Simon, *see* SIMON, THE ULTIMATE RESOURCE, *supra* note 12, at 241.

28. Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. (PAPERS & PROC.) 347 (1967) (outlining a well-known argument that property rights internalize externalities).

But wait! Environmental resources are almost by definition resources that do not belong to anyone. They are too big, too diffuse, too fugitive for anyone to put a fence around them. How are property rights going to deal with resources that can't be property?

The answer of Free Market Environmentalism ("FME") is that we have to rethink the relationship of property to environmental resources. It is not that we *can't* own environmental goods; it is just that they may call for an expensive kind of property. According to FME, a system of property rights is just like any other good thing. It costs something to have property rights: a fence costs something, a land record system or registration system costs something, a patent system costs even more. But like other scarce goods, systems of property rights respond to demand.

That is the thesis of the well-known economist Harold Demsetz, and his thinking was further elaborated by, among others, two more economists associated with FME, Terry Anderson & P.J. Hill.[29] Anderson and Hill used some wonderful examples from the history of the American West, about the evolution of property rights for water, land, and cattle. They started with the early stages of Anglo-European settlement, when there were few settlers in the West and the Great Plains, and little demand for property rights because the settlers really did not need property rights very much. Property rights are important to deal with conflicting claims where things are scarce, but at the outset of the new settlers' entry, the major resource—grassland—was not scarce, at least by comparison with the low demand for it. There was enough grassland to go around for the few ranchers who ran their stock in those vast spaces; and as for the cattle themselves, there were few confusions over which rancher owned which animal. And besides, the methods for establishing property rights were expensive, especially wooden fences out there on the open range, where trees were few and far between.[30] Why bother with property rights when no one is encroaching?

But with time, there were more ranchers and more cattle—and more threats from cattle thieves, the so-called rustlers. With those more intense uses and threats, the demand for property rights increased. Ranchers started with something simple, a common roundup

29. *See id.*; Terry Anderson & P. J. Hill, *The Evolution of Property Rights: A Study of the American West*, 18 J. L. & ECON. 163 (1975).

30. *See* Anderson & Hill, *supra* note 29, at 170–73.

of the cattle, and thus no one could claim to be mixed up about whose steer belonged to whom. Then they moved on to more complicated (and more expensive) versions of property rights: brands on the cattle, then a registration system for the brands, then criminal prosecution of the rustlers. But meanwhile, the increasing cost of property rights also invited technological innovation. For cattlemen, the breakthrough invention was barbed wire in the 1870s: it was instantly deployed on ranches in the West, enabling the cattlemen to separate out all their cattle into individual herds.[31]

And so, the picture that FME paints about property rights looks much like the one that Simon painted for other kinds of resources: do we need property rights to deal with environmental resources? Yes? OK, they will be expensive. But we will get around to creating them when it is worth it. One example comes from the subject with which we started, that is, tradable environmental rights. In fact, there has been considerable progress in creating property rights related to air quality. We can't fence in the air, but we can create property rights in pollution. That is to say, we can create a kind of negative property, meaning that one has to pay for pollution, in a charging scheme calibrated to the amount and kind of pollution that one produces. What is more, with a sophisticated version of this kind of property, one can even trade the pollution charges around, so that polluters with higher reduction costs can avoid charges by paying lower-cost preventers to reduce pollution in their stead.

To be sure, it is not cheap to create tradable environmental rights regimes like these in order to control air pollution or water pollution, or even to protect wildlife habitat. Among other things, rights of this sort require monitoring and verification devices, record-keeping systems, and enforcement.[32] But as with the invention of barbed wire, the FME story tells us that higher demand induces human ingenuity, and new inventions reduce the costs of the various aspects of these regimes.

And so, in this story, a picture emerges: if we have enough demand for property rights in environmental goods, we will get just that: we will create an environmental property rights regime. As we

31. *Id.* at 172–75.

32. *See, e.g.*, Tom Tietenberg, *The Tradable Permits Approach to Protecting the Commons: What Have We Learned?*, *in* THE DRAMA OF THE COMMONS 197, 212–16 (Elinor Ostrom et al. eds., 2002).

get to that point, we also get more inventiveness: more conservationist methods for using environmental goods, more substitutes for polluting equipment, better pollution control devices, more sophisticated monitoring methods. We will get all those things because the payoffs make it worth the effort. True, an environmental property rights regime may be much more complicated and sophisticated than a fence or even a land record system, but on closer analysis, it is just another ratchet outward on the gears of the evolutionary property rights machine.

Sounds good, right? This is the Optimists' Answer Part II: environmental property rights are just like any other property rights: they will evolve as we need them and are willing to pay for them.

But now it is the pessimists' turn. And their answer is this: wait a minute! Something is amiss with this evolutionary story, too.

III. The Return of the Pessimists

For the moment, let us put tradable rights in air emissions to one side. We can instead reconsider for a moment Anderson and Hill's example of the evolution of property rights related to cattle-raising in the Old West. To be sure, the cattlemen did ratchet up the level of property rights protections, but once they got past self-help, all the other teeth on the ratchet—up to but not including fences—were collective goods. And that's a problem. A lot of people were involved in all these steps toward property creation. Someone had to think up the roundup, and then persuade all the other ranchers to join in. If there were shirkers, someone had to take on the collective responsibility of strong-arming them into joining. A branding system needed a common registry, i.e., another collective good. Enforcement at any level is yet another collective good, but especially enforcement through a criminal justice system, which requires the establishment of governmental structures. In short, no single owner could claim the payoffs from inventing and executing any of these measures that were taken for the common welfare.

So, what induced everyone to do his or her part? The problem is that these management systems were all versions of commons-es, but now at the organizational level. And the question is, why don't all the participants try to take a free ride on the efforts of others? Notice that if enough of them do take that route, the whole system will fall apart.

To be sure, these collective efforts at the organizational level do work out sometimes, even many times. But it is not enough to point to a success story and say it exemplifies a universal pattern, when we can't tell what made the collective effort work—or how many other similar efforts fell apart. Yes, the ranchers did invent property rights to manage their cattle. But meanwhile, the sodbusters, farmers who plowed up other parts of the Great Plains, created the Dust Bowl. Which is the real story? One resource economist, Gary Libecap, suggests at least figuratively that maybe it is the Dust Bowl. His writing is full of examples of would-be resource exploiters, especially in the oil business, who would make big gains from cooperating, if only they could come together on the way to divide up the surplus from their collective efforts—but in many instances they can't, so they don't.[33]

Property rights are supposed to overcome collective action problems, in which everyone wants to free-ride and no one wants to invest, or at least no one wants to invest enough to make things work. But the trouble is, a property rights *system* is another collective, or if you will, another commons.

That is a point that has often been made by eminent property scholar James Krier. The most notable example is in an article that he made in reviewing a book on Free Market Environmentalism. He called it, very aptly, *The Tragedy of the Commons, Part Two*.[34] In Krier's account, the FME claim is that one can overcome environmental commons issues with property rights; but what gets glossed over is that the creation of property rights is a commons effort itself, even if it is a kind of meta-commons. Who wants to call the meetings to set up the regime? Who wants to go to those meetings? Once done, who wants to enforce the system on other participants? True, you can hire police, but who is going to pay them? If the costs are to be shared, who will keep the records and make the calls to make sure that everybody is paying his or her share? Indeed, who is going to watch the police to make sure that *they* are doing an honest job?[35] Krier's suggestion to the Free Market Environmentalists was that

33. Gary D. Libecap & James L. Smith, *The Economic Evolution of Petroleum Property Rights in the United States*, 31 J. LEGAL STUD. 589 (2002) (describing instances in which oil resources were wasted because parties could not agree, due to transaction costs, differing information, and inappropriate political intrusions).

34. James E. Krier, *The Tragedy of the Commons, Part Two*, 15 HARV. J. L. & PUB. POL'Y 325 (1991) (reviewing TERRY L. ANDERSON & DONALD R. LEAL, FREE MARKET ENVIRONMENTALISM (1991)).

35. *Id.* at 322–23.

they should be more modest. They should look around to see where Free Market Environmentalism works out well, and where it does not, and why.[36]

IV. THE BOTTOM LINE: OPTIMISM OR PESSIMISM ABOUT ENVIRONMENTAL PROPERTY?

When one looks at the matter in the way that Krier suggests, one does see some characteristics that help to make a property regime take hold. Indeed, some of these characteristics are quite well known, because they help to make any kind of common effort function. For some resources, it may help that limited numbers of people are involved in the bargaining or implicit bargaining process over the property arrangement. It helps, too, to have participants with similar information and goals[37]—as with the cattlemen in the Old West. Indeed, larger and more complex property regimes can emerge where the participants share a common culture and a common judgment about what is good behavior and what is bad behavior.[38] The long transcontinental migrations of mid-nineteenth-century North America give some quite startling examples of the migrants' respect for the property of other migrants, even among people who were in desperate need. But those same migrants often showed little concern for what the native peoples claimed as their own property.[39] This brings us back to a gloss on Krier's argument: if he is right that establishing a property regime confronts us with a commons problem at the organizational level, then overcoming that problem becomes a *social* and *political* problem, and not just a natural evolution from demand and supply. True, people can succeed in creating effective property rights regimes, but social and political factors are going to have an influence, and they may influence the characteristics of the property rights regime as well.

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36. *Id.* at 346–47.

37. Libecap & Smith, *supra* note 33, at 608.

38. Richard O. Zerbe, Jr. & C. Leigh Anderson, *Culture and Fairness in the Development of Institutions in the California Gold Fields*, 61 J. ECON. HIST. 114, 114–15 (2001).

39. JOHN PHILIP REID, LAW FOR THE ELEPHANT: PROPERTY AND SOCIAL DEVELOPMENT ON THE OVERLAND TRAIL 326–34, 350–55 (1980) (describing extreme level of respect for property among immigrants to the West but limited recognition of Native American ownership); *cf.* ARTHUR MCEVOY, THE FISHERMAN'S PROBLEM: ECOLOGY AND LAW IN THE CALIFORNIA FISHERIES 1850–1980, 43–51, 54 (1986) (describing California settlers' murder of Native Americans and disruption of their settlements).

There is a related point to be made about the evolution of property rights: earlier property rights regimes can get in the way of emerging ones, even though new kinds of property regimes would produce more total wealth. One of the people who has made this argument most forcefully is an economist mentioned earlier, Gary Libecap. Libecap has argued that winners under an earlier property rights regime will not easily agree to a change in regime that would be more productive in total, but that would cut into their particular shares.[40] One can see these issues in many places, but one notable location is in the fishing industry, where the "highliners"—the most successful fishers in open access fishing—drag their feet about establishing any limits for the sake of conserving the overall stock levels. They are used to an open-access fishery, and they don't believe in the Tragedy of the Commons. Libecap argues that the political cost of turning to a new regime—say, a tradable quota system for fishing—may involve making special concessions to these kinds of erstwhile winners.[41]

Libecap focuses especially on distributional issues: who is going to get the goodies if the property regime changes? But his sometime co-author, resource economist Dean Lueck, also points to contracting costs or transaction costs as a source of stagnation. Lueck has written a good deal on wildlife, and he has observed the way that the costs of contracting can impede landowners from assembling the kinds of large habitat areas that some animals require to feed and breed adequately, especially megafauna like bears and bison.[42] Land values for wildlife—e.g., for fishing, hunting, and viewing—may well exceed the value of the lands in question for agriculture or other uses, but with multiple ownership and heterogeneous interests, landowners may face insuperable contracting costs, blocking them from combining their lands and attaining the more valuable large scale that the wildlife require. In short, transactions costs impede land consolidation, and what creates the transactions costs is the prior pattern of smaller-scale ownership.[43]

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40. GARY D. LIBECAP, CONTRACTING FOR PROPERTY RIGHTS 5–6 (1989).

41. *Id.* at 22–23, 73–74, 82–84 (stressing that different skill levels among fishermen lead more successful ones to resist alteration of regime); *cf.* Katrina Wyman, *From Fur to Fish: Reconsidering the Evolution of Private Property*, 80 N.Y.U. L. REV. 117, 146–48 (2005) (arguing that heterogeneity might not impede regime change under some circumstances).

42. Dean Lueck, *Property Rights and the Economic Logic of Wildlife Institutions*, 35 NAT. RESOURCES J. 625, 628, 638–44 (1995).

43. *Id.* at 643.

Lueck and Libecap together have recently collaborated on another major contribution to the point that prior property arrangements can impede the introduction of more efficient and valuable ones. In an important study of eastern and western land survey patterns in the United States, they conclude that land is generally more valuable when it is demarcated by reference to a larger universalized rectilinear survey of latitude and longitude, with regular and easily understood special categories; and by comparison, land is generally less valuable when measured by customary claims or measures of metes and bounds, where property lines are designated from localized landmarks.[44] The contrasting methods between these is obvious to anyone who has traveled across the United States by air, and who has seen from above the crazy-quilt land boundaries in the eastern part of the country, as well as the regular square patterns in the more westerly areas. The universalized rectilinear designations make it easier to describe and delineate land parcels, and thus make land transactions much easier—which tends to increase land values. But for the eastern states to change would be well-nigh unthinkable; the older metes and bounds systems is too entrenched, and by this time too much surrounded by prohibitive walls of transactions costs.

In a more abstract version of the Libecap and Lueck study, property law scholars Henry Smith and Tom Merrill have argued that relatively simplified systems of property categories—the "*numerus clausus*" that limits those categories to a manageable number of comprehensible forms—can enhance the availability of property for trade, and hence for allowing resources to arrive ultimately in the hands of those who value them most.[45] But property regimes often have to displace pre-existing older property regimes, and scholars of less developed countries have noted the difficulties and conflicts that come with moving from complex customary rights structures to more modern rights definitions like those that Smith and Merrill describe.[46]

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44. Gary D. Libecap & Dean Lueck, *The Demarcation of Land and the Role of Coordinating Property Institutions*, 119 J. POL. ECON. 426 (2011).

45. Thomas W. Merrill & Henry E. Smith, *Optimal Standardization in the Law of Property: The* Numerus Clausus *Principle*, 110 YALE L. J. 1 (2000).

46. *See, e.g.*, Daniel Fitzpatrick, *Evolution and Chaos in Property Rights Systems: The Third World Tragedy of Contested Access*, 115 YALE L. J. 996 (2005) (describing violence and instability with incomplete transitions between conflicting property regimes).

Similar issues affect the efforts to establish new kinds of property for environmental resources. Merrill has noted the very slow acceptance of tradable rights regimes in the environmental field, however promising these regimes may seem to be. Merrill attributes a considerable proportion of the delay to conflicts over distributional issues among the parties who might be regulated, some of whom see their personal fortunes as better served under older but less globally efficient property systems.[47]

On the other hand, some resource uses do suggest that transitions to more valuable property regimes might be possible, even in the face of major obstacles from distributional issues and transaction costs. Some interesting if very tentative examples come from water rights regimes. In the western parts of the United States, many streams are now more valuable for recreational uses like fishing and boating than they are for agriculture, mining, or other traditional resource exploitation uses. Recreational and scenic uses of rivers require leaving water in the stream, but it has been difficult to accommodate those uses legally. This is because the creation of instream water rights entails significant changes in the older western "appropriative" water rights regimes, where the whole definition of rights has historically required taking water out of the stream.[48] Not only is system-wide change subject to many administrative hurdles, but there are many vested interests in the traditional ways of defining rights. Nevertheless, given major shifts in demand, along with some court orders, and considerable organizational effort by some non-governmental organizations, western states have begun to adjust their water rights systems to accommodate the newer instream uses.[49] Market transactions, legislative, and voluntary actions have all played a role. Equally interesting are the possibilities for trades of water from lower-value agricultural uses to much higher-value municipal uses—possibilities much discussed in academic literature on water rights, although quite

47. Thomas W. Merrill, *Explaining Market Mechanisms*, 2000 U. ILL. L. REV. 275, 291–97 (2000).

48. *See, e.g.*, Carol M. Rose, *From H2O to CO2: Lessons of Water Rights for Carbon Trading*, 50 ARIZ. L. REV. 91, 100–01 (2008).

49. *See, e.g.*, Janet C. Neuman, *The Good, the Bad, and the Ugly: The First Ten Years of the Oregon Water Trust*, 83 NEB. L. REV. 432 (2004) (describing obstacles and progress in voluntary programs to move consumptive water uses to instream uses).

slow in practice.[50] Nevertheless, slow or not, some agricultural-to-municipal trades have already occurred (after pointed prodding by the Federal government), particularly between California's agricultural areas and some of the state's water-starved cities.[51]

Tradeable environmental rights bring us back to the beginning, and the great hope for these kinds of very modern property rights in environmental fields, including air, water, wildlife, and perhaps at some point the regulation of greenhouse gases. It should not be totally impossible to overcome the obstacles and to arrive at more sophisticated environmental rights regimes, and to ratchet out property rights to another and very sophisticated level. But changes of this sort will not be easy either, and they will certainly not be automatic. Newer environmental rights regimes may take considerable social, political and legislative effort, as well as administrative imagination, and very possibly compensation schemes. Indeed, even the Optimists about property rights seem to assume some level of legislative activity in environmental arenas.[52]

One could give many more examples where distributional concerns, technical difficulties and multiple transactions add to the cost of altering existing property rights systems. But the point is that if we are to be optimistic about the ability of property rights to deal with environmental issues, then we also have to be optimistic about collective institutions, including political ones. That entails optimism about people's inventiveness and openness to compromise in social and political arenas. Though it is perhaps not sufficiently recognized, those are qualities that underlie everyday private property ownership and market activity, and that are essential in creating the property rights infrastructure in which ownership and markets can thrive. But those qualities are going to be especially important when it comes to transitions in private property and market regimes for environmental goods.

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50. *See, e.g.*, Robert Glennon, *Water Scarcity, Marketing, and Privatization*, 83 TEX. L. REV. 1873, 1884–89 (2005); Barton H. Thompson, Jr., *Institutional Perspectives on Water Policy and Markets*, 81 CAL. L. REV. 671 (1995).

51. *See, e.g.*, Felicity Barringer, *Empty Fields Fill Urban Basins and Farmers' Pockets*, N.Y. TIMES, Oct. 24, 2011, at A12 (describing program whereby California farmers can halt irrigation to transfer water to urban areas).

52. One is Julian Simon, who apparently thought that wealth-related interest in the environment would result in legislation and public action. *See* SIMON, THE ULTIMATE RESOURCE, *supra* note 12, at 139–42, 241. Dean Lueck, who is sympathetic to FME, regards statutory law as a part of the evolutionary process in managing wildlife. *See* Lueck, *supra* note 42, at 321.