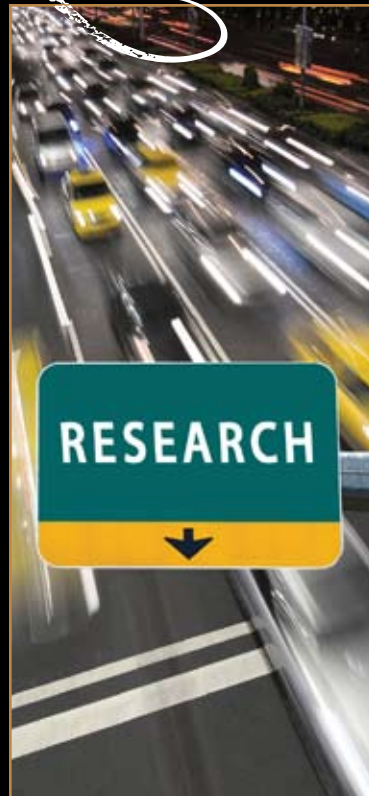


PERC REPORTS

FOR FREE MARKET ENVIRONMENTALISM

Celebrates
30
YEARS



THE NOT SO WILD, WILD WEST . **SAVING THE WILDERNESS** . **PROPERTY RIGHTS**
EVOLVE IN MARINE FISHERIES . **BOOTLEGGERS, BAPTISTS, & GLOBAL WARMING**



FROM THE EDITOR

BY LAURA E. HUGGINS

PERC, the Property and Environmental Research Center, is a nonprofit institute dedicated to improving environmental quality through property rights and markets.

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For Free Market
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The genesis of free market environmentalism (FME) was in the little town of Bozeman, Montana in the 1970s. It was here that a few scholars began advocating property rights and markets as the best path to improving environmental quality.

In the beginning, the ideas coming from the hinterlands were just voices in the wilderness, both literally and figuratively. But the idea that the very principles powering capitalism could also work to improve the environment was powerful, and on September 12, 1978, scholars from around the country descended upon Bozeman to learn about the nascent FME movement.

This seminal symposium represented something like an Earth Day for resource economists—a radical break from the command-and-control approach to “solving” environmental problems. With the FME paradigm taking off, PERC was launched two years later to help harness this new force.

Three of the mavericks of FME and founders of PERC are featured in this issue: TERRY ANDERSON, P.J. HILL, and RICHARD STROUP. We are also fortunate to showcase four other PERC senior fellows: DANIEL BENJAMIN, DONALD LEAL, ROGER MEINERS, and BRUCE YANDLE—all of whom have made their mark on the movement (I hope you enjoy their retro photos!).

In this special anniversary issue, the contributors reflect back on their influential articles, exploring where gains have been made, where failures have occurred, and where we might go in the future. There is no doubt that their bold ideas have helped to put Bozeman on the map.

In fact, if you would like to visit Bozeman and PERC, you should join us for our 30th anniversary celebration on June 25, with *New York Times* best-selling author MATT RIDLEY—featured on page 28. Like Ridley’s forthcoming book, *The Rational Optimist*, PERC has worked for three decades to provide a rationally optimistic vision for the environment.

Today, Bozeman is consistently listed as one of the “most livable” places, and PERC’s ideas have taken a prominent place on the environmental policy stage. PERC, with the help of its extended family and friends, has grown into an institution providing a complete package for free market environmentalism—research, outreach, and applied programs. We thank all of you who have helped make this happen and look forward to further advancing our mission over the next 30 years.

Laura E. Huggins, EDITOR

?	Comment on PERC's impact over the last 30 years.	Go to www.percreports.org and share.
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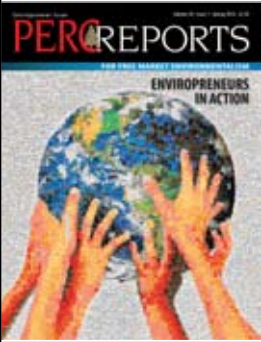


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More online at percreports.org

Pete Geddes to join PERC!



Self-sufficiency, sustainability, and self interest

Just a note to say that I very much enjoyed reading “Grassfed Beef and the Politics of ‘Local.’” It had several revelations for me: 1) a Harvard grad can enjoy living in Arizona; 2) cows can find grass to eat in Arizona; and most importantly, 3) agrarian self-sufficiency and “sustainability” can be in a person’s economic self-interest, and not just homage to the “environment.”... As Francis Bacon said (I think it was him), “Nature, to be commanded, must be obeyed.” I was heartened to have seen Paul Schwennesen’s thoughts in print. Thanks again.

—Kurt Leininger
Malvern, PA

Oversight in food production systems

Hiroko Shimizu’s article, “In Praise of the 10,000 Mile Diet” in the Spring 2010 issue of *PERC Reports* serves an important purpose in confronting the established patterns of food consumption. However, it also demonstrates at least one classic oversight in the analysis of food production systems. First off, the people of Peru cannot survive on asparagus alone. Local ownership of businesses and substitution for imports can translate directly to regional economic stability. Money spent locally is more likely to stay close to home. We cannot build global economic stability without regional economic stability. The U.S. “mortgage crisis” has occurred one home at a time. Furthermore, the 10,000 mile diet is built upon use of readily available fossil fuels. Energy is a rapidly changing industry, but there is no current alternative to the utility of energy-dense fossil fuels—even if they are used to produce secondary biofuels or solar collectors. A food system dependent upon a non-renewable, or even foreign owned, input has an inherent weakness. Therefore, Shimizu’s “Impression” of food economics takes a similar risk.

—Nathan Dunn
Tucson, Arizona

Sounds like rancher ignorance

I enjoy *PERC Reports* and appreciate all of PERC’s efforts, but I am mystified by the Patagonian grasslands article. Nothing in the article suggests any market-based thinking to the problem of desertification. The authors seem to think that “market mechanisms” consist of consumer boycotts and (implicitly) producer cartels to keep prices up and products “sustainable.”... They fail to explain why a landowner would permit grazing in “flock sizes too large for rancher’s lands” leading to “abandoned” ranches. Sounds like an example of rancher ignorance instead of a tragedy of the commons. Fortunately, this article is the contrary example that proves the rule: PERC is a great organization with the right approach to conservation.

—Grant Schaumburg
Boston, Massachusetts



Tell me what you think!

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40-30-20-10 NOW

For traditional environmentalists, 2010 is important because the first Earth Day occurred **40 YEARS** ago. For free market environmentalists, 2010 is more than an anniversary—it's cause for celebration. PERC is not only celebrating its 30th birthday, but also the steps taken over the past 30 years that have moved property rights and markets to the forefront of approaches for actually improving environmental quality.

On that first Earth Day, environmentalists didn't have much to celebrate. In 1970, school children in Los Angeles could not go out for recess due to smog alerts, the Cuyahoga River in Cleveland was known to catch fire, and the bald eagle appeared to be heading for extinction. It was a time for action, so my generation did what they do best—protest.

That first Earth Day not only served as a call to action, it started the new religion of environmentalism. Many environmentalists began to regard human actions toward Mother Nature as an immoral challenge to the natural order, and hence had no qualms to mixing church and state to avoid an end-of-the-world scenario. For the “religious Greens,” federal legislation such as the Clean Air Act, Clean Water Act, Endangered Species Act, and the National Environmental Policy Act were the equivalents of the *10 Commandments*. These acts command the federal government to put an end to the sins of environmental degradation.

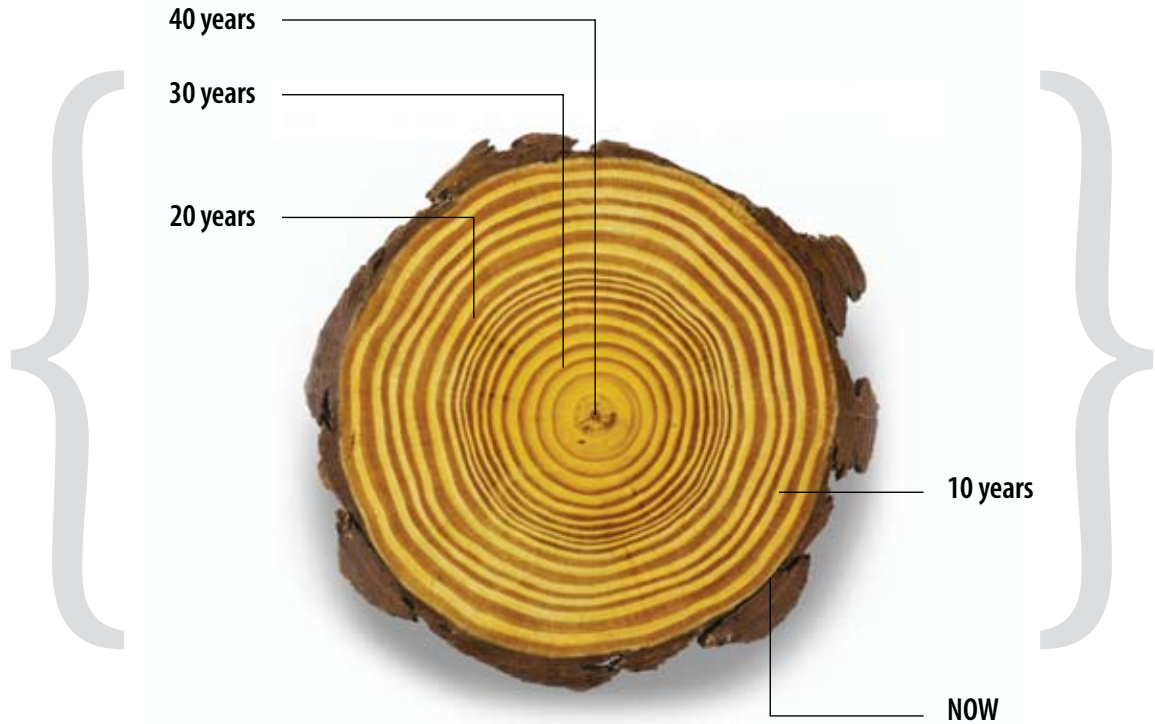
Mainstream economists joined the cause, using their lecterns to preach the parable of the “tragedy of the commons.” They worshiped at the altar of efficiency and followed the teachings of A. C. Pigou, who believed that market failure could be corrected with government regulation, taxation, subsidies, or a combination of all three.

Fast forward to 1980, the birth year of PERC. **30 YEARS** ago, a few political economists at Montana State University broke ranks with traditional environmentalists and economists. We were trained in the tradition of the “Chicago school of economics,” which meant we studied markets. As one of our clergyman, Milton Friedman, was fond of saying, we didn't have faith in markets; we had evidence that they worked.

We were far from the academic ivory towers to the east, yet brazen enough to imagine that we could start a think tank known as PERC in the hinterlands of Montana. Like many other institutes formed about that time, we were part of the “public choice” and “law and economics” revolutions. Our paradigm was built on the shoulders of scholars such as Friedrich Hayek, Milton Friedman, Ronald Coase, Henry Manne, and James Buchanan.

In those early years, PERC focused more on showing how government failure contributed to environmental problems than on demonstrating how markets might solve them. And there were plenty of examples, from below-cost timber sales to subsidized water projects, which proved government regulation wasn't always friendly to the environment.

By the final decade of the century, however, we knew we had a better idea. **20 YEARS** ago, the small band of “anti-Pigouvians” had become “Coasean rebels,” focused on how property rights could make the



environment an asset rather than a liability. In 1991 Don Leal and I published the first edition of *Free Market Environmentalism*. We highlighted examples of “bureaucracy vs. environment” while building a framework for harnessing markets to improve environmental quality. In essence, we moved from the easy task of documenting government failure to the harder task of illustrating market success. Lacking many concrete case studies, however, we were still writing about hypothetical examples of how free market environmentalism *could* work.

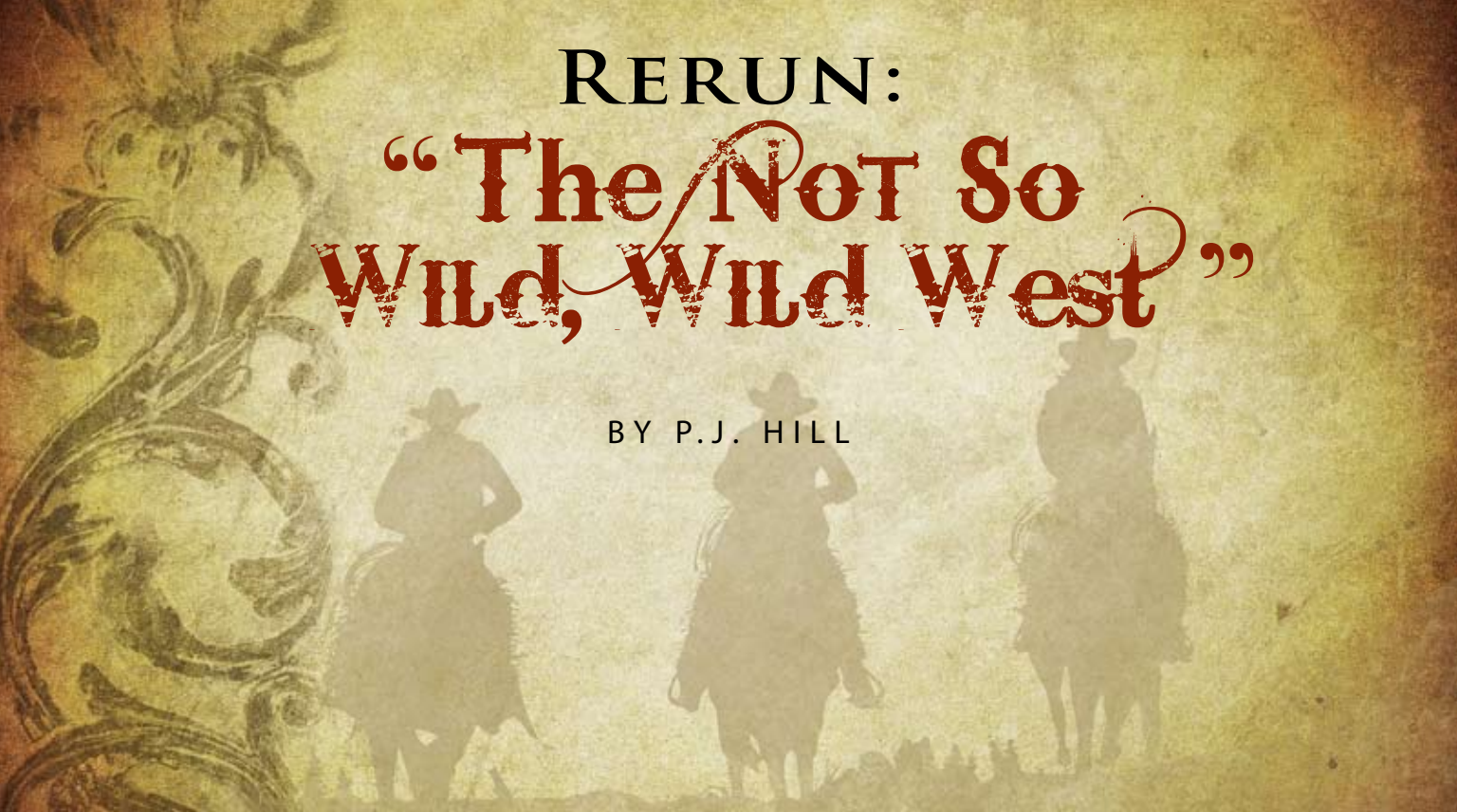
Partly because there was so much evidence showing that command-and-control environmentalism wasn’t working and partly because PERC’s research was showing that free market environmentalism could work, **10 YEARS** ago we launched PERC’s “do tank.” Under the banner of PERC’s Enviropreneur Institute (PEI), originally called the Kinship Conservation Institute, we began to help empower environmental entrepreneurs in the application of property, contracts, and markets to enhance environmental assets. These enviropreneurs have now formed their own 150-member alumni association, which helps guide the curriculum of PEI and maintains a network of practicing free market environmentalists. Each year their stories are showcased in a special issue of *PERC Reports*.

NOW we are entering the next chapter in PERC’s history. PERC has become a university, in the truest sense of the word, a place where scholars, journalists,

policy makers, and environmental practitioners can come together to explore the prospects for and pitfalls of free market environmentalism. It has three departments—research, outreach, and applied programs—each of which offers a variety of ways to “major” in free market environmentalism. Professors, graduates students, and policy analysts spend time as fellows in PERC’s research department, writing articles and books, while maintaining a think tank atmosphere. Journalists and policy makers work in the outreach department bringing life to the projects that illustrate the efficacy of free market environmentalism. And enviropreneurs—real environmentalists and resource managers—come to PERC’s applied programs where they put ideas into action.

Despite huge environmental improvements over the past four decades, environmentalists still can’t get past the gloom and doom of 40 years ago. PERC is taking a different approach by celebrating its 30th birthday knowing it has made a difference. Built on a theoretical foundation laid 20 years ago, PERC started its do tank 10 years ago and now has evolved into PERC University. If you want to be part of this positive environmental force, PERC University is where you ought to be. Enroll today.

In “On Target,” PERC’s executive director TERRY L. ANDERSON confronts issues surrounding free market environmentalism. He can be reached at perc@perc.org.



RERUN: “The Not So Wild, Wild West”

BY P. J. HILL

More than thirty years ago, P. J. Hill and Terry Anderson published “An American Experiment in Anarcho-Capitalism: The Not So Wild, Wild West” in the Journal of Libertarian Studies. This was no typical western tale. Rather, this groundbreaking paper claimed that, the West, “although often dependent upon market peace-keeping agencies, was, for the most part, orderly.”

This article went on to discuss the evolution of property rights in the West through the formation of land claims clubs, cattlemens’ associations, rules governing claims in mining camps, and quasi-constitutions for wagon trains. The nineteenth century American West proved to be a useful testing ground for theories of spontaneous ordering through entrepreneurs who saw how property rights could be fashioned to minimize resource waste.

*Hill and Anderson went a few steps further in *The Not So Wild, Wild West: Property Rights on the Frontier* (Stanford University Press, 2004), pointing out that the arrival of formal government changed the decision making in the West. Today, federal agencies such as the Forest Service and Bureau of Land Management control one-third of the nation’s land. On this land, use is allocated through political and bureaucratic processes, making it difficult to devolve decision making to the local level. But Hill explains, there are still lessons to be learned from the American Old West.*

—Editor's note



We were fascinated with the western experience in property rights because of the wide range and types of rights that evolved and because order rather than violence dominated.

There is much evidence that well-defined and enforced property rights are necessary to direct human activity in useful ways. As young scholars, Terry Anderson and I were aware of this general thesis, but also thought evidence on where and how property rights evolve was thin.

We were both raised in Montana; Terry the grandson of a miner and bootlegger and me the grandson of a rancher who started the P J Ranch. We discovered that our personal backgrounds and exposure to western history gave us a starting point for thinking about where rights come from. In 1979, we wrote:

Although the early West was not completely anarchistic, we believe that government as a legitimate agency of coercion was absent for a long enough period to provide insights into the operation and viability of property rights in the absence of a formal state. The nature of contracts for the provision of “public goods” and the evolution of western “laws” for the period from 1830 to 1900 will provide the data for this case study.

“HOW THE WEST WAS WON”

We were fascinated with the western experience in property rights because of the wide range and types of rights that evolved and because order rather than



violence dominated. The basic idea was that bottom up, rather than top down, development of property rights, offered a useful tool for analyzing many resource issues. The American West provided an interesting place to develop the concept of institutional entrepreneurs. The lack of formal government structures meant that local people were able to devise rules that held individuals accountable for their actions. These rules, or property rights, also provided important feedback loops, which developed information and incentives for appropriate interaction.

Today many scholars who deal with natural resource and environmental issues understand the necessity of property rights. Yet many still do not recognize the importance of “on the ground” activity for effective rights development. Fortunately, not all scholars fall into the trap of believing that property rights must be imposed from above. The recent Nobel Laureate, Elinor Ostrom, has explored numerous situations where one would not expect effective property rights arrangements to exist. She has studied irrigation systems, common property forests, and fisheries. In all of these cases, she finds that when effective power resides with those involved in actual resource management, there are strong incentives to find institutional arrangements that solve coordination problems.

In today’s world, however, it is difficult to rep-

licate either the American West experience or Ostrom’s findings. Massive government ownership of forests and grazing land, large-scale government subsidies in water markets, and the view that all environmental problems are national issues that require centralized solutions stand in the way of effective institutional evolution.

Property rights are best formulated and modified by the people actually involved in using the resource, but most of the proposed solutions to environmental problems suffer from a central-planning mentality. President Nixon, for example, helped build an unprecedented bureaucratic morass: the National Environmental Policy Act, the Clean Air and Clean Water acts, and the Endangered Species Act. These policies have come with bloated bureaucracies spending billions of taxpayer dollars.

President Obama is now feeding the green goliath that Nixon helped create. Under his leadership, Congress has increased the Environmental Protection Agency’s budget to \$10.5 billion in 2010 (a 35 percent increase) and passed the Omnibus Public Land Management Act, which includes 170 bills to federally shelter public lands and rivers at an estimated start-up cost of \$6.4 billion.

This does not mean that there is no hope for effective solutions to resource issues, however. The



There is no better place to begin examining why the American West was not so wild than with the ‘red man’s law.’

world is full of institutional entrepreneurs. When given the freedom to develop innovative contracts that alter the sticks in the property rights bundle, such entrepreneurs can be found in many places—including Indian reservations.

“LITTLE BIG MAN”

As Terry and I explain in *The Not So Wild, Wild West* (2004), “There is no better place to begin examining why the American West was not so wild than with the ‘red man’s law.’” Despite a lack of formalized governing structures, pre-Columbian Indians understood the tragedy of the commons well and created rules and order to protect their resources. Today, entrepreneurial tribes such as the Salish and Kootenai of the Flathead Indian Reservation in Montana are proving that, like their ancestors, they too are very capable of managing their resources.

In 1995, the forestry department of the Confederated Salish and Kootenai Tribes compacted with the federal government under Public Law 93-638. This move allowed the tribes to break free from the chains of the Bureau of Indian Affairs and gave them full rein over their forestry decisions.

The result of this arrangement has been positive for both the tribes’ economic health and for the ecological health of the reservation. In a *PERC Policy*



Series, "Two Forests under the Big Sky," Alison Berry (2009) compared the Flathead Reservation with the neighboring Lolo National Forest and discovered that on both the cost and output sides of the equation, the tribes do a better job than the federal government.

The Flathead Indian Reservation and the Lolo National Forest have much in common. Bordering one another, the reservation and the national forest have similar soils, climate, and tree compositions. The forests also have comparable volumes of standing timber per acre, potential productivity, and annual average growth.

Despite these similarities, however, there is a big difference in the dollar return and unit output between the reservation and federal forest timber programs. According to Berry, the Lolo harvested 57 percent more timber between 1998 and 2005 than the Flathead, yet it generated much lower returns. In this period the tribes' gross revenue from timber exceeded \$16 million, while the Lolo's gross revenue was \$2.5 million. In other words, the tribal forest averaged \$2.04 in annual revenues for every dollar spent, whereas the Lolo averaged \$1.11.

The Tribes of the Flathead rely on timber revenues to support tribal operations and have a direct interest in the continuing vitality of their natural resources. As Jim Durglo, tribal forest manager said, "Our forest

is a vital part of everyday tribal life. Timber production, non-timber forest products, and grazing provide jobs and income for tribal members and enhance the economic life of surrounding communities."

There are numerous other examples of bottom-up institutional entrepreneurship at work. Ranchers are reclaiming trout streams on their land, brokers are discovering how to market water rights to encourage exchanges between farmers and anglers who want instream water for amenity purposes, and those who value wildlife are compensating ranchers for livestock loss due to predators. In each case, getting government to reduce its heavy hand of control is important for these innovative solutions to occur.



P. J. Hill is a professor of economics at Wheaton College and a PERC senior fellow. His research and articles, especially on the evolution of property rights in the American West, helped found the New Resource Economics paradigm. He can be reached at p.j.hill@wheaton.edu.



REFLECTIONS ON “SAVING THE WILDERNESS”

BY RICHARD L. STROUP

Twenty-nine years ago, John Baden and Rick Stroup wrote “Saving the Wilderness,” published by Reason magazine in July 1981. The article focused on management of the Paul J. Rainey Preserve in Louisiana, which is owned by the National Audubon Society. Patrick Cox, then a free-lance writer working for Reason, provided on-the-ground support at the Preserve, and wrote the moving descriptions of the wildlife and natural beauty there that open the article.

“The sun through morning fog is the signal for thousands of snow geese to prepare for flight. On some mornings the sky may fill with...60,000 geese in the air, blanketing normal conversation. When the morning flight ends in the Rainey Wildlife Sanctuary, a visitor may decide to take the long way home and see more....The Cajun guide can bring you to man-made islands of steel and concrete: natural gas wells.”

The authors went on to ask: “Gas wells in terrain managed by professional, dedicated environmentalists may seem almost as out of place as free drinks at an AA meeting. What happened to the hostility that has come to exist between resource developers and conservationists? Have the lion and the lamb laid down together in the same field?” Did this recognition that marketing goods and services can be compatible with the protection of environmental amenities spread beyond Rainey?

—Editor's note

“Saving the Wilderness” explained how the managers of the Rainey Preserve used market relationships to enhance private land management and how they and similar managers could, if allowed, improve the management of government land, too. The institutional rules, though, would have to be rewritten just enough to allow managers to trade rights when doing so would, in their judgment, enhance the values for which the land had been politically set aside. Essentially, we wanted to show that the protection of wilderness—*an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain*, to quote the words of the Wilderness Act of 1964—could be reconciled through markets with the benefits that come from using minerals.

In 1980, Ronald Reagan had been elected President of the United States, and early in his administration he had announced his intention to change the management of federal lands to provide more access for mineral development on those lands. There was nothing inherently radical about this. Many federal holdings were already managed for “multiple use” (e.g., to provide natural preservation, public recreation, and commodity production, such as logging and mining). There was also increasing pressure for mining, especially for minerals that had strategic value to the national defense mission of the government. At the same time, opponents of mineral development were many, with en-

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vironmental groups chief among them. They argued that the very concept of wilderness is not compatible with mineral mining or drilling. They demanded that such activities be strictly banned on lands set aside as wilderness as well as on lands that had been designated as Wilderness Study Areas. Whose values would rule? And where? Each side wanted it all, but only one side could win under the existing policy. The conduct of land use management by the federal government had become filled with acrimony.

The sensible management of the Rainey Preserve, and the constructive interactions of oil and gas developers with the Audubon managers of the Preserve, in contrast, provided a model for us to describe how competing values can both be enhanced if, and when, market forces are allowed to work. We believed that the same could happen in the federal land management agencies, even on lands designated for wilderness management.

AUDUBON MEETS OIL COMPANIES

Rainey had been set aside as a wildlife refuge in 1924. When natural gas was discovered near the Preserve around 1940, oil companies expressed an interest in drilling on the refuge. Audubon at first declined, I was told, but did agree to meet with oil company biologists to lay out its goals and explain why drilling

was not consistent with those goals. As the biologists exchanged ideas over time, and worked with geologists to develop a drilling plan to use new drilling technologies, seasonal limits, and other restrictions, the oil companies and Audubon found common ground and entered into agreements.

Could the same ideas work on federal lands already set aside? We set out to show that they could. The federal acreage at stake is very large and potentially the source for both minerals and wilderness services—that is, the protection of wildlife and the natural environment that was desired by the Audubon managers of the Rainey. A concept like the one operating at Rainey could make minerals much more available to the nation and, by making wilderness management more compatible with mineral production, could lower the cost of managing more lands for wilderness values.

Making this case was a perfect project for the very young PERC, whose personnel then were operating at Montana State University (MSU). PERC itself had recently been incorporated as a cooperating institution to accept private grants from donors unwilling to write checks to units of the state government, including MSU. John Baden, the founding director of PERC, had long been a strong force for wilderness protection, even before he and I had worked together. John's negative view of the Reagan administration regarding





environmental values such as his on wilderness and especially, his wariness about the policies that Interior Secretary James Watt might bring forth, were reflected in the article.

MR. STROUP GOES TO WASHINGTON

My own views were less negative, however, so in 1982 I took a temporary assignment working for Secretary Watt at the Department of Interior. I had no illusions of being able to bring great changes on my own, but if our ideas had force, then why not see what could be done? I might be able to “sell” some PERC ideas, such as the cooperation between Audubon and oil companies that occurred on private land. In any case, I knew that I would learn a lot as Director of the Office of Policy Analysis, in the Office of the Secretary. I was put in charge of 40 very smart, hard-working professionals, who knew far more than I about the specific bureau that each followed and about the narrow specialty that each had mastered.

The first thing the staff taught me was that while we economists cherish and work for economic efficiency, the blunt fact of Washington, D.C., is that efficiency has no politically organized constituency. None! Yet to be elected, a politician needs the help of many constituencies, each willing to provide support, especially at election time. My response to this problem was this: Our job in providing policy advice to the Office of the Secretary was to tie efficiency to the generation of support for the president’s policies, since every political appointee, including the interior secretary, serves at the pleasure of the president. If the policy we recommended was efficient, then the added productivity that would come about could be harnessed to

It appears now that Audubon’s Bernard Baker Sanctuary in Michigan is following in Rainey’s footsteps. In this case, the oil well was placed on private property bordering the preserve with a drill that slants into the sanctuary’s reserves.



generate political support. If we wanted an effective option, our job was to make it pay political dividends in an economical way.

We tried, and sometimes we made headway. Although the wilderness management scheme of “Saving the Wilderness,” did not go far, a toehold was found in the closely related “endowment board” concept that John and I wrote about in a 1982 *Cato Journal* article, “Endowment Areas: A Clearing in the Policy Wilderness?” In 1996, Congress created a trust for managing San Francisco’s Presidio, a former Army post overlooking the Golden Gate Bridge. The Presidio had been part of the Golden Gate National Recreation Area, but the government could no longer afford to maintain it without obtaining revenues from the site itself. Hence, a board of trustees was established and given a fiduciary obligation to become financially self-supporting by 2013. The recognition that marketing goods and services is compatible with the protection of a beautiful environment lives on through the Presidio.

THE NEW RAINEY PRESERVE

For nearly 50 years, the Audubon Society allowed an oil company to operate 13 wells in the sanctuary. The company had to comply with strict stipulations such as no pumping during the nesting season. In exchange, Audubon earned more than \$25 million

and was able to buy additional land for conservation with its profits. It appears now that Audubon’s Bernard Baker Sanctuary in Michigan is following in Rainey’s footsteps. In this case, the oil well was placed on private property bordering the preserve with a drill that slants into the sanctuary’s reserves. Terry Anderson and Laura Huggins interviewed Mike Boyce, Bernard’s resident manager, for their book *Greener Than Thou*. Boyce claimed the agreement earned \$500,000 for Audubon and that Baker is in negotiations with another company and private landowner to build an oil rig on the other side of the Sanctuary. Audubon is smart to maintain wildlife habitat while capitalizing on revenue potential—now if only our federal land management agencies could figure this out.



RICHARD STROUP is a senior fellow at PERC and an adjunct professor at North Carolina State University. Previously, Stroup was a professor of economics at Montana State University and the head of the Department of Agricultural Economics and Economics. He can be reached at rstroup3@gmail.com.



ECONOMIST, n. A scoundrel whose faulty vision sees things as they really are, not as they ought to be. —after Ambrose Bierce

RECYCLING REDUX

More than 30 years after the homeless garbage barge *Mobro 4000* put recycling on the front pages, recycling remains a poster child for many who consider themselves environmentalists. In Benjamin (2003) I examined whether residential recycling warranted this status. My conclusion was that it did not. Yet proponents of municipal solid waste (MSW) recycling continue to push it, as both a centerpiece of environmental education in school systems, and as a core component of environmental policy, particularly at the state and local level.

I have recently revisited the issue in Benjamin (2010), drawing on updated evidence and taking a closer look at the arguments. Depending on one's view of the world, the good news or bad news is that MSW recycling makes no more environmental or economic sense now than it did at the time of my earlier analysis. It is instead an activity that yields negligible environmental benefits, and does so at high economic cost. In short, if we focused our efforts on alternative means of environmental enhancement, we could achieve higher environmental quality *and* have more of other goods.

In the course of my reassessment of recycling's virtues—or lack thereof—I had occasion to more carefully evaluate two questions to which I had given relatively little consideration the first time around. First, isn't recycling a crucial element of living sustainably? Second, don't government subsidies to fossil fuel production markedly distort the cost figures against recycling? As it turns out, the answer in both cases is “no.”

Consider first the issue of sustainable living. People routinely use the term “sustainable” without telling others what they mean, so I wish to be

explicit. I presume the term means that we are responsibly conserving resources for the future. This requires that we pay for the full costs of our actions today—no less, and no more. If we “underpay” for consuming resources, we will consume them so quickly that future generations will find themselves worse off as a result. But the reasoning is symmetric: if we “overpay,” we *also* harm future generations.

Imagine, for example, that a concern for vistas that might be affected by new wind farms induced us to impose a prohibitive tax (or costly regulatory procedure) on the construction of such facilities. It is true that we would preserve valuable views for the future, but at the expense of inducing us to consume more energy produced by coal. One can easily imagine that the resulting damage to air quality could outweigh the improved views, leaving future generations worse off, despite their pristine vistas. The key point here is that to live sustainably we must not only ensure that we avoid overconsumption; we must also ensure that we do not induce underconsumption.

In the context of recycling, if we want to live sustainably, we must recognize that conserving a few resources (such as bauxite or iron ore) does not al-

ways constitute living sustainably. We must take into account our actions on the *overall* consumption of resources. My estimates are that recycling costs \$120 per ton more than does landfilling—even after accounting for the value of the recycled materials. This implies that MSW recycling programs are counterproductive to sustainable living because they actually waste resources, leaving less for future generations.

But what about those energy subsidies? The production of goods from virgin materials tends to be more energy-intensive than is production using recycled materials. Consequently, it is argued, energy subsidies tend to distort the cost picture against recycling. Well, it turns out that although the *production* of petroleum and coal in the United States is subsidized, their *consumption* is taxed. The net impact on petroleum prices is likely trivial—well under one percent—so that the practical impact of tax policy on the recycling decision is in this dimension undetectable. For coal, roughly 90 percent of the subsidies go toward promoting so-called “clean coal,” which has been processed to substantially reduce its pollution potential. Just as importantly, the magnitude of the coal subsidies net of taxes appears to be miniscule (Metcalf 2007). The result is that the \$120 per ton resource cost disadvantage of recycling compared to landfilling is substantively unaffected by government energy subsidies.

The overall picture that emerges is that mandatory recycling programs create a substantial waste of resources in return for environmental benefits that are questionable, at best. Once we recognize that there are *other* policies (such as a higher national fuel tax) that could yield environmental benefits at far lower costs, we are forced to confront the question: Why are we sacrificing so much to achieve so little? Surely that is a query that proponents of mandatory recycling programs should be forced to address.

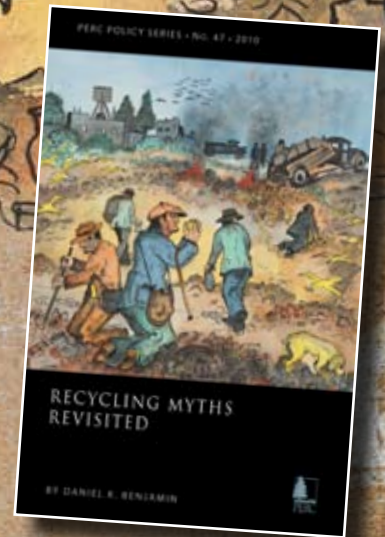
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RECYCLING MYTHS REVISTED



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HELPING PROPERTY RIGHTS EVOLVE IN MARINE FISHERIES

BY DONALD R. LEAL

Two decades ago Donald Leal and Terry Anderson wrote “Homesteading the Oceans,” which appeared in the first edition of Free Market Environmentalism. They concluded the chapter by writing, “Establishing property rights to the ocean commons will not be easy, but like the frontier West, we can expect increasing efforts at definition and enforcement. Individual Transferable Quota (ITQ) systems offer a step toward facilitating property rights solutions.” Twenty years later there is good news and bad news.

As Leal explains below, the bad news is that the world’s fisheries are still in poor shape, both environmentally and economically. The good news is that rights-based management approaches are catching on and, as recently reported in Science, have the ability to halt and even reverse the global depletion of marine resources.

Through books, papers, and seminars for congressional staffers, and by working with groups such as the Environmental Defense Fund, Reason, and the Sand County Foundation, PERC has played an instrumental role in injecting rights-based solutions into ocean overfishing problems. When “Homesteading the Oceans” was published in 1991, there was one ITQ program in the United States for federally managed fisheries—today there are 15. The following provides an overview of this promising development.

—Editor's note



Scarcely a week goes by in which we do not hear or read some distressing news about overfishing in ocean fisheries. Such news comes at a time when the world has witnessed a phenomenal productivity boom in agricultural use of land. There have been major technological advances in both arenas over the past half century, but the results of those advances differ markedly. In farming and ranching, technological advances have increased crop yields, raised product quality, and reduced production costs. In ocean fishing, however, technological advances have, for the most part, merely increased the ability of fishers to locate and catch more fish in less time. Little has been done to increase the seas' natural fish production.

Why the difference? A vast literature on natural resource economics says it has to do with property rights. In simple terms, property rights are the formal or informal rules regarding use, ownership, and transfer of property. But they have to be much more than that in order to serve as a foundation for more efficient production and better stewardship in natural resource use. Specifically, property rights must be well defined, enforceable, transferable, and durable.

As an illustration, consider the case of private ranch land in the western United States. Land deeds registered at the courthouse and barbed wire marking physical boundaries of the land clearly define who owns what ranch. In addition, because private ownership of land is enforced by the rule of law, ranch owners know they can exclude others from trespassing on their property, as well as



In ocean fishing technological advances have increased the ability of fishers to locate and catch more fish in less time.



prevent them from appropriating the land's agricultural outputs. Such exclusivity gives owners a strong incentive to increase the value of their land because they directly benefit. By the same token, they and they alone face the consequences of poor land use decisions.

Landowners also know that they can sell or lease all or part of their land to anyone, at any time. Such unencumbered transferability encourages owners to take into account how others value their property for ranching as well as other uses to which it might be put. Transferability also provides a powerful incentive for moving land to its highest-valued use. And because their property rights are held in perpetuity, ranchers have an incentive to take into account the future productivity of land when deciding present use.

TOO MANY HOOKS IN THE SEA

Because property rights in wild ocean fish stocks are not yet a reality, ocean fishers operate under a much different set of incentives. Specifically, they operate under the incentives of the commons, which leads to the well-known "tragedy of the commons" scenario. Catching fish today means those fish will not have the opportunity to grow larger and to reproduce, yet fishers have no incentive to leave a fish because a fish left for tomorrow can be caught by others. Hence, the incentive is for fishers to ignore the future value of the resource and catch more than a sustainable



Property rights in wild ocean fish stocks are not yet a reality, ocean fishers operate under different set of incentives.



amount of fish. In addition, each fisher can reap the full benefits of catching more fish while facing only a fraction of the depletion costs—these costs are shared among all fishers who exploit a fish stock. Such a distorted calculus further depletes marine resources.

For decades, government regulations dictating when, where, and how to fish have been the tool of choice in managing fisheries. Unfortunately, such an approach fails to instill in each fisher a regard for the future value of the resource, as a rancher has in owning land. Nor does it force each fisher to take into account the cost of taking one more fish. Moreover, a “regulated” commons still allows shares of the catch to be up for grabs, often leading to a destructive race for fish. In an effort to win the race for fish, each fisher is compelled to invest in bigger boats and more elaborate gear. Not only does fishing become wastefully expensive, but preventing overfishing through regulations such as shortened seasons and limits on fishing trips becomes problematic as the ability to catch more fish in smaller increments of time increases.

The results have not been good environmentally or economically. According to the United Nations Food and Agriculture Organization (FAO), about 28 percent of marine resources were “overexploited, depleted, or recovering from depletion” in 2008. In 1974, the percentage was reported to be 10 percent. In other words, the percentage of stocks in trouble increased by 2.5 times. A recent report by FAO and the World Bank estimates that the world’s fisheries lose an estimated \$50 billion a year due to



In an effort to win the race for fish, each fisher is compelled to invest in bigger boats and more elaborate gear.



fisheries mismanagement. At a modest discount rate, this amounts to some \$2 trillion in lost wealth over the last 13 years.

ON THE BRIGHT SIDE

The good news is that there is a better way to manage an ocean fishery. A growing body of research reveals that fisheries that have adopted rights-based management strategies achieve sustainable catches and profits. As with other natural resources, the ideal approach is to establish well-defined, enforceable, and transferable property rights in the resource itself. But this approach has been slow to develop because, unlike land, most marine species are mobile and access is difficult to monitor. For now, specifying rights in either the harvest of fish or in the area of harvest has proven more feasible.

The most prominent of these rights-based approaches is individual transferable quotas (ITQs), which entitle a quota holder to catch a specific share of the total allowable catch set by fishery managers. The shares are also tradable. Another approach involves the fishers themselves structuring their own harvesting agreements, often resembling ITQs but privately administered. Yet another approach, well suited for species of limited mobility, is the establishment of exclusive harvest rights to marine areas. Economists have documented the economic benefits from implementing these approaches, such as higher fishing incomes, better product quality, and lower fishing costs. Using a global data base, scientists reported in *Science* in 2008 that such approaches have the wherewithal to halt and even reverse the global trend in stock depletion.

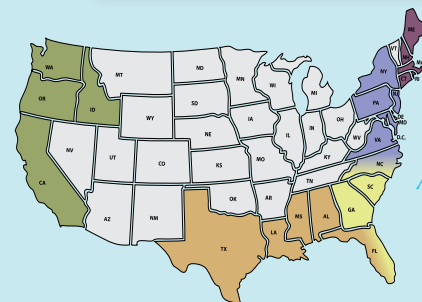
Once these approaches are adopted, the next phase of property rights evolution in fisheries may well entail the assumption of management rights and duties by fishers themselves. This has been a historical feature of some community-oriented coastal fisheries, and it has now emerged in New Zealand in some ITQ fisheries.

Beaufort Sea



CATCH SHARE PROGRAM BY REGION

NORTH PACIFIC OCEAN



NORTH ATLANTIC OCEAN

Gulf of Mexico

■ PACIFIC:

Pacific Sablefish Permit Stacking (2001)

■ NORTH PACIFIC:

Halibut & Sablefish (1995)
 Western Alaska CDQ (1992)
 Bering Sea AFA Pollock Cooperative (1999)
 Groundfish (non-Pollock) Cooperative (2008)
 Bering Sea King & Tanner Crab (2005)
 Central Gulf of Alaska Rockfish Pilot (2007)

■ NEW ENGLAND:

Georges Bank Cod-Hook Gear (2004)
 Georges Bank Cod-Fixed Gear (2007)
 Atlantic Sea Scallops IFQ (2010)

■ MID-ATLANTIC:

Surf Clam & Ocean Quahog (1990)
 Golden Tilefish (2009)

■ SOUTH ATLANTIC:

Wreckfish (1991)

■ GULF OF MEXICO:

Red Snapper (2007)
 Grouper & Tilefish (2010)



OVERCOMING OBSTACLES

Despite their success, rights-based strategies face obstacles. For example, many fisheries have a large number of participants belonging to several distinct groups, such as small-scale and large-scale fishers, those who use nets, those who use hook and line, and full-time and part-time participants in a fishery. Getting groups to agree that substantive change is needed must address the difficult issue of who is made better off and who is made worse off by an initial allocation of exclusive rights to a fishery.

The “freedom-of-the-seas” mind-set is another obstacle that still persists in many fishing communities; thus removing free and open entry to fishing grounds is often resisted. Another snag emanates from political agencies themselves, as their incentives work against relinquishing power over the fishery. More recently, resistance has taken on new dimensions, mostly from environmentalists, processors, and sportfishing interests, who perceive that their interests in the fishery are not adequately addressed in initial rights allocation.

The obstacles to property rights in the world’s fisheries remain formidable, but there has been progress. In the United States, a moratorium on ITQs in federally managed fisheries was imposed in 1996. Thanks to PERC research, education, and outreach as well as collaborative efforts with the Environmental Defense Fund, Reason Foundation, and fishing groups, Congress allowed the moratorium to expire in 2002. The number of federal fisheries adopting rights-based approaches has grown from four in 1995 to 15 today, with several more major fisheries in the planning stage.

At the global level, less than 2 percent of the world’s fisheries have adopted rights-based strategies. As it did for U.S. fisheries, PERC is carrying out research and working with partners to build momentum for rights-based fishing in developing countries in Africa. A recent PERC Political Economy Forum attracted internationally recognized experts who wrote papers on lessons learned in fisheries reform in developing countries. A final report will be out this summer with a published volume to follow.

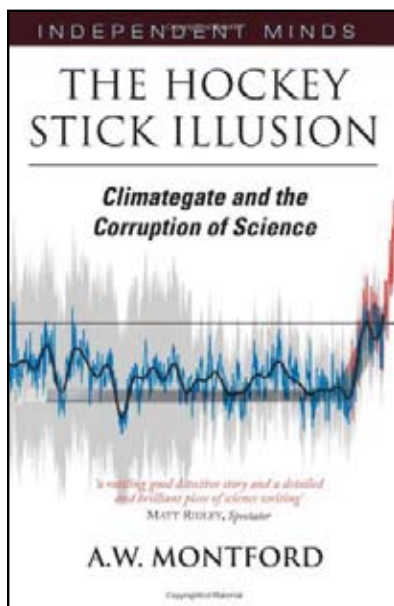
All told, there has been slow but steady progress in evolving property rights in marine fisheries, and I am delighted to say that PERC has played an instrumental role in the process.



DONALD R. LEAL is a senior fellow and director of research at PERC. Leal has served as a member of the grouper ITQ design panel for the Gulf of Mexico Fisheries Management Council and currently resides on a design panel for the angler group in the Gulf reef fish fishery. He can be reached at don@perc.org.

The number of federal fisheries adopting rights-based approaches has grown from four in 1995 to 15 today.

THE CASE AGAINST THE HOCKEY STICK



The “hockey stick” temperature graph is a mainstay of global warming science. A new book tells of one man’s efforts to dismantle it—and deserves to win prizes.

Andrew Montford’s *The Hockey Stick Illusion* is one of the best science books in years. It exposes in delicious detail, datum by datum, how a great scientific mistake of immense political weight was perpetrated, defended and camouflaged by a scientific establishment that should now be red with shame. It is a book about principal components, data mining and confidence intervals—subjects that have never before been made thrilling. It is the biography of a graph.

I can remember when I first paid attention to the “hockey stick” graph at a conference in Cambridge. The temperature line trundled along with little change for centuries, then shot through the roof in the 20th century, like the blade of an ice-hockey stick. I had become somewhat of a skeptic about the science of climate change, but here

was emphatic proof that the world was much warmer today; and warming much faster than at any time in a thousand years. I resolved to shed my doubts. I assumed that since it had been published in *Nature*—the Canterbury Cathedral of scientific literature—it was true.

I was not the only one who was impressed. The graph appeared six times in the Intergovernmental Panel on Climate Change (IPCC)’s third report in 2001. It was on display as a backdrop at the press conference to launch that report. James Lovelock pinned it to his wall. Al Gore used it in his film (though describing it as something else and with the Y axis upside down). Its author shot to scientific stardom. “It is hard to overestimate how influential this study has been,” said the BBC. The hockey stick is to global warming what St. Paul was to Christianity.

Of course, there is other evidence for global warming, but none of it proves that the recent warming is unprecedented. Indeed, quite the reverse: surface temperatures, sea levels, tree lines, glacier retreats, summer sea ice extent in the Arctic, early spring flowers, bird migration, droughts, floods, storms—they all show change that is no different in speed or magnitude from other periods, like 1910–1940, at least as far as can be measured. There may be something unprecedented going on in temperature, but the only piece of empirical evidence that actually says so—yes, the only one—is the hockey stick.

And the hockey stick is wrong. The emails that were leaked from the University of East Anglia late last year are not proof of this; they are merely the icing on the cake, proof that some of the sci-

entists closest to the hockey stick knew all along that it was problematic. Andrew Montford's book, despite its subtitle, is not about the emails, which are tagged on as a last chapter. It is instead built around the long, lonely struggle of one man—Stephen McIntyre—to understand how the hockey stick was made, with what data and what programs.

A retired mining entrepreneur with a mathematical bent, McIntyre asked the senior author of the hockey stick graph, Michael Mann, for the data and the programs in 2003, so he could check it himself. This was five years after the graph had been published, but Mann had never been asked for them before. McIntyre quickly found errors: mislocated series, infilled gaps, truncated records, old data extrapolated forwards where new was available, and so on.

Not all the data showed a 20th century uptick either. In fact just 20 series out of 159 did, and these were nearly all based on tree rings. In some cases, the same tree ring sets had been used in different series. In the end, the entire graph got its shape from a few bristlecone and foxtail pines in the western United States; a messy tree-ring data set from the Gaspé Peninsula in Canada; another Canadian set that had been truncated 17 years too early called, splendidly, Twisted Tree Heartrot Hill; and a superseded series from Siberian larch trees. There were problems with all these series: for example, the bristlecone pines were probably growing faster in the 20th century because of more carbon dioxide in the air, or recovery after “strip bark” damage, not because of temperature change.

This was bad enough; worse was to come. Mann soon stopped cooperating, yet, after a long struggle, McIntyre found out enough about Mann's programs to work out what he had done. The result was shocking. He had standardized the data by “short-centering” them—essentially subtracting them from a 20th century average rather than an average of the whole period. This meant that the principal component analysis “mined” the data for anything with a 20th century uptick, and gave it vastly more weight than data indicating, say, a medieval warm spell.

Well, it happens. People make mistakes in science. Corrections get made. That's how it works, is it not? Few papers get such scrutiny as this had. But that is an even more worrying thought: How much dodgy science is being published without the benefit of an audit by McIntyre's ilk? As a long-time champion of science, I find the reaction of the scientific establishment more shocking than anything. The reaction was not even a shrug: It was shut-eyed denial.

If this had been a drug trial done by a pharma-

ceutical company, the scientific journals, the learned academies and the press would have soon have rushed to discredit it—and rightly so. Instead, they did not want to know. *Nature* magazine, which had published the original study, went out of its way to close its ears to McIntyre's criticisms, even though they were upheld by the reviewers it appointed. So did the National Academy of Sciences in the United States, even when two reports commissioned by Congress upheld McIntyre. So, of course, did the IPCC, which tied itself in knots changing its deadlines so it could include flawed references to refutations of McIntyre while ignoring complaints that it had misquoted him.

The IPCC has taken refuge in saying that other recent studies confirm the hockey stick but, if you take those studies apart, the same old bad data sets keep popping out: bristlecone pines and all. A new Siberian data series from a place called Yamal showed a lovely hockey stick but, after ten years of asking, McIntyre finally got hold of the data last autumn and found that it relied heavily on just one of just twelve trees, when far larger samples from the same area were available showing no uptick. Another series from Finnish lake sediments also showed a gorgeous hockey stick, but only if used upside down. McIntyre just keeps on exposing scandal after scandal in the way these data were analysed and presented.

Montford's book is written with grace and flair. Like all the best science writers, he knows that the secret is not to leave out the details (because this just results in platitudes and leaps of faith), but rather to make the details delicious, even to the most unmathematical reader. I never thought I would find myself unable to put a book down because—sad, but true—I wanted to know what happened next in an r-squared calculation. This book deserves to win prizes.

Oh, and by the way, I have a financial interest in coal mining, though not as big as Al Gore has in carbon trading. Maybe you think it makes me biased. Read the book and judge for yourself.

The Hockey Stick Illusion is published by Stacey International, 482 pages, list price \$18.00.

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MATT RIDLEY is the author of provocative books on evolution, genetics, and society, including: *The Rational Optimist*, *Nature Via Nurture*, and *Genome*. His books have sold more than 800,000 copies, been translated into 27 languages, and have won several awards.

“BOOTLEGGERS, BAPTISTS, & GLOBAL WARMING” IN RETROSPECT

BY BRUCE YANDLE

As nations argued over global warming policies at the Kyoto Protocol, PERC senior fellow Bruce Yandle was busy bringing new insights to the discussion. In a PERC Policy Series from 1998, “Bootleggers, Baptists, and Global Warming,” he shed light on puzzling features of the international negotiations over climate change.

Yandle applied his “bootleggers and Baptists” theory of regulation to the global warming debate. In the South, laws make it illegal to sell alcohol on Sunday. These laws are maintained by an inadvertent coalition of bootleggers and Baptists. The Baptists (and other religious denominations) provide the public outcry against liquor on Sunday, while the bootleggers (who sell liquor on

Sunday) quietly persuade legislatures and town councils to maintain the closing laws.

Yandle explained that something similar was happening with the treaty negotiations over climate change; the Baptists are the environmental groups, and the bootleggers are the companies, trade associations, and nations that are seeking favors through global warming negotiations.

Twelve years later, on the heels of the Copenhagen Accord, bootleggers and Baptists continue to embrace Kyoto prospects. The good news is that the collapse in Copenhagen provides the world with a chance to step back and reevaluate the politics and science behind the debate—to find a better way than the Kyoto Protocol process.

—Editor's note



On reading my October 1998 *PERC Policy Series*, several things jumped out at me. First the struggle I described using the bootleggers and Baptists theory of regulation to explain the Kyoto Protocol process has hardly changed one iota in 12 years. Somewhat unexpected coalitions of environmentalists and energy producers still sing together from green hymn books that call for final implementation of the Kyoto-blessed cap-and-trade greenhouse gas controls. However, there is a difference to be observed in how the singers make their music: The interest groups have learned to harmonize better. For example, a U.S. Climate Action Partnership, formed by some leading industrial firms and environmental groups, lobbies strenuously in support of federal cap-and-trade legislation. The industrial players are firms that will gain market share in resulting restructured energy markets. They are green in more ways than one—as in money. Contributions rise for the environmental groups when they sing in harmony. Environmental organizations are also green in more ways than one.

FORECASTS COME TO FRUITION

My forecast regarding politically enhanced gains in market share for non-fossil fuel producers (e.g., ethanol and nuclear) has transpired. Congress gave corn producers a major slug of the auto fuel market, with taxpayer assistance, of course. But the astonishing gains now experienced by nuclear power were not anticipated when I wrote the 1998 piece. It is fascinating that the nuclear generating industry, long despised by environmental groups in spite of the industry's relatively clean record, is now quietly enjoying environmental support for a resurrection. In the very long run, relative costs still seem to matter.

It is fascinating that the nuclear generating industry, long despised by environmental groups in spite of the industry's relatively clean record, is now quietly enjoying environmental support for a resurrection.





As suggested in 1998, the fast-growth developing countries, China and India, together form the major sources of greenhouse gas emissions and still refuse to take costly steps to control those emissions.

POLITICAL JOCKEYING

As suggested in 1998, the fast-growth developing countries, China and India, together form the major sources of greenhouse gas emissions and still refuse to take costly steps to control those emissions. Their refusal to do so leaves much of the developed world, with the exception of the United States, in a position like people in a leaky boat who are busy patching at one end, while folks at the other end are boring larger holes. When observed as a costly process for reducing total emissions, the picture doesn't make any sense. As was the case in 1998, this last observation suggests there is more to the story than emissions control. The themes of favor-seeking and wealth transfers still seem to explain outcomes.

COST AND INCOME DIFFERENCES MATTER

My current research project with Jody Lipford on cross-country costs of carbon emission control predicts that the United States will not engage in cap-and-trade regulation any time soon. Our research also predicts that efforts to generate world agreements to meet Kyoto-inspired reductions will fail. This is not about environmental awareness. It is about cost and income differences. Consider the following empirical examination: Estimates made by Kuheli Dutt in *Environment, Development and Sustainability* show that CO₂ emissions begin to fall when per capita income increases. Dutt looked at 124 countries and demonstrated that once per capita income reached approximately \$29,600 (in 2000 dollars), CO₂ emissions started to drop. Her work suggests that in the developed world carbon dioxide emissions are being reduced without a global agreement. But none of the developing countries of the





In the end, achieving a global accord is about being green, as in money. But it is not just money. It is about more food, shelter, and drinking water in the developing world.

world are anywhere near that level of income. Per capita income in those countries falls in the range of \$2,000 to \$9,000. Rich countries such as the United States, France, United Kingdom, Germany, Italy, and Japan are ready to move, but much of the rest of the world is still hungry for food, shelter, and water.

BOOTLEGGERS & BAPTISTS STILL SING TOGETHER

In the journal *Environment and Development*, the Lipford-Yandle 2009 estimates of the annual number of tons of CO₂ emissions required to increase per capita GDP by one dollar show that China must produce 2,173,000 metric tons. Clean energy producer France must produce just 2,470 metric tons to get a dollar more and the United Kingdom would have to produce 17,300 tons for an additional dollar. The coal-reliant United States must produce 204,034 metric tons.

At the December 2009 United Nations Framework Convention on Climate Change meeting in Copenhagen, China indicated that several steps would be taken to improve the country's environmental quality but that the country would continue to expand per capita GDP. This means that China will not constrain CO₂ growth. The arithmetic is clear. The CO₂ output associated with growth in China's per capita GDP will more than offset any CO₂ reductions that might come from the older industrialize world.

Bootleggers and Baptists will continue to have a field day while celebrating Kyoto prospects, but final implementation of any accord will not come until developing world incomes are higher and the cost of CO₂ control is lower. In the end, achieving a global accord is about being green, as in money. But it is not just money. It is about more food, shelter, and drinking water in the developing world.



BRUCE YANDLE is Professor of Economics Emeritus at Clemson University, Distinguished Adjunct Professor at the Mercatus Center at George Mason University, and senior fellow at PERC. He can be reached at yandle@bellsouth.net.



AFRICAN VILLAGERS GROW ENERGY

A common shrub that grows beside the road is transforming hundreds of small villages in Mali, one of the poorest countries on earth. The hardy jatropha plant is a rich source of biofuel that is powering small generators and bringing electricity to rural people for the first time. At night, children play outside under the street lights, and inside the mud-brick homes, lights glow late into the evening. Farmers are using the electricity to run grinders and huskers, giving them some respite from unrelenting physical labor.

The jatropha plant comes from Central America, but with the help of humans has spread to countries around the world, including India, China, and the Philippines. There it is grown on huge plantations with marginal success. In Mali a different approach has proved to be a good fit for the people and the jatropha. For decades, farmers have used the plant as a living fence to protect their food crops from grazing animals. The smell and taste of jatropha repels animals that get too close. Because it requires little care and can grow on barren rocky ground, it does not compete with the food crops that need more nutrients. And, just as it protects crops from cows, jatropha also guards the fields from harsh desert winds that can erode rich topsoil.

Acre for acre, jatropha produces far more biofuel than corn. The oil squeezed from its black seeds can run modified generators and even cars. Farmers report they are now planting one row of jatropha for every seven rows of food crops, doubling their annual incomes without reducing their crop yields. The local production of biofuel has brought energy security to many of Mali's small villages, while on the larger stage, wealthy nations struggle to achieve the same goal.

The success in Mali is in large part due to economists from Holland and Germany working in the country specifically to stem the exodus of people from the farms to the cities. As one economist explained, they are using a new model for international aid that does not encourage dependency but rather leads to self-sufficiency. In Mali, they see a new breed of entrepreneurs who will use the income and the momentum from their successful biofuel enterprises to propel them forward. The villagers now have a better understanding of markets and the vision to look for new opportunities. When the nonprofits and government agencies pull up stakes and go home, Mali villagers can continue to progress.



STOP AND SMELL THE ROSES AT THE LANDFILL

Fresh Kills landfill on Staten Island was once the world's largest dump. One day, it will be New York City's largest park and a model for landfill reclamation around the world.

For 50 years, thousands of tons of garbage arrived at the landfill every day by barge and truck until it was piled 17 stories high. Today, nearly 10 years after it closed, the garbage is being sculpted into 2,200 acres of meadows, wetlands, and rolling hills, some already covered with flowers and tall grasses that bend in the breeze.

Although many people see landfills as a scar on the landscape, they are here to stay. Recycling seems embedded in modern American life, yet our wastebaskets and garbage cans overflow with things that should not, cannot, and will not be recycled. For those, we have landfills.

When landfills eventually close, the land they occupy can be extremely valuable, especially if it is in a densely populated urban area. This is the case with Fresh Kills and potentially with other landfills in some of the world's largest and most populous mega-cities. While New York City has retained the land for a park, in the future such parcels might be sold to private investors.

In either case, the garbage must be safely sequestered. At Fresh Kills, six layers of soil, rock, clay, and an impermeable plastic liner form a barrier between the garbage and the surface. Engineers have installed

underground systems to deal with the gas and liquids that leak from the landfill for years. Lechate, the liquid from decomposing household trash, is collected and treated. The water is purified to stream standards, and the solids are shipped to a treatment plant. Another series of pipes collects the methane, which is sold to heat 22,000 houses on Staten Island.

Work on the surface will take 30 years to complete. The park is closed to the public, but already birders are pressing up against the chainlink fences, and curious visitors are taking occasional tours organized by the parks and the sanitation departments. Eventually, the site will serve scientific, cultural, and recreational needs. It will be a living laboratory for botanical and biological research and will provide nurseries for native plants. Art installations will be on view, and venues will be available for dance and musical performances. There will be playing fields, basketball courts, mountain biking trails, and horseback riding facilities. There will be grassy meadows with views, picnic areas and playgrounds, and even that's not all.

In the future, landfills like Fresh Kills may not be a park. Reclaimed landfills might be sold for malls, research complexes, stadiums, or whatever the market demands, but for now, Fresh Kills is showing the world the enormous potential in former garbage dumps.



SOYBEANS GIVE FORESTS THEIR SPACE

Brazil is the world's largest exporter of soybeans, most of which come from the Amazonian state of Mato Grosso. As vast tracts of jungle are clearcut to make room for soybeans, environmentalists have pleaded with farmers to save rare species and preserve ecological diversity. A better approach would have been to increase their incomes if they saved the forest.

One of the first laws of economics is "incentives matter." Farmers carving out their own destinies in the rain forest understand this. Their incentive is the income from a soybean crop planted on newly cleared land. Blario Maggi also understands incentives. He is one of the world's richest men and its largest soybean producer. He clearcut vast tracts of forest to expand his holdings in western Brazil. When confronted about these practices, he responded that more of the rain forest should be cut because more farmland could ease the global food crisis.

After Maggi was elected governor of Mato Grosso in 2003, he did an about-face on cutting the forest when he saw a new opportunity to make money in the emerging carbon market. The United Nations (UN) has a plan called "Reducing Emissions from Deforestation and Forest Degradation" (REDD), that would allow rich nations to pay poor ones to preserve their forests. According to the Woods Hole Research Center, deforestation in the Amazon could be reduced to zero in 10 years for an annual cost of \$100 to \$600 billion. This is doable. The UN and cooperating nations have already raised \$2.2 billion for REDD programs.

Compensation from carbon markets will be more lucrative than soybean farming, as Maggi accurately calculated. If REDD becomes a reality, farmers will find greater economic value in the forest than clearcut fields. Incentives matter.

DIMINISHING LAW & LIBERTY

The greatest environmental president in history, Richard Nixon, created the EPA by Executive Order and helped make the Clean Air Act, Clean Water Act, and Endangered Species Act parts of the federal code. What most call “environmental law” means the regulations and litigation flowing from a dog’s breakfast of federal and state statutes. The move toward nationalization of the environment in the 1970s spurred the need for PERC.

PERC researchers examined common law environmentalism. We focused on how the common law provided the legal basis for what is now called environmental protection but what was traditionally thought of as protection of property rights. Four centuries ago, in *Aldred’s Case*, the common law of nuisance dealt with a pig sty that wafted unpleasant odors over a neighbor’s property. People still use the common law today to protect themselves against such damage. But the mundane business of responsible persons protecting their liberty and property on a case-by-case basis is hard pressed to compete with the high-profile issues that dominate a media and body politic excited by the-world-is-going-to-environmental-hell stories.

Command-and-control rules that promise to solve all woes create a mindset that elected politicians and their bureaucratic appointees should and will take care of things. While it is not novel for judges to become infected with such notions, it reached a new high in the 2007 Supreme Court decision, *Massachusetts v. EPA* (549 U.S. 497). It is noted for a statement by Justice Stevens, writing for the five-judge majority, that “The harms associated with climate change are serious and well recognized.” After all, “EPA does not dispute the existence of a causal connection between man-made greenhouse gas emissions and global warming.” Case summary: No more dithering around on this life-or-death issue, you EPA bureaucrats get to work controlling carbon emissions. And so the EPA has been. It is pushing through regulations that are so draconian in potential impact in cost and restrictions on freedom that they cannot be outlined here. Suffice it to note that a bipartisan (!) group of senators is pressing to derail EPA’s plans.

In the meantime, litigation plods on as judges and lawyers take the high court at its word. Eight states sued six electric power companies that own fossil-fueled plants in 20 states for ongoing contribution to the public nuisance called global warming. The district court rejected the case but the Second Circuit Court of Appeals vacated and remanded in late 2009, allowing the case to proceed (*Conn. v. Am. Elec. Power Co.*, 582 F.3d 309). That decision was soon followed by *Comer v. Murphy Oil USA* (585 F.3d 855). There, a group of property owners along the Gulf coast brought a class action suit against oil and energy companies, alleging that company operations caused greenhouse gases that contributed to global warming and added to the ferocity of Hurricane Katrina, which destroyed their property. The district court dismissed the case, but the Fifth Circuit Court of Appeals reversed and remanded, sending the matter to trial.

This is the tip of the litigation iceberg. Since 85 percent of our energy comes from fossil-fuel sources, everything is up for grabs. Congress will not stand by while Gaia Lovers Inc. litigate to pull the plug and condemn us to live simple organic lives. This is a major opportunity for Congress to get its mitts into even more details of our economy.

We have gone a long way from a rule of law based upon people bringing suit to protect their person and property. At common law, one must present solid evidence of harm. Global warming, or climate change, we now know, is built on “science” gone seriously awry. Real evidence offered by real people interested in protecting their liberties is a far better legal system than a special-interest driven political system that is the basis of what drives modern environmental law.



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