

FROM THE EDITOR

ENDANGERED SPECIES, SUBSIDIES, AND PRINCIPLES

PERC has never avoided controversy. The Endangered Species Act is a perennial source of controversy, and our cover story will be no exception. The article is based on a talk that PERC Senior Fellow Randy Simmons gave to the Western Governors Association, first published on the HeadwatersNews Web site (www.headwatersnews.org). Simmons argues that many of the act's problems stem from the concept of "nature in balance," an idea now rejected by most ecologists and biologists. The act was designed to put nature back in its place after humans had disturbed it. Once we get away from this outmoded idea, suggests Simmons, we can make the act more effective.

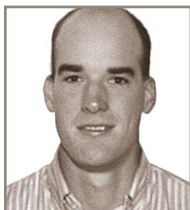
The December 2004 issue of *PERC Reports* aroused controversy, too, especially when Thomas Tanton criticized federal and state subsidies of wind energy. A surprising number of *PERC Reports* readers seem to favor those subsidies. In this issue, we print a letter from Ronal Larson, a founder of the Colorado Renewable Energy Society, who minimizes the subsidies' importance and stresses the potential growth in wind power. Others who have been in touch with us favor subsidies for wind and other renewables on the grounds that traditional fossil fuels receive subsidies, too. We hope to discuss this topic in the future.

Of course, the government intervenes in energy markets in many ways. Ashley Fingarson, a former PERC intern, and I look back at the Partnership for a New Generation of Vehicles. Started in 1993, the government/Big Three partnership was designed to create an 80-mile-per-gallon, low-emission passenger car. If you haven't heard of the program, that's probably because so little resulted from it. Japanese companies, not the Big Three, came up with today's "hot" car, the hybrid.

A centerpiece of the current issue of *PERC Reports* is a dialogue that started on the Free Market Environmentalism Roundtable, an email list-serve composed of people who think a lot about markets and the environment. Jonathan Adler, associate professor at Case Western University Law School, asked members to assume that global warming does cause harm. What is a principled response that takes into account protection of property rights? There is no simple answer.

This issue has much more, including Tim Fitzgerald's article on shortgrass prairie, recommendations for the Bush administration (from Bruce Yandle and me), and an analysis of the hazards of SUVs. We welcome your comments.

Jane S. Shaw



From left: Simmons, Fingarson, Fitzgerald, and Yandle.



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"NATURE UNDISTURBED"

THE MYTH BEHIND THE ENDANGERED SPECIES ACT

By Randy T. Simmons

The "balance of nature" is the idea that nature is characterized by constancy and stability. Biologists today understand that there is no balance of nature, there is no ecological stasis, there is only change.



The Endangered Species Act (ESA) is broken. Indeed, it was born broken. Enacted in 1973, the act is based on the myth of the balance of nature and, in particular, on a flawed understanding of the biological state of the Americas at the time of Columbus's arrival. It is not even an endangered species act; it is an endangered subpopulation and distinct population segment act. And its regulatory approach ignores the role of states and landowners in species protection.

The "balance of nature" is the idea that nature is characterized by constancy and stability. Biologists today understand that there is no balance of nature, there is no ecological stasis, there is only change. Therefore, the Endangered Species Act cannot restore a balance of nature by restoring species. In his book *Discordant Harmonies*, biologist Daniel Botkin (1990, 42) observed that the views underlying the environmental laws of the 1970s "represented a resurgence of prescientific myths about nature blended with early-twentieth-century studies that provided short-term and static images of nature undisturbed."

"Nature undisturbed" assumes that the American continents were a wilderness teeming with untold numbers of bison, passenger pigeons, and other wildlife—until Europeans despoiled it. This concept seldom takes account of Native Americans. Indeed, when it mentions Native Americans it depicts them as primitive savages, sometimes as "ecologically noble savages."

My colleague Charles Kay (2003), a wildlife ecologist, has shown how serious a misconception this is. He has quantified all the wildlife observations and encounters with native people recorded in the journals of the Lewis and Clark expedition. He found more than 40,000 journal entries and plotted the abundance of wildlife and native people day-by-day for the entire 863-day journey. The only places that Lewis and Clark



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The second reason the Endangered Species Act is broken is that it is not about species, but about subspecies and “distinct populations.” Wolves as a species are not threatened with extinction. There are thousands of gray wolves in Canada and Alaska. Yet of the list of 1,264 endangered or threatened U.S. species, the gray wolf ranks twenty-fourth in terms of expenditures.

We spend millions of dollars to protect a nonthreatened species and justify it by arbitrarily creating “distinct population segments.”

Under Fish and Wildlife Service rules, if a gray wolf wanders south to where Interstate 70 bisects Utah and manages to cross the road, it immediately changes legal status. The wolf has moved into the Southwest “distinct population” segment and must receive extra protection. Biologically it is the same animal. Legally it is not—although in February a U.S. District of Court in Oregon ruled that the “distinct population” regulations are invalid. We’ll see what happens.

By concentrating on subpopulations and distinct population segments, managers miss an important point. What matters biologically is whether the DNA that represents a particular species continues to exist. Distinct DNA differences between subpopulations may offer a biological argument for preservation. Without those, however, there is little biological justification for federal expenditures.

THE ROLE OF LANDOWNERS

Third, the ESA is broken because it ignores one other important reality—that 80 percent of all listed species have all or part of their habitat on private land. Under the current law, landowners are punished for owning habitat that attracts or protects an endangered species. The act prohibits harm to an endangered species, and the Fish and Wildlife Service interprets harm to include modification of habitat.

Because modification of habitat equals “harm” in the eyes of the law, innocent people can be treated like wrong-doers. Once this interpretation was made, says Michael Bean (1999, 12) of Environmental Defense, “a forest landowner harvesting timber, a farmer plowing new ground, or a developer clearing land for

observed significant numbers of wildlife were in buffer zones between tribes at war. Because Indians avoided these zones, wild animals flourished.

If it had not been for buffer zones, Lewis and Clark would have found little wildlife anywhere in the West. Kay’s research demonstrates that humans were the apex predator in the pre-Columbian Americas. Along with new research in ecology, archeology, and anthropology, these findings clearly contradict the “nature undisturbed” vision.

Thus the current federal program to bring wolves to the West is based on a myth. At the time of Columbian contact, there were few wolves in the West. Humans, the top predators, out-competed wolves for their prey. Wolves only flourished after European crowd diseases decimated Native American populations.

a shopping center potentially stood in the same position as a poacher taking aim at a whooping crane.” This fact leads rational, normally law-abiding citizens to destroy habitat before an endangered species arrives.

What ought to be done? I suggest the following:

First, forget the 1970s’ mythology and romanticism of the “balance of nature” and concentrate on real problems. Adopt environmental federalism as a clear policy goal—give state governments control over endangered species. The national government should be responsible for national problems, including the potential for global extinctions, not local ones. It makes little sense to spend scarce money to protect a marginal distinct subpopulation of a species already thriving elsewhere if it means you cannot protect an actual species from extinction. States can protect subspecies and distinct populations, using innovative techniques and creating interstate compacts for subspecies whose range crosses state lines.

Some will claim that if states are in control, they will neglect species protection in an attempt to promote economic development. In fact, the opposite tends to be true. State forests are better managed, both environmentally and economically, than federal forests (Leal 1995). Some states have stricter laws than those imposed by the federal government. States have time- and place-specific information that allows them to react more quickly and more creatively than federal agencies.

REMOVE THE FEDERAL HAMMER

My second recommendation is to take away federal officials’ regulatory hammer and replace it with funding to encourage preservation. A simple administrative change could replace the definition of “harm” used by the Fish and Wildlife Service. Because “harm” currently includes habitat modification, federal agents have little incentive to be innovative in saving endangered species. But if they lose their regulatory hammer, they will have to discover new tools to protect species. They might create a range of innovative programs similar to the U.S. Department of Agriculture’s Conservation Reserve Program, for example. They could devise production contracts for property owners who increase habitat and species numbers (Bourland and Stroup 1996), use leases, offer bounties for having species reproduce on one’s land, and on and on.

Money for such a program could come from a user charge on public lands or from earmarking funds from oil and gas production on public lands. We may already appropriate enough money to cover the costs of innovation. We will not know until

we actually think beyond direct regulation.

To return to my three original themes: First, for at least 10,000 years humans have been the primary forces structuring “natural” systems, and those systems are in constant change. Saving species cannot rely on a “nature undisturbed” vision.

Second, we should leave national problems to the national government and leave distinct population segments or subpopulations to the states.

Third, the cooperation of landowners depends on changing the Endangered Species Act. Unless landowners can see that they will not be penalized in the future for providing space for species today, they will have no choice but to destroy habitat preemptively.

Under my proposals the national and state governments would become partners with property owners rather than adversaries. Money would be directed to saving actual species. States would have authority and responsibility for managing our biological heritage.

These proposals actually are based on conservationist Aldo Leopold’s admonition to experiment with many systems instead of following “one-track laws.” By engaging property owners in the effort to protect species, we will also follow Leopold’s admonition that “conservation will ultimately boil down to rewarding the private landowner who conserves the public interest” (Leopold 1991, 202). No claims about the value of biodiversity or moralizing about the diversity of life will change that basic fact.

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Randy T. Simmons is a senior fellow of PERC and professor of political science at Utah State University. He coedited Political Ecology: Wilderness and the Original State of Nature (University of Utah Press, 2002). This article is adapted from one published originally by HeadwatersNews (www.headwatersnews.org), a project of the Center for the Rocky Mountain West at the University of Montana, Missoula.



GLOBAL WARMING:

SHOULD VICTIMS RECEIVE COMPENSATION?

This discussion is an edited version of comments made in December 2004 on the Free Market Environmentalism (FME) Roundtable list-serve.

Jonathan Adler prodded his colleagues to forget, for just a minute, the debate over the impacts of warmer temperatures or whether humans are contributing or not. He asked the list-serve members to assume that burning fossil fuel will warm the earth's atmosphere. Even if some benefits occur, this warming will cause some harm to some people.

Then he asked: If one takes a position of principle, do those who are harmed by global warming have the right to compensation from those who contributed to it? This evoked a discussion.

Participants are listed below in order of their appearance. All discussants are pictured, except for Jane Shaw, who thought that one photograph (see p. 22) was enough.

JONATHAN H. ADLER, Associate Professor and Associate Director of the Center for Business Law and Regulation, Case Western Reserve University School of Law, Cleveland (jha5@case.edu)

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JONATHAN H. ADLER

JONATHAN ADLER: If one accepts conservative predictions about climate change such as those championed by many global warming skeptics—that there will be a modest warming over the next century and it will produce some costs, as well as substantial benefits—is the proper global response to “do nothing”?

Even if one believes that the benefits of such climate change may exceed the costs—or merely that the costs of climate change are far less than the costs of trying to stop it—the distribution of climate changes impacts will not be uniform. Temperate regions may be significant winners and tropical areas significant losers. If this is the case, do those nations most “responsible” for the warming have any obligation to compensate the losers?

If the industrialized nations, which are concentrated in temperate regions, are the dominant contributors to climatic changes, are not these nations (or industries, or wherever one wishes to assign responsibility) guilty of violating the property rights of those in the tropical world? If the land of a farmer in Bangladesh is flooded, due in part to human-induced climate change, is he any less entitled to redress than the individual who has his land flooded by his neighbor’s land-use changes? There is a long-standing cause of action under the common law for the latter. Is the former any less worthy of redress?

More broadly, if we accept a property rights framework, as free market environmentalists do, must we not accept the fact that even noncatastrophic climate change to which human activity contributes produces property rights violations? In a perfect world, should not those whose property rights are violated have a remedy?

I recognize that implementation and public choice considerations may make this choice moot. There is no global institution capable of administering such a rule, and we would all rightly fear any institution that had such power. Nor should we have any confidence that current multinational institutions or national governments would handle compensation in a just or efficient manner. My

question is, what would be the best normative resolution of such concerns, assuming away such considerations?

STEVEN F. HAYWARD: I want to second Jonathan’s query. With so many past predictions of the eco-apocalypse, deep skepticism is the sensible default position on global warming. But I am not sure I am comfortable with it. Jonathan’s property rights query is a good first step to thinking through and articulating a serious position.

ROBERT J. BRADLEY JR.: The fact that there may be some regional losers is a powerful argument for open borders so that folks can travel to the best climates, seasonally or permanently.

ADLER: Open borders certainly make it easier for those affected to escape the costs of climate change, but they don’t address the property rights concern. If one takes a principled property rights position, it seems inescapable to me that such regional losers have had their property rights violated. In an ideal world, they would have a remedy.

What makes this particularly difficult is that for a property rights violation to exist, climate change need not be catastrophic, nor even produce more costs than benefits. Rather, all it needs to do is impose identifiable costs on those who have not consented to the imposition of such costs—and even some of the most ardent skeptics expect that such a scenario is likely.

Furthermore, the costs of preventing climate change are not particularly relevant from a property rights perspective. If company A pollutes in such a way as to harm person B, it is irrelevant that the costs to person B are less than the costs of controlling the pollution. If B’s property



ROY E. CORDATO

rights have been violated, B is entitled to injunctive relief and compensation for the harm incurred. If A feels this is too costly, A can seek to negotiate a settlement with B, but that should not affect the adjudication of a potential dispute.

ROY E. CORDATO: As libertarians, it seems to me that what we should do, in the famous words of the late Edwin Starr, is “absolutely nothin’.” It seems to me that there is very little that can be done in terms of real-world CO₂ reduction that could significantly alter the climate. Plus all this cost/benefit talk is mumbo jumbo anyway. If an aggrieved party can figure out a way to sue someone for damages and get it to stick, then go for it. Let the common law process figure out how damages should be allocated and who should get paid what and by whom. To do anything other than this takes us right back to F. A. Hayek’s pretense of knowledge (the idea that policy makers assume or “pretend” to have information that, in a complex society, they cannot possibly obtain).

ADLER: I think the “let someone file a claim and let the common law sort it out” is a bit of a cop-out. I say this because the common law as it stands today, at least in the United States, is not particularly protective of property rights, either for plaintiffs or defendants.

Let me cite just a few ways in which the common law—as it stands today—is less than fully protective of property rights. First, in the environmental context, almost all nuisances with any interstate component are preempted by federal law, and climate change claims would almost certainly fall into this set. Second, in many states, additional types of environmental claims are preempted by state law. So there is often no remedy for certain property rights violations in court because of government action. Property rights advocates typically condemn this state of affairs rather than accept it. Third, in most states, courts have shifted away from property rules toward liability rules. As a result, the preferred remedy today is often damages, rather than an injunction. The polluter effectively gets to conscript a pollution easement across the plaintiff’s land at a “fair” price determined by the courts.

In short, I see little reason why an advocate of property rights would defend the common law as it exists in the United States today (as opposed to how the common law once existed and, I hope, will exist again). Common law principles are worth defending; the practice of American courts circa 2004 is not. It also seems to me that a defender of property rights would want—at least in principle, if not in practice—for there to be a potential for relief across international boundaries. That is, if there was a global clas-

sical liberal legal order (hah!), then someone in Bangladesh could sue companies in developed nations if the productivity of their agricultural land was harmed.

The “let the courts sort it out” approach may be justified on pragmatic grounds, but I do not think it is grounded in property rights principles.



ROBERT J. BRADLEY JR.

JANE S. SHAW: Some harms aren’t actionable. If you build a supermarket next to my mom-and-pop grocery and my sales suffer, can I sue you for damages? No. You did something that harmed me, but you did nothing illegal. That’s life. Is global warming necessarily different?

ADLER: Yes, it is different insofar as there are physical changes to my land. If you fill a wetland upstream from me, and my land floods, that is actionable under the common law. If you live on “lower” land than I do and you remove lateral support from my land, that can be actionable. If your factory emits substances that harm my crops, that is actionable. Therefore, at least as an abstract matter (setting aside questions of jurisdiction, etc.), it would seem that insofar as climate change produces such effects in parts of the world—a likelihood that even most skeptics accept for some portions of the world—there should be a claim. In each of these examples, there is a property rights violation and there is harm. What I want to know is why global warming is any different.

CORDATO: Jane, I think this is exactly why a property rights violation and not harm has to be the deciding factor. Harm is a necessary but not sufficient condition for compensation. In some sense we are all harmed in the marketplace when someone we would like to trade with decides that he is not willing to. Someone competes away our customers. Harm? Yes. Rights violation? No. Therefore, no compensation.

The key question is whether global warming entails a rights violation. That’s why I suggest that if someone can



JULIAN MORRIS

make a case that is deemed courtworthy then he should go for it and let the common law process sort the issue out.

ADLER: My question to Roy is this: Setting aside the pragmatic questions of how one would sue, do you believe a) that property rights would be violated if human contributions to climate

change produce any negative effects for property owners in developing nations? and b) that injunctive relief should be as available here as in any other context? As a practical matter, filing such a suit would be tremendously difficult, but I never thought that such practical considerations would be dispositive of the normative concern. Indeed, I am surprised to hear defenders of property rights suggest that whether contemporary courts recognize the claim should settle the matter. After all, these are the same courts that long ago departed from common law principles and gutted the property rights protections written into the U.S. Constitution, yet property rights advocates rarely defend—let alone accept—either result.

JULIAN MORRIS: Roy's spot on. It's true that some harms are not actionable. But the law of nuisance at least traditionally was clear: Harms were actionable if damage was done either to property itself or to the enjoyment of that property. Notwithstanding the recent invasion of nuisance by negligence standards and a balancing test, this principle remains. The reason that a person with a grocery store can't sue someone who builds a bigger grocery store and takes its customers away is that there has been no objective harm done to the property or the enjoyment of that property.

It seems to me that the fundamental principle should remain that a person who has been harmed by a climate event (or series of events) should have an actionable claim against the person (or persons) who caused the event. Now, this might in fact be quite a simple process for climate events caused by an identifiable act or series of acts by a single party or small number of parties, the effect of which is quite immediate and follows directly from the action of

the liable parties. This might apply, for example, to a rain-storm/hailstorm that is caused (intentionally or otherwise) by someone seeding clouds and that results, say, in broken windows and damage to cars.

However, when it comes to global climate change a number of more substantial problems arise. First, if it turns out that emissions of greenhouse gases are the major source of change, the number of potentially liable parties would be very large indeed, making the apportionment of damages difficult and costly. Second, the events that caused the harm are likely to be separated from the actual harm by a very long period, leaving ample room for intervening acts to influence the effect of the act allegedly giving rise to liability.

Let me illustrate this point. Governments around the world currently prevent the creation of wealth and undermine technological progress on a grand scale, thus hindering adaptive responses to the consequences of climate change, whatever its cause. Such harmful government intervention is, I would argue, a form of *novus actus interveniens* and should be considered the primary cause of the harm that results to people affected by droughts, floods, storms, etc., both now and in the future, where there is no other direct and immediate cause.

Consider Bangladesh, which experiences frequent floods. In part these floods happen because Bangladesh is a massive delta, in part because its government prevents the people of Bangladesh from owning property and otherwise engaging in wealth-creating activities. Contrast Bangladesh with Holland, a country that is largely below sea level but rarely suffers from floods because the inhabitants have built systems of canals and dikes.



KENNETH W. CHILTON

If climate change makes these regular inundations worse, the harm that results can largely be blamed on the Bangladeshi government. Why? Because if the government were to hinder entrepreneurial activities less,

the people could become wealthy and would develop or purchase technologies that enabled them better to cope with the inundations in general, regardless of the frequency.

CORDATO: Jonathan, my point to Jane was that I don't know to what extent a property rights violation is occurring. Isn't this part of the case that would have to be made? If it is determined that rights have been violated and if the proper causal relationship is established, given traditional standards of proof, then I think that at the very least compensation would be due. (By the way, I am not sure what it would mean to violate property rights in countries where there is no real private property rights protection in the first place. Their own states are the primary violators of rights. To what extent do meaningful property rights have to be in place before we talk about property rights violations?)

Attorneys general are currently suing electric utilities for contributing to global warming through emissions of carbon dioxide. Are they identifying specific victims in the here and now, not theoretically in the future, who have suffered harm from global warming? Can they show, using a preponderance of the evidence standard, that the marginal amount of warming that caused the harm was human-induced?

If all this is the case then I think a suit is in order, but it should be pursued by the victims, not the state. I also think it would be well within the rights of gas station owners, charcoal producers, electricity generators and all other producers of greenhouse-gas-emitting products to refuse to sell to the plaintiffs. If the plaintiffs are going to complain about the effects of the emissions then they should be happy to live without the services provided by the offending products. I think that this is the kind of dynamic that a free society would generate.

KENNETH W. CHILTON: Jonathan, when will the developing nations compensate the developed nations for "free-riding" on their tremendous contributions in the area of medicine and agriculture? What is an extra ten years of life, or a far healthier life, worth to residents of these nations? The value of these innovations certainly isn't captured in the subsidized prices that poor countries pay for them.

ADLER: I believe this is a relevant issue from a net-total-welfare standpoint, but it doesn't address the property rights

question. I benefit from having rich neighbors—wealthy neighborhoods often have less crime, better schools, more amenities, etc.—but such benefits neither entitle my neighbors to a) charge me for the benefits I receive, nor b) pollute my land. All their wealth entitles them to is a greater opportunity to seek to purchase the right to use my land for their purposes, and perhaps some consideration from me as to whether I would rather vindicate my property rights or continue to have wealthy neighbors.

To put it another way, if a factory causes significant physical changes to my land to which I object, it does not matter if the factory is providing other benefits to me or the community at large. I have a right not to be subject to such impacts and I am entitled to a remedy. This is so even if the costs to me of the factory's pollution are significantly less than the benefits that the factory provides to my community and even to me. My question is this: Why don't we apply this framework to global warming—at least as a theoretical matter—when thinking about the "first-best" approach to the issue? Would this mean that developing countries should stop all of their greenhouse gas emissions forthwith? Not necessarily. It might suggest that indemnification—guaranteed compensation for actual harm caused—is a sounder and morally preferable strategy to prevention. Perhaps it would be better for industrialized nations to help Bangladesh build dikes than to sign emission-reduction treaties. My point is that we can't know what approach is most consistent with a property rights framework until we ask the question.



STEVEN F. HAYWARD

Editor's note: The FME Roundtable list-serve accepts serious individuals who value free markets and are concerned about environmental issues. Contact Colleen Lane at perc@perc.org.

THE LASATER RANCH

GRASS-FED CATTLE RESTORE THE PRAIRIE

By Timothy Fitzgerald

Outside Matheson, Colorado, Dale Lasater has nursed his family's 30,000 acres of range back toward its historic condition. This working cattle ranch has become one of the best examples of native shortgrass prairie anywhere. At right, a cluster of "needle and thread," a traditional shortgrass, which tends to be between 12 and 18 inches tall.



Courtesy of Lasater Ranch

Shortgrass prairie, which once extended across vast stretches of the western Great Plains, is largely gone. A Nature Conservancy-owned ranch in Kansas and several National Grasslands on the High Plains, managed by the U.S. Forest Service, preserve remnants. But most has disappeared.

Working rancher Dale Lasater is bringing it back.

The shortgrass prairie co-evolved with bison, which were replaced by cattle in the late nineteenth century and then by homesteaders, who plowed the prairie in hope of riches in wheat. Broken by the Dust Bowl, the homesteaders were gone less than fifty years after the bison. The land they left is heavily eroded and sparse in biological diversity, at risk of desertification.

On one small piece of prairie this condition is being reversed. Outside Matheson, Colorado, soft-spoken Lasater has nursed his family's 30,000 acres of range back toward its historic condition. This working cattle ranch has become one of the best examples of native shortgrass prairie anywhere.

Lasater says, "If you had asked me in 1960 what grasses we had, I'd have said two—buffalo grass and blue grama. That's what I thought shortgrass prairie was supposed to look like." Yet beneath the buffalo and blue



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grama grass lurked a host of other species: sandy bluestem, needle and thread, western wheatgrass, sedges, June grass—all indigenous plants that provide valuable livestock feeds. A visitor from Arizona on a tour of the ranch once sang the praises of a winter cattle feed known as winterfat. Dale's father and the visitor were quite surprised when they stepped out of the truck—in a patch of winterfat. By managing the grazing on the ranch, Lasater has been able to spread the winterfat, which is now an important part of the winter diet of the cattle.

The ranch's productivity has increased dramatically since Lasater began to nurture the natural grasses. An acre of ground that may have once produced 500 pounds of feed in a 90-day growing season now produces 1,000 pounds over the course of eight months. Rotational grazing, altering traditional seasonal use, and cell grazing (grazing cows intensively in a specific area) have enabled domestic cattle to mimic the ecological impact of bison.

There is no need for Lasater to use Asian species like Russian wild rye or crested wheatgrass to augment native grasses. Some portions of the ranch do have stands of exotic grasses, most planted to repair damage done by dryland farming prior to the Lasaters' tenure. The guiding philosophy for vegetative species is: "If it is a native species, it belongs here." The area gets a mean of 14 inches of moisture per year. Hardly any year is average, and the variance in rainfall patterns affects individual grass species tremendously. Lasater alters his plans in response to rainfall.

His cattle eat nothing but this nutritious array of grasses from birth to slaughter. In addition, no pesticides, herbicides, or insecticides are used on the ranch. The cattle are subject to a rigorous selection process: Each cow must produce an acceptable calf each year without the help of supplemental feed, vaccinations, or insecticides. "If she needs chemicals, we don't need her," Lasater says.

Noxious weeds, a major problem for other ranchers, affect the Lasaters as well. By using biocontrol techniques (such as the spurge beetle) and alternative grazing (by goats, which eat weeds cattle won't touch), they have managed to keep the weed problem in check without resorting to either chemical or mechanical solutions such as mowing or disking. Lasater asserts that these methods of weed control are more cost-effective than labor-intensive spraying of expensive chemicals.

Dale's father, Tom, developed a philosophy of working with nature rather than against it. One of his phrases was: "Nature does all of the thinking and most of the work." While Dale has been a lifelong student of his father's philosophy, he did not arrive at his holistic management approach overnight. Instead, he

has developed it incrementally over many years by paying close attention to the land.

Attention to the bottom line is equally important. The ranch does not own any expensive machinery, opting to buy a small quantity of hay as a safeguard against winter blizzards that prevent grazing for short periods. Likewise, a visitor's romantic notions of a big bunkhouse jammed with authentic cowboys are dashed. The ranch operates on a skeleton crew, most of which is dedicated to maintenance and repair work on the ranch's 45 windmills and hundreds of miles of fence.

Lasater Ranch has launched its own grass-fed beef business, providing beef from the ranch direct to consumers. Over the past seven years, Lasater has been educating consumers about the health benefits of grass-fed beef, as opposed to more traditional grain-fed. That investment is beginning to pay off. At a time when American agriculture is under scrutiny and consumers are concerned about health risks such as BSE (mad-cow disease) and the impact of hormones and steroids, Lasater Grasslands Beef offers an alternative that is perceived as more healthy.

"We are staking the family name as well as our century-long involvement with land and cattle on your enjoyment of this healthful, wholesome, ecologically viable product," says Lasater. The ranch receives a substantial premium for its beef, which compensates for the greater cost per animal of keeping the cattle on grass. The beef commands an additional premium because it is labeled organic, an unexpected benefit of eschewing chemicals on the ranch.

In addition to diverse flora, the ranch abounds with wild turkeys, pronghorn antelope, and mule deer. These potentially valuable species are lagniappe. At this time the ranch does not have a commercial hunting operation, although local outfitters have long been interested. "I have nothing against hunting; I just never went hunting when I was young," says Lasater. "Now we have the game and it will be a decision for the next generation as to what to do with it."

Strict adherence to a philosophy that a natural course is the best one has almost unwittingly led the Lasater Ranch to re-create the very rare shortgrass prairie. As the Lasater Ranch manager Andy Duffy said, "It seems innovative, but it's actually simple—it's the way everyone should do it."

Timothy Fitzgerald has been a working cowboy, guide, and outfitter in Colorado and Montana. After working as a research fellow at PERC, he became a PERC scholar-at-large while he studies resource economics at the University of Maryland. He can be reached at fitz@perc.org.

HYBRIDS: MADE IN THE USA?

A LITTLE-KNOWN GOVERNMENT PROGRAM THAT FIZZLED

By Ashley Fingarson and Jane S. Shaw

The Big Three domestic automakers—General Motors, Ford, and Daimler-Chrysler—worked on hybrids in a joint project with the federal government for nearly a decade, between 1993 and 2002. Little came of it, even though taxpayers invested \$1.5 billion. Here is a Prius, introduced by Toyota to the United States in 2000.



The vehicles attracting the most attention these days are hybrids—cars that combine a gasoline engine that is used for highway driving and an electric motor operated by an electric battery for slower speeds as well as for sudden acceleration. Although hybrids still represent a small part of the market, Toyota's Prius has “won some of the industry's most prestigious awards,” says the *Economist* (2004, 26), and has “generated a buzz out of all proportion to the car's prevalence on the roads.”

Hybrids accomplish much of what electric cars were supposed to—they emit few pollutants and achieve high fuel economy, often on the order of 50 or 60 miles per gallon. Unlike electric cars they can go fast and for long distances.

American automakers have lagged behind in developing hybrids. Toyota pioneered with the Prius, which it brought to the U.S. market in 2000, and Honda now has three hybrids. Ford brought out a hybrid version of its Escape sport utility vehicle last summer, using some Toyota technology. General Motors and other automakers are planning to release hybrid SUVs in the near future.

Largely ignored is the fact that the Big Three domestic automakers—General Motors, Ford, and DaimlerChrysler—worked on hybrids in a joint project with the federal government for nearly a decade, between 1993 and 2002. It appears that little came of it, even though taxpayers invested \$1.5 billion (Colella 2003).

The Partnership for a New Generation of Vehicles (PNGV) reflected the Clinton administration's flirtation with “industrial policy.” The chief goal of the government/Big Three partnership was to build a low-polluting four-door sedan that achieved 80 miles per gallon. Once concept cars were built and evaluated, pre-production cars were to be ready by 2004. Early on, the program settled on hybrids as a key technology.

But no hybrid sedan ever emerged from the Big Three, and today the program is rarely mentioned. Barry C. Lynn (2004, 1), author of a study of PNGV for Environmental Defense, says that it is “little remembered outside of Washington; in Washington, it is remembered but generally not well regarded.” The domestic automakers are vague about it. Nicholas Cappa, a DaimlerChrysler spokesman, said in an interview that it is “possible” that the company’s hybrid technology stemmed from PNGV.¹

Dave Barthmuss, a General Motors spokesman, says that the intention of the PNGV program never was to build a concept car; but rather to generate research and development for fuel alternatives.² “It [PNGV] was never designed to result in a production vehicle.”

AMBITIOUS GOALS, MINIMAL RESULTS

But that isn’t what a committee appointed by the National Research Council seemed to think. (The Department of Commerce had asked the council, a division of the National Academies of Science, to set up a committee to follow the project and to provide peer review.) It is also at odds with the impression given by President Clinton, who called the program “a technological adventure as ambitious as any our nation has ever attempted” (Lynn 2004, 2).

The series of National Research Council reports reveals how expectations deteriorated. The first, issued in 1994, emphasized the uniqueness of the program. PNGV “establishes a government-industry partnership that is unprecedented within the U.S. automotive industry,” it wrote. The goal was to develop a vehicle that would “achieve up to three times the fuel efficiency of today’s comparable vehicles (specifically the Concorde, Taurus, and Lumina) while maintaining or improving current levels of performance, size, utility, and total cost of ownership and while meeting or exceeding federal safety and emissions requirements” (National Academy of Sciences [NAS] 1994, 1). The committee called the goals “credible” and the program off to “a good start” (NAS 1994, 2).

Even then, however, a few caveats slipped through. “It was disconcerting to the committee that the PNGV . . . was unable to provide detailed and defined program plans, schedules and milestones to the committee” (NAS 1994, 2). Possibly contributing to this problem was the fact that the administration was not adding new funds to get it going. The program was to be financed by “redistribution and reallocation” of existing government funds (NAS 1994, 3).

Furthermore, neither the government nor the automakers

appointed a leader or a staff within the partnership’s first year. “The PNGV does not, as yet, have program management structures that are adequately defined and staffed in either government or industry organizations” (NAS 1994, 2).

Two years later, the council noted that the Big Three automakers were not working closely together. It added that “this lack of integration is reflected in the decision of Chrysler, Ford, and General Motors to develop individual concept cars,” a decision that was having “an adverse impact on the program” (NAS 1996, 21). The committee again pointed out organizational flaws—that “the government lacks an effective program management organization, with the current program management office operating essentially as an information office” (NAS 1996, 32).

By 2001, the committee was rethinking some of the basic issues surrounding the program and backing off from the goal of “the design, development, manufacture, and assembly of a production prototype by 2004” (NAS 2001, 76). It had become clear that the automakers didn’t intend to pursue the original goals, anyway. The report explained this by saying that “it would be wasteful at this point to develop a production prototype for a vehicle that could not be marketed” (NAS 2001, 81).

THE SHIFT TO SUVs

Sport utility vehicles had become a much larger part of the market. Automakers had decided to use hybrid technology to improve the fuel economy of SUVs, not to achieve an 80-mile-per-gallon goal for a mid-size sedan.

The committee actually endorsed this shift from cars to SUVs. It pointed out that because SUVs used so much gasoline, a 20 percent improvement in mileage would save more gasoline (say, 155 gallons per year) than would the same percentage reduction in a mid-size car (83 gallons). The report noted that “the current context of the partnership is sufficiently different from that in 1993” to justify the changes (NAS 2001, 10).

Indeed, even today the role of hybrids (other than as SUVs) is unclear among the Big Three. Automakers downplay them. “Hybrids have a very specific niche—stop and go traffic,” says Cappa. “We have to make sure that the customer really wants it.”³

So, the PNGV didn’t produce hybrids, and just what it did accomplish remains a mystery. Barry Lynn cites two “oblique” successes: spurring Japanese firms to move forward with hybrids and showing that radical technologies were available to the U.S. car manufacturers, whether they used them or not (Lynn 2004, 3). This doesn’t give one much to cheer about.

The failings of PNGV should spur caution about its replace-

Automakers decided to use hybrid technology to improve the fuel economy of sport utility vehicles, like this newly introduced Ford Escape.



ment, the FreedomCAR project. This partnership is supposed to develop a workable hydrogen-fueled car and is expected to cost taxpayers \$890 million in its first six years (Lynn 2004, 1). Announced in 2002 by Energy Secretary Spencer Abraham and expanded the following year, FreedomCAR eerily echoes the PNGV program.

FreedomCAR will pursue “technologies to enable high volume production of affordable hydrogen fuel cell vehicles, and the national hydrogen infrastructure necessary to support them.” Like PNGV, it involves the Big Three and the Department of Energy, plus several oil companies. It too sets deadlines (2010 and 2015) and promises review by the National Research Council. To Dariel Colella (2003) of the National Taxpayers’ Union, “President Bush is asking us to once again support a program that is doomed to fail.”

It’s time to stop kidding ourselves. We shouldn’t have expected a government program to be a success at producing a private good. Efforts to do so are called socialism, and we have learned by now that socialism is not a very promising avenue to the future.

NOTES

1. Nicholas Cappa, Chrysler Communications, telephone interview, October 27, 2004.
2. Dave Barthmuss, General Motors, telephone interview, November 1, 2004.
3. Cappa interview.

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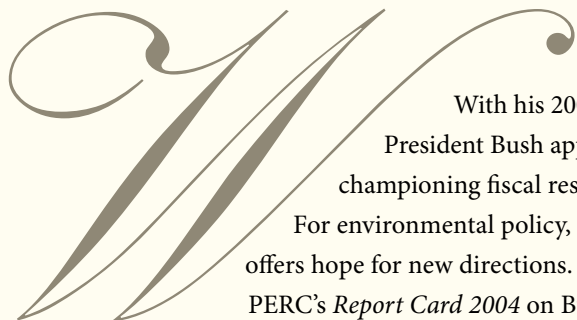
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ENVIRONMENTALLY RESPONSIBLE

THE BUSH ADMINISTRATION COULD FURTHER MARKET APPROACHES

By Jane S. Shaw and Bruce Yandle



With his 2006 budget, President Bush appears to be championing fiscal responsibility.

For environmental policy, this change offers hope for new directions.

PERC's *Report Card 2004* on Bush's environmental policy, issued last fall, evaluated the administration on its success in adopting free market principles such as reliance on markets, support for decentralization, and greater accountability of officials. We gave the administration a C+. Most of the improvements were marginal and often undermined by politically driven subsidies and excessive government spending.

Nevertheless, we found some bright spots. For one, the Environmental Protection Agency began switching from technical specifications for cleaning up water to focusing on the condition of streams and rivers. This has led to trades among polluters ("dischargers") so that more cleanup can be attained at lower cost.

Under the direction of John Graham, the Office of Information and Regulatory Affairs began demanding agencies to justify their regulations—a clear reform.

And the administration supported the fee demonstration program, which allows four government land agencies—the Bureau of Land Management, the Fish and Wildlife Service, the Forest Service, and the National Park Service—to raise recreation fees and to keep the proceeds for use on high-priority local projects (instead of sending the money to the U.S. Treasury). In December Congress extended this law.

Now the president wants to eliminate state grants from the Land and Water Conservation Fund, a step that may encourage the states to be more responsible and self-sufficient. Bush also hopes to cut back on agricultural subsidies. Here are a few other things that his administration could do:

Transferable Fishing Quotas. The federal government regulates coastal fisheries, but at least one third of the nation's fisheries are overfished. Individual fishing quotas (IFQs, also called individual transferable quotas or ITQs) are a solution. Individual fishermen are allocated a percentage of the total allowable catch of fish—say, one-tenth of one percent. Assured that they will be able to catch this amount, fishermen stop the destructive "race to fish" that leads to overfishing, waste, and danger to fishermen. The Bush administration should recognize these quotas as property rights and implement them.

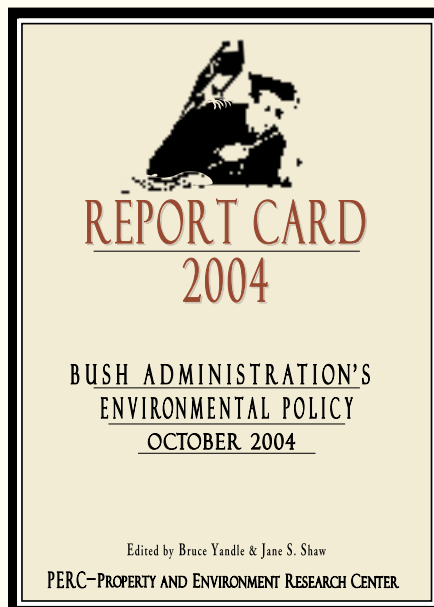
River-basin Water Quality Markets. The nation has gone about as far as it can go in improving river water quality by regulating "point sources" of contaminants such as industrial and municipal treatment plants. Now we must involve others, including farmers, whose fertilizer washes into streams without much control. The president should push for legislation that encourages and expands trades between "point" and "nonpoint" sources.

Transferable Grazing Permits. In the West, the federal government should allow trades of existing grazing permits between willing sellers and willing buyers. If environmental groups want to buy the permits and

retire them, they should be allowed to try.

Water Marketing. Growing demands for municipal water around the country make water availability a national concern. The administration should identify areas, such as the Klamath River basin in southern Oregon, where clearer definition of rights to water could form the basis for trades. As water users weigh the value of the bids they receive, they will treat water less wastefully.

These are our nominations for immediate environmental action.



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Compiled by Linda E. Platts



PRESTO! FRESH WATER

A new technology could make use of excess heat and at the same time produce millions of gallons of fresh water from power plants. The novel idea originated with two professors at the University of Florida, James Klausner and Renwei Mei.

What the two academics saw was power plants using huge amounts water for cooling. Nearly 25 gallons of water are required to produce one kilowatt-hour of electricity. So it is not surprising that power plants consume 39 percent of the water used in the United States, making them second only to agriculture in water use. At the same time, fresh water is in high demand. Desalination is one answer, but this energy-intensive technology is not cost-effective. Most plants are located in the Middle East, particularly Saudi Arabia where energy is cheap and water scarce.

The solution proposed by the professors involves taking the water that is heated in the process of cooling the power plants and flowing it through a tower structure to force evaporation. Ultimately, the captured condensed water is salt-free. This new technique—diffusion-driven desalination or DDD—could produce 1.5 million gallons of fresh water by using what would have been wasted heat from a 100-megawatt power plant.

By building adjoining DDD plants, benefits would accrue to utility companies in the form of water to sell. Other industries could also put their wasted heat to use in the same manner. Refineries, pulp and paper plants, chemical and food-processing plants could produce fresh water for sale or even supply themselves with fresh water.

The University of Florida is working with Global Water Technologies of Golden, Colo., seeking to license the technology to other firms. They expect to have a large-scale demonstration project completed this year. An even larger commercial project is anticipated for 2006.

—*Christian Science Monitor*

A HOUSE OF GREEN

Green building has come in for some hard knocks in recent years as some high-profile projects have proved to be both inefficient and costly. Yet in some areas beneath the radar, green building is creating structures that fulfill their promise. The Building Industry Association of Southwest Washington has designed a program called builtGREEN to help direct Clark County home buyers and homebuilders toward quality, affordable homes that also offer environmentally friendly materials and construction practices.

The voluntary program provides a checklist, allowing both buyers and builders to select from a variety of green products and techniques in order to receive certification. The building association believes that many of the features provide long-term value as well as cost savings to those choosing to follow builtGREEN guidelines. The program can lead to a healthier home environment through improved indoor air quality as well as improvements to the site and neighborhood through such features as less toxic runoff. Those

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participating can do so at different levels. So far 30 homes have been certified countywide, adding to the value of the homes, and more builders are taking notice and becoming involved. "The market really has started to ask for these features in these homes," says Joel White, community affairs director for the building association.

Some items on the checklist are as obvious as energy-efficient appliances and porches to control radiant heat and reduce air conditioning costs. In other instances, 2-by-4 construction with certain types of foam insulation can reduce energy costs while saving on the lumber costs that come with 2-by-6 studs and fiberglass insulation.

The voluntary nature of the program combined with reduced energy and water bills is attracting increased participation in this not-for-profit environmental building program.

—*Columbian*

TREES TO THE RESCUE

In laboratories around the country, scientists are working to alter the genetic working of trees in order to increase their ability to store carbon, absorb toxins, and resist disease. Most recently, the city of Danbury, Conn., deployed 160 Eastern cottonwood trees to clean a 35-acre site contaminated with mercury that was once used to cure pelts for a hat factory.

A University of Georgia geneticist, Richard Meagher, has engineered the trees to extract mercury from the soil, convert it to a less toxic form, and finally release it into the air. Critics claim this simply redistributes the mercury rather than removing it from the environment. Meagher agrees, but still believes the risk of human exposure will be reduced by wider distribution. He foresees using this simple and cost-effective technology in India and Bangladesh where arsenic- and mercury-tainted drinking water is creating a serious health hazard.

Researchers at Oregon State University want to improve carbon storage in tree roots, thus cutting atmospheric concentrations of carbon dioxide that trap heat associated with climate change. By modifying tree architecture and cell wall chemistry, scientists are working to increase the amount of carbon stored below ground.

On other fronts, trees engineered to grow faster could become valuable for plantation forests, thus reducing logging on public forests where demands for recreation are increasing. And finally, on a more aesthetic note, one forest biotechnology project is making strides in producing a disease-resistant

strain of the American chestnut. This elegant tree once graced many eastern landscapes but was destroyed a half century ago by a fungus introduced from Asia.

—*New York Times*

POWERPOINT ACTIVISM

In many instances, litigation has been the tool of choice for environmentalists seeking to halt everything from logging to subdivisions. But times are changing and more battles are moving from public to private lands. In these cases, environmental crusaders are choosing to wage their skirmishes in corporate boardrooms armed with PowerPoint presentations. They call their new approach "market-based environmentalism" in which they push companies to do well for their shareholders while also doing good for the environment.

Allen Hershkowitz, a senior scientist with the Natural Resources Defense Council, is on the front lines as he pushes timber companies and their large corporate customers to protect the Southern Appalachian Blue Ridge Mountains and the surrounding plateau. As timber production from national forests in the West has fallen dramatically during the last twenty years, private timber lands in the South have taken up the slack. The result is a booming timber industry that many biologists believe is a threat to the diverse ecosystem of the Cumberland Plateau.

The plateau and surrounding mountains encompass an area of 19.4 million acres, which is home to 230 species of fish, 65 types of crayfish, and 50 species of salamanders. Its hardwood forests of oak, hickory, black gum, and red maple shelter extensive rivers and streams, and the canopy provides habitat for many local birds as well as migratory neotropical species. As the forests are converted to fast-growing pine, the tree preferred for timber plantations, habitat essential to the survival of these diverse species is lost.

To counter these possible ill effects, environmental groups have worked with Staples, Office Depot, Warner Music Group, and even the National Football League's Philadelphia Eagles. They have asked these corporate customers to scrutinize how they buy paper products, many of which come from the Southeast. Environmentalists are encouraging these corporate giants to reduce paper use and select suppliers who do not contribute to the degradation of the Cumberland Plateau. They are betting that the publicity gained from being good corporate citizens will increase the bottom line for these businesses and encourage environmentally friendly practices.

—*New York Times*

TANGENTS

LETHAL LIGHT TRUCKS

By Daniel K. Benjamin

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

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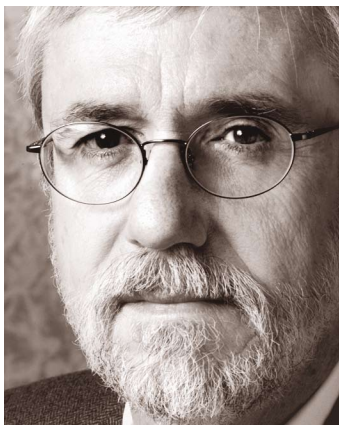
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A rise in seat belt usage, combined with campaigns against drunk driving, helped reduce highway fatalities in the United States by about 20 percent from the mid-1970s to the mid-1990s. But since 1998, highway fatalities have been rising. Recent research suggests that some of this rise is due to the proliferation of light trucks on America's roads (White 2004).

SUVs, pickup trucks, and vans are more likely to be involved in crashes than are cars, and these crashes are more likely to result in fatalities and serious injuries. Thus, as light trucks have grown from less than one-fifth to more than two-fifths of the U.S. vehicle population, they have put upward pressure on highway fatalities. For every one million cars replaced by light trucks, there are 60 to 70 additional highway fatalities each year. There are now nearly 80 million light trucks on the road, so the potential carnage is considerable.

One reason people drive light trucks is the sense of safety such vehicles offer their occupants. Light trucks are heavier and higher than cars. They are also more rigid, which makes them absorb less force from a crash and transfer more to whatever they hit. While these characteristics of light trucks may help protect their occupants in the event of a crash, they also make these vehicles deadly for occupants of cars and for motorcyclists and pedestrians. Michelle White finds that, overall, for each fatal crash that occupants of light trucks avoid, at least 4.3 additional fatal crashes involving cars, pedestrians, or motorcycles occur. On balance, the result is more deaths on the highways.

It is true, given that you are in a wreck with another vehicle, your chances of being killed are cut by about one-third if you are in a light truck. Nevertheless, the characteristics of light trucks that serve them well in collisions with cars do little good when they are up against a bridge abutment. These characteristics may even make light trucks more deadly when they leave the road, because they are more likely to roll over. Thus, White finds, if you are in a single vehicle crash, your chances of dying are actually about 16 percent *higher* if you are in a light truck.

In addition, because light trucks do tend to confer safety in crashes with cars, light truck operators drive more aggressively, resulting in higher accident rates for light trucks—about 45 percent higher for two-vehicle crashes and 31 percent higher for single vehicle accidents. Between their higher fatality rate in single vehicle crashes and their higher overall accident rates, SUVs and other light trucks are actually

White argues that our legal system should be reformed to induce operators of light trucks to drive in a way that accounts for the damages they inflict on others. For example, she suggests that speed limits be lower for light trucks and that the owners of these vehicles be required to carry more liability insurance.

more deadly for their occupants than are cars.

This is not the first study to examine the safety of light trucks for their occupants and the impact of these vehicles on other motorists. Should we pay more attention to this one? The answer, I think, is “yes.” Partly, this is because White has accounted for the aggressive behavior of light-truck drivers. In addition, White uses crash-by-crash individual data on almost 200,000 accidents, something never before done in an analysis of this type. Thus, she can control for confounding factors that help determine the incidence and lethality of vehicle crashes. These include weather conditions, speed, and road type, the age and sex of the driver of each vehicle, and whether police judged the behavior of the driver(s) to have been negligent (as when alcohol consumption is involved).

One question that remains is what—if anything—should be done about the higher carnage associated with SUVs, pickup trucks, and—yes—minivans piloted by soccer moms. White argues that our legal system should be reformed to induce operators of light trucks to drive in a way that accounts for the damages they inflict on others. For example, she suggests that speed limits be lower for light trucks and that the owners of these vehicles be required to carry more liability insurance.

Oddly, what White does not consider is why we have so many more light trucks on the road now than we did 25 years ago. As readers may recall, I reported in June 1998 on research showing that about 60 percent of the growth in the light truck population has been due to the Corporate Average Fuel Economy Standard (CAFE). This federal regulation, which mandates minimum fuel economy standards for new vehicles, has promoted the proliferation of SUVs and the like, because of the more stringent fuel economy standards it imposes on cars compared to light trucks (Godot 1997). If one is concerned about the hazards of pickup drivers who speed, the simplest first step would be to repeal the CAFE standard. This would not merely get the federal government out of the fuel economy business, it would mean that pedestrians, motorcyclists, and drivers of cars would have a better chance of getting to work in the morning. In the meantime, I’ll simply assume that the Hummer next to me intends to change lanes whether I get out of its way or not.

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ENVIRONMENTAL AWARENESS IN THE PAST

Jonathan Adler's "Fable of Federal Regulation" (December 2004) is a useful reminder that the most effective way of dealing with any problem is usually to deal with it at the most local level.

I have to take issue, however, with his statement that in the first half of the twentieth century the "prismatic pools of oil and chemicals on the water's surface were a sign of prosperity, not of waste and abuse." This statement plays into the hands of big-government environmentalists who would have us think that environmental awareness began only with their version of concern for nature. Practical environmental awareness and action began long before. In 1694 the Massachusetts colony created a closed deer hunting season to preserve the resource. In 1708 New York created a closed hunting season to protect quail and turkey. Responding to tourism interests that reflected public interest, Congress began creating national parks in the late nineteenth century. To control market hunting, Iowans put the first limits on game bird kills in 1878. People who were worried about the fate of forests formed the American Forestry Congress in 1882.

This small criticism also reinforces Adler's point, that long before the federal government got involved, local interests were addressing environmental problems.

Wallace Kaufman
Jacksonville, Oregon

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POOR ADVICE ON WIND POWER

Thomas Tanton has given PERC Reports readers some very poor advice ("A Whirlwind of Troubles," December 2004).

To start, the Production Tax Credit (PTC) for wind is at 1.8 cents only to balance the existing subsidies for conventional sources. Since the credit is only applicable for 10 years, its 30-year present value equivalent is about 1 cent. Moreover, in Colorado, wind is more than competitive with new conventionals. Xcel's new coal plant, for example, will yield costs of perhaps 5 cents when finally available in 6 to 7 years—not 2 cents, a number valid only as today's marginal cost of very old paid-for plants. Since wind may be priced at about 5 cents without the PTC (4 cents with it), the 1-cent PTC is not much over a 20 percent subsidy—not Tanton's "almost 100 percent."

Secondly, his claims on dependability are way off. Today wind can be viewed as a fuel saver, lowering rates by a factor of about two over rates from existing natural gas plants (which cost more than 6 cents at today's never-to-decline gas prices). These existing backup gas plants can be turned

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on rapidly. As more wind is added, the wind variability will decrease, not increase, due to geographic diversity. Wind has a capacity credit (value to the utility in displacing a different type of generator) approximately equal to its capacity factor (ratio of average to peak power), not the zero value that Tanton implies.

Tanton fails to realize how rapidly total energy contribution percentages change with a worldwide wind-system growth rate that is doubling about every two years. U.S. wind deployment is small now only because we have not done what some other countries have.

His avian-kill comments need little rebuttal. The numbers killed are so small as to hardly appear in the national statistics and, per machine, they are getting better every year.

Lastly, I dismiss most of Tanton's statements on transmission lines. Yes, they will not be used as fully as a base-load plant if we don't make the right effort. However, in the future, we are sure to see a dispatchable source, and more fully loaded transmission lines, as wind is backed up by cost-effective pumped hydropower, compressed air, perhaps hydrogen or liquid fuels, and other forms of storage using wind-derived energy. But even with little change, extra transmission lines will mostly be in rural areas, where economic development easily trumps this small additional cost issue. This is why wind has overwhelming support among the small rural/farm business interests of this country.

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THOMAS TANTON REPLIES:

PERC Reports readers should not take at face value all of the claims of wind industry enthusiasts. In response to Larson's specific comments:

1. *The Production Tax Credit (PTC) 30-year present value equivalent is about 1 cent.* The PTC historically had an escalator clause and will likely increase in future years, so calculating a "30-year present value" is extremely uncertain. The 1.8 cent subsidy is close to 100 percent of the current price of fuel from coal-fired plants (2 cents); it is close to half the price of delivered energy (4 cents). Even if Mr. Larson is right, and the value of the subsidy over time is just a penny,

that is still a subsidy of 20 percent of the delivered wind energy cost. This is a higher subsidy than any traditional fuel source has. The legislative history of the PTC indicates that Congress is not trying to "balance" the subsidies of other energy sources but rather support an "infant industry."

2. *Today wind can be viewed as a fuel saver.* I certainly agree. But if it is a fuel saver, wind costs must be compared against the cost of fuel, not the full value of electricity, which also includes the cost of the generating capacity. For coal and natural gas plants, the cost of fuel represents 35 to 45 percent of the total cost, or about 2 cents per kilowatt-hour. Further, many reputable sources (e.g., the Energy Information Administration) do not forecast ever-increasing prices for natural gas as Larson claims.
3. *Wind has a capacity credit approximately equal to its capacity factor.* This is simply not true for any existing or planned wind development. Capacity credit has to do with the ability of a generation source to be dispatched or relied on with certainty by system operators during the high load periods. Wind can only be relied on to the extent that statistically determined percentages provide assurance. The latter seldom exceeds 15 percent.
4. *We are small now only because we have not done what some other countries have.* The usual example cited is Denmark, which does have a substantial wind percentage but it also imports significant power from other Scandinavian countries that generate much less wind energy.
5. *The numbers of birds killed are so small as to hardly appear in the national statistics—and they are getting better every year per machine.* The number of kills may be small as a result of the small number of turbines. More turbines will lead to more kills. The Center for Biological Diversity has filed suit against wind farms in California for violating the Endangered Species Act.
6. *We are sure to see cost-effective pumped hydropower, compressed air, perhaps hydrogen or liquid fuels, and other forms of storage.* I agree that energy storage is an important development but at current efficiencies, storage increases the cost of wind power by 25 to 30 percent, not counting the direct cost of the storage installation.