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PERC REPORTS

THE MAGAZINE OF FREE MARKET ENVIRONMENTALISM

**SAVE A SPECIES
SAVE ON TAXES**

*National park
goes local*

**Friedman's
legacy for freedom
and the environment**

**Warning:
Army Corps of Engineers
project ahead**

BISONOMICS



FROM THE EDITOR

The best-selling book *Freakonomics: A Rogue Economist Explores the Hidden Side of Everything* helped move the once considered duller than dull science of economics to one of the sexier sciences by applying economic theory to unconventional subjects. The unconventional subject in “Bisonomics” is a 1,500-pound shaggy beast. Emerging politico and wildlife expert BRIAN YABLONSKI skillfully demonstrates how bison burgers and bison preservation go hand in hand.

Building on Yablonski, PERC’s own TERRY L. ANDERSON hits the mark in “On Target” by pointing out that just as entrepreneurs saved bison from extinction in the early 1900s, today’s “enviropreneurs” provide the best avenue for environmental preservation in the future.

In “Save a Species, Save on Taxes,” journalist and maverick policy analyst MITCH TOBIN explores another compelling story: by turning endangered species into assets rather than liabilities, imperiled species may actually have a chance to recover. A current bill before Congress proposes to give conservation-minded landowners tax breaks for their efforts to preserve endangered plants and animals. With support from both sides of the political aisle, this bill just might turn species protection into a wise investment.

Speaking of investments, imagine a city owning its own national park. This is exactly what savvy traveler TOM BURNETT discovered in Ecuador. The pilot handover from government management of Cajas National Park to the city of Cuenca is a bold change for a country where central control dominates.

Perhaps Ecuadorian leaders were inspired by Milton Friedman’s “Legacy for Freedom and the Environment.” In this issue you will find a few reasons why PERC recently celebrated what would have been Friedman’s 95th birthday—including, as long-time PERConian RICHARD L. STROUP points out, the fact that Friedman inspired the birth of PERC. Also, be sure to read the fascinating e-mail exchange between ROBERT L. BRADLEY JR. and FRIEDMAN on natural resource economics.

DANIEL K. BENJAMIN, PERC’s own rogue economist, considers the benefits of climate change in his “Tangents” column. LINDA E. PLATTS and TIMOTHY M. CRANSTON continue to offer entertaining and enlightening environmental perspectives spanning from fossil farming to Big Macs.

Last but not least, PERC senior fellow DAVID D. HADDOCK warns readers that another catastrophe, not unlike Hurricane Katrina, is lurking around the corner. In fact, the government, with help from taxpayers, is the culprit—creating “public goods gone bad.”

Laura E. Huggins

Laura E. Huggins | EDITOR

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OPINIONS



130 billion pints for fish

Right about the time that the streams and rivers in the Deschutes River Basin started to look a little dry, the summer 2007 issue of *PERC Reports* arrived and reminded me just how much progress has been made in the past ten years toward instream flow restoration using markets and incentives. No place is this more evident than in the Columbia Basin, where participants in the Columbia Basin Water Transactions Program are facilitating large-scale reallocation of water rights utilizing the market approach long advocated by PERC. The Deschutes River Conservancy alone has secured close to 50,000 acre-feet of flow in 2007. If we were indeed buying drinks for our fishy friends, that would amount to a whopping 130 billion pints!

—Scott McCaulou
Program Director
Deschutes River Conservancy

Keep 'em coming

As a former executive director of Trout Unlimited, and past Chairman of the Board of Trustees of the Nature Conservancy's Virginia Chapter, I want to compliment [Brandon Scarborough] on his excellent cover story, "Buy That Fish A Drink." As a long-time reader of *PERC Reports* and its predecessor publications, I found this to be one of the best issues...especially your cover story. Keep them coming.

Our newest regular feature in *National Woodlands* magazine is "Soil and Water...the Foundation of it All." The quality of America's water is largely based on the quality of our forests, most of which are private.

—Keith A. Argow
President
National Woodland Owners Association

Tax incentives for water leasing

Bravo on the diverse coverage of water marketing efforts under way in the summer 2007 issue of *PERC Reports*. I appreciated the snapshot of various water transaction approaches that are keeping fish wet from the Pacific Northwest to Southern Australia. As a Montanan, I particularly identified with the water leasing examples from the Blackfoot watershed described by Laura Ziemer and Stan Bradshaw.

After working with ranchers on water right management on behalf of the Montana Water Trust, I'd like to emphasize the authors' points on constraints to water leasing in Montana and the West. Water leases are currently not tax deductible, which acts as an obstacle for landowners who wish to donate all or a portion of their water rights to instream flow. These rights are valuable assets, and permanent donations of such assets for conservation benefits should be recognized by both the state and the federal government in the form of a tax incentive, similar to deductions available for conservation easements. This incentive would increase the demand for water leasing programs and also leave more funding for non-donated instream flow water transactions—in short, it would keep more streams flowing year round.

I would also like to underscore the difficulty of water marketing when the water rights themselves are not "secure, legally defined, and protected property rights," as Daniel Benjamin wrote in "Tangents." Due to the ongoing adjudication process in Montana and the lack of measuring devices on most of the state's irrigation ditches, it is often difficult to monitor and enforce instream flow transfers. Hopefully, as water leasing evolves and gains momentum in Montana and the West, the states' ability to protect these water rights matures as well.

—Brianna Randall
Communications & Grants Director
Clark Fork Coalition



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BISONOMICS

By Brian Yablonski



It's mid-morning in Tallahassee, and I am sitting in a booth at Ted's Montana Grill restaurant with Beau Turner, splitting a plate of bison sliders. At 39, Beau is the youngest son of Ted Turner. He is also the fish and wildlife manager for Turner Enterprises, Inc., which includes oversight of biodiversity projects and ranching for the nearly 2 million acres of land owned by the Turners.

There is irony here. The restaurant is decorated with dark wood, bison heads, and classic oil paintings of the West, yet Beau is here to talk about the Turners' efforts to aid recovery of the bison—the very species on which we are deliciously feeding at the moment.

He explains that raising bison began as a hobby on their property in South Carolina nearly 30 years ago. Today it is a booming enterprise encompassing seven western states. Bison restoration, initially, had its own learning curve. “We made a lot of mistakes early on,” says Beau. When the Turners first began raising bison at the Flying D Ranch in Montana, calving rates dropped. So Beau learned about the importance of rotating the herd, grasses, rainfall, and the critical role of people in the restoration process. Today, their herd sustains an 80 to 90 percent calving rate.

The near extirpation of the American bison in the 19th century was one of the great environmental catastrophes in our nation's history. Resilient by nature, bison have spent the last 100 years making a miraculous comeback. The credit goes to private ranchers, charities, and public agencies employing market-based approaches. Today, restoration of the bison is an environmental success story in its own right, with additional eco-benefits extending to our personal health, the Great Plains, and our publicly managed parks.

REMARKABLE FOR ITS FURY

In the early 1800s, it was believed that as many as 30 million bison roamed the Great Plains. Their natural predators were few, primarily wolves and Native Americans. That changed with manifest destiny. As bison came to be valued for their hides and leather, the slaughter of the great herds began.

Environmental historian Stephen Krech described the extermination as “remarkable for its fury.” In just three years, the entire southern herd was wiped out by buffalo hunters, only to be followed by the evisceration of the northern herd by 1884. Indeed, the bison were very close to extinction; it is likely there were less than a thousand left at the turn of the century.

Western orthodoxy suggests the white man's irresistible drive for wealth led to the bison genocide. Reality, however, proved more complicated. Their near extinction was due to a host of factors ranging from adverse climate issues, introduction of the transcontinental railroad, emergence of a horse culture on the plains bringing more efficient hunting, the advent of the Sharp's rifle known for its deadly accuracy and distance, as well as government policy that promoted the

end of the bison as a means of calming hostilities with the Native Americans.

One underlying factor, however, may have contributed more than any other. The tragedy of the bison was one of the starkest examples of the tragedy of the commons. No one owned the bison. Those who were not the first to capture the economic benefits of a bison lost those benefits to someone else. This created a race to the finish—a bison derby. *Recreation* magazine captured the essence of the situation in 1901: “A wild buffalo is looked on as a small fortune walking around without an owner.”

As bison numbers plummeted, sportsmen, including Theodore Roosevelt, rushed in for one last chance to hunt the now-elusive animal. Roosevelt declared, “Gone forever are the mighty herds of the lordly buffalo.” Saloons and owners of Victorian parlors paid as much as \$1,500 for a bison head—a price that mirrors the cost of a bison head in 2007. Even the Smithsonian commissioned a hunt in Montana, led by the eventual founder of the American Bison Society, to secure exhibits before there were none left.

ENTREPRENEURS TO THE RESCUE

Just as enterprising men helped hasten this environmental calamity, so too did individual entrepreneurs, private ranchers, and charities help bring the bison back from the brink.

Motivated primarily by profit, the bison's recovery began with a few western cattle ranchers, Charles Goodnight in Texas and Frederick Dupree in Montana, who thought the novelty value of saving the last remaining bison might be high. Both men captured a handful of wild bison that eventually became the seed herds for ranches and government preserves.

About the same time, a group of wealthy Easterners organized the American Bison Society in 1905 for the protection of the bison on public preserves. Members raised \$10,000 in private contributions to buy a herd for the newly created National Bison Range in Montana.

While many bison were preserved as part of public herds in places like Yellowstone, bison restoration on public land has been limited by geography and capacity. In 1914, the federal government owned just 10 percent of the captive bison in the United States, which amounted to just a few hundred. Today, with 20,000 bison in public herds, government still manages less than 10 percent of the bison.

The real story, however, is on America's private ranches. Due to an emerging market for bison meat,



Like all Turner ranches, the Flying D Ranch in Montana (above) is operated as a working business, relying on bison and hunting as its principal enterprises. Ted's Montana Grill restaurants are only a portion of the market for Turner's bison herds.



Not only is grass-fed buffalo, such as the Wild Idea bison steak (above), a naturally leaner meat, which means lower in calories, it has also been found to be lower in “bad” saturated fat and higher in “good fat.”



bison numbers have rebounded today to 250,000 in the United States, the majority in private herds.

A SUSTAINABLE BISON MARKET

Nobody understands the bison market better than Ted Turner. In fact, one might argue, he is the bison market—his 45,000 bison represent nearly 20 percent of the nation's total bison population. And his restaurant chain is helping to take bison meat mainstream. Ted's Montana Grill restaurants, nearly 50 of them, are only a portion of the market for Turner's bison herds.

If Ted is stimulating demand, it is Beau's job to ensure the supply. Beau appreciates the role of his family's operation in enhancing the future of these magnificent animals. "By promoting bison ranching, by promoting the bison industry as a whole, we move away from ever listing the bison as an endangered species," he explains. "We should be proud of that. Private ranchers are definitely doing a service for bison." The Turner family, by capturing the economic value of the bison, is now in a unique position to help restore the bison to its native lands.

That is good for the bison, but it is also good for health-conscious Americans. It turns out bison meat has far fewer calories and less cholesterol than other meats. It is also an organic meat that does not need growth hormones. Therein lies the market, and ultimately salvation for the American bison.

As *Time* magazine recently observed about the bison, "Sometimes you have to eat an animal to save it." Today, bison is the fastest growing sector of the meat business. Consumer demand for bison meat increased 21 percent last year, outpacing the 17 percent increase in 2005. While bison meat may cost more today, that may change as beef prices come to reflect the movement of grain into the production of ethanol. Bison meat sales totaled approximately \$236 million in 2006, with an overall

economic impact of \$500 million.

Bison ranching also gives the Turners the opportunity to diversify their revenue streams from the land—including hunting, fishing, and timbering—and ultimately helps make Turner Enterprises, Inc. a better business. As Beau reminds me, the goal of our business is "to manage the land in an economically sustainable and ecologically sensitive manner while promoting the conservation of native species."

CHEYENNE RIVER RANCH

Outside Rapid City, South Dakota, on a much different scale, another conservationist-rancher is working to restore the bison. Dan O'Brien, along with his wife Jill Maguire, own 300 bison and a company called Wild Idea Buffalo. Their scenic Cheyenne River Ranch includes 1,500 deeded acres and another 20,000 acres that they lease from Buffalo Gap National Grasslands.

O'Brien has carved his own niche market for bison. Comparing what he does to a winery, O'Brien takes great pride in field harvesting the bison he ships to customers around the country. Rather than moving his bison to a slaughter house, Wild Idea bison are dressed in the pasture where they stand at his ranch, with a meat inspector there to approve. The harvest harkens back to an earlier time. "The concept is very sellable," explains O'Brien. "It's a very spiritual, humane nature of harvest. We don't get stress or adrenaline in the meat."

In 12 years, O'Brien's business has expanded to 5,000 customers who he describes as "environmentally conscious." His method of care and harvest are a big reason customers order his meat. Ninety bison are harvested each year on average and his revenues have continually grown.

A former cattle rancher and Great Plains preservationist, O'Brien is also emphatic about the environmen-

“Each year in October, Custer hosts a roundup of its bison herd, complete with stampeding buffalo and cowpokes on horseback.”

tal benefits that come from raising bison. Foremost, he sees a difference with impacts to riparian zones. “In this country, water is so important. We have springs and the river. But you find cattle standing in the water, defecating and trampling the vegetation around it. Buffalo are up on the hill in the breeze.”

He also sees a benefit for the adjacent National Grasslands. When O’Brien leased his 20,000 acres from Buffalo Gap, he received a permit for 70 percent of the grazing rights. Where the previous owners would graze 600 cows in the summer, O’Brien only turns his bison loose in the winter with far less impact to the grasslands. Benefits come not just from the seasonal change, but because bison graze “on the move”—missing a lot of the grasses. “We are marketing the health of the Great Plains,” explains O’Brien, “and the buffalo are a big part of that.”

CUSTER STATE PARK

Not far from the Cheyenne River Ranch, at the emerging edge of the Black Hills, sits Custer State Park. It is just after dawn and I am standing on an overlook with 9,000 people who have come from around the world to witness a 41-year-old tradition. Each year in October, Custer hosts a roundup of its bison herd, complete with stampeding buffalo and cowpokes on horseback.

We first see the bison profiled against the blue morning sky along a distant ridgeline, appearing to move single file. After disappearing for a few minutes, the herd comes back into view, looking like fingers of maple syrup pouring slowing down a grassy slope. Before being brought into corrals, more than 1,000 bison sweep down in front of the crowd, giving visitors a rare opportunity to see a part of our vanquished history. “That’s what they are coming to see,” says Superintendent Richard Miller of his park’s 1.5 million visitors. Custer State Park is yet one more example of the bison’s return—a public example.

As part of its ecological management, Custer uses the bison to help financially sustain the operations of this wildlife sanctuary. The state park can trace the origins of its bison to Dupree’s last remaining animals and, today, in turn is helping to supply bison to private ranchers. Though Custer has a limited carrying capacity, live bison sales at auction are fueling an increase in bison on private lands. Trophy hunts, generating \$5,000 for an over-mature bull, are also producing revenue for the park.

During the bison market boom of the late 1990s, Custer was bringing in \$1.2 million from the bison. “At that time, it was a toss up between buffalo and visitor

services as to who was the budget hero,” Miller said. Today, as the market has stabilized, that number is closer to \$300,000. This is still enough revenue with the additional income from tourism, hunting, and timber sales, that Custer can claim it is “operationally self-sufficient.” In this case, managing for the health of the herd and the park provides a win-win for both Custer’s bottom line and its wildlife.

PAY THEIR OWN WAY

At a quarter of a million strong, the bison comeback is one of the most remarkable stories of a species recovery in the last hundred years. The bison have made their own way back—without assistance from the Endangered Species Act—largely because private conservationists and public preserves were able to market the majesty of this American icon.

“If buffalo are going to make a comeback, they are going to have to pay their own way,” says O’Brien. “Public herds can’t do it with their hands tied; governments are not geared for that. Only private enterprise can get that job done.”

Yet, public preserves like Custer and Yellowstone have provided a measure of protection for the bison and wildlife viewing opportunities for visitors. That alone has helped create a constituency for and a fascination with the American bison—a chance for ordinary people to experience this heritage up close.

Beau Turner agrees with the importance of public conservation, but he also talks about an advantage that goes with private conservation efforts: “I don’t want to lose people being close to the land and the creativity that comes with ownership. Ownership of the land ties you to it.”

With the future of this once endangered animal in the hands of eco-ranchers and market-minded preserves, the outlook for the “lordly buffalo” is promising—a chance to return lands to a native species and, through ownership incentives, to right past wrongs.



Brian Yablonski is an adjunct fellow with PERC, and a Florida Fish and Wildlife Conservation Commissioner. Brian can be reached at Brian@perc.org.



ENVIRONMENTALISM

ENVIROPRENEUR

Style

Brian Yablonski's article, "Bisonomics," relates to free market environmentalism (FME) in many ways. First, bison epitomize the tragedy of the commons. As a quote Brian uses from *Recreation* magazine in 1901 so aptly described: "A wild buffalo is looked on as a small fortune walking around without an owner." It was not just that the buffalo was not owned; the fury beast competed with cattle, which were owned, for grass and water.

Like all FME issues, bisonomics is about property rights. As P. J. Hill, PERC senior fellow, and I note in our book, *The Not so Wild, Wild West*, development of property rights is an evolutionary process that depends on the benefits and costs. Cattlemen would have been happy to convert grass and water into marketable meat via bison, but the costs of controlling fencing, herding, and shipping bison exceeded the benefits. Hence it was better to exterminate them and make the conversion with cattle. Today those costs have fallen relative to the benefits, giving entrepreneurs such as Ted and Beau Turner an incentive to manage their land differently.

Entrepreneurship brings us to the second important connection between "Bisonomics" and FME. Yesterday's tragedy of the commons becomes today's environmental asset, and "enviropreneurs" are the innovators who are finding ways to improve the environment by creating property rights. Every issue of *PERC Reports* is filled with examples of enviropreneurship. Whether it is trading bees for cleaner water in Bolivia, leasing water for instream flows in the American West, or using fungi to cleanup brownfields, enviropreneurs are establishing property rights to environmental resources so that owners can reap rewards from their stewardship. Put another way, "Tree owners are tree huggers."

Finally, the backdrop for "Bisonomics" is the Flying D Ranch, 100,000



*Yesterday's tragedy
of the commons
becomes today's
environmental
asset.*

plus acres, owned by Turner Enterprises, Inc. (TEI) just outside Bozeman, Montana. Not only is the ranch the locus of the Turners' bison business, it was the site of a recent field trip where environmental entrepreneurs who participated in PERC's 2007 Enviropreneur Camp (ECamp) learned more about free market environmentalism and its applications from Russ Miller, general manager of TEI, Danny Johnson, manager of the Flying D, and Hank Fischer, who leads the Wildlife Conflict Resolution Project for the National Wildlife Federation.

Miller, who oversees nearly 2 million acres of TEI land, and Johnson talked to the ECamp fellows about the mission of TEI, which is to manage the lands in a profitable and ecologically sensitive manner while promoting the conservation of native species. Fischer described the wolf compensation fund, which he pioneered, and his new program to purchase grazing permits on federal lands or grazing rights on private lands to reduce the conflicts between wildlife and livestock. His efforts are a quintessential example of how free market environmen-

talism can reduce conflict and improve environmental quality.

The enviropreneurs who heard the messages at the Flying D along with other lessons from ECamp represent the exciting future of environmentalism. At the end of ECamp, each of the fellows shared his or her entrepreneurial dream of how to use markets to improve environmental quality. Their passions and dreams ranged from carbon sequestration and alternative energy development, to green burial and the provision of fish and wildlife habitat. These enviropreneurs offer an innovative alternative to command-and-control environmentalism. Just as entrepreneurs saved bison from extinction, today's enviropreneurs offer the best hope for the future of the environment.

In his "On Target" column, PERC's executive director TERRY L. ANDERSON confronts issues surrounding free market environmentalism. Anderson can be reached at perc@perc.org.



“People ought to actually be paying to raise these [Chiricahua leopard] frogs.”

SAVE A SPECIES SAVE ON TAXES

By Mitch Tobin

A couple of years ago, I met with some Arizona ranchers to learn how they might help an endangered frog without endangering their livelihoods.

In 2002, the state's livestock industry balked when the federal government listed the Chiricahua leopard frog as threatened. Much of the species' natural habitat—streams, springs, and marshy wetlands—was either gone or infested with rapacious, non-native predators, leaving the leopard frog dependent on the stock ponds that dot the region's high-desert grasslands and wooded highlands. About half of the remaining frog populations were found in cattle tanks and water holes built for livestock. Ranchers feared that environmentalists would use the heaviest hammer in their toolbox—the Endangered Species Act (ESA)—to further restrict grazing.

When the U.S. Fish and Wildlife Service listed the frog, it acknowledged ranchers' concerns by crafting a special rule: If a leopard frog was harmed or killed on non-federal lands while livestock were using a water hole or while ranchers were maintaining a stock pond, this "incidental take" would be exempt from prosecution. Local ranchers, seeking even more regulatory certainty, joined with the Nature Conservancy to create a "safe harbor agreement" that would afford ranchers immunity from added restrictions if they improved habitat for frogs (see page 15).

These measures increased ranchers' comfort level,

but many still had deep reservations about the frog and the ESA. As we swayed in rocking chairs and sipped ice tea on his porch that afternoon, rancher Bill McDonald told me the government needed to take the next step. "There still aren't the incentives we ought to have. People ought to actually be paying people to raise these frogs," McDonald said. "You've got an endangered species in trouble, we've got places out here where they do well, and there should be out-and-out incentives, not just elimination of penalties."

Several years and many bruising ESA battles later, McDonald's idea of using carrots—not just sticks—to conserve biological diversity is at the heart of a proposal in Congress to improve the ESA's performance on private land. The federal government isn't about to send a check to ranchers who nurture tadpoles, but a bipartisan bill introduced earlier this year—the Endangered Species Recovery Act of 2007—would provide \$400 million in tax breaks to property owners who conserve valuable habitat, either through an agreement with the federal government or by creating an easement on their land (see page 14).

This effort to turn endangered species from liabilities into assets has attracted support from sworn enemies in ESA fights, including hard-line environmental groups like the Center for Biological Diversity and Defenders of Wildlife, plus fervent defenders of property rights like the American Farm Bureau and National Cattlemen's Beef Association. Anyone who follows environmental politics knows that ESA legislation co-sponsored by Bay Area Democrat George Miller and Alaska Republican Don Young is like the species the bill aims to protect: exceedingly rare and worthy of our attention.

The ESA, born in an era of command-and-control regulation and still the "pit bull" of environmental law, is a polarizing statute because it compels the public and private sector to avoid harming species, no matter the economic impact. Across the political spectrum, friend and foe of the ESA agree that the law could be doing a much better job recovering imperiled plants and ani-

“The closer a forest plot was to a red-cockaded woodpecker (below) colony, the more likely the trees were to be harvested.”



mals. Approximately 20 species have recovered and been discharged from nature’s emergency room since 1973—a pretty sorry success rate given that more than 1,300 U.S. species have been listed. On the plus side, however, only nine species have gone extinct after winning ESA protection, so the law has at least kept more than 99 percent of its patients on life support.

The bill before Congress attempts to loosen a Gordian knot that has hamstrung the ESA since its inception. Critics have long argued that federally protected animals carry so much regulatory baggage that people who find them on their land may be tempted to “shoot, shovel and shut up.” This adage is rooted in anecdotal accounts, but peer-reviewed research has supported the underlying idea. Economists Dean Lueck and Jeffrey Michael looked at patterns of timber harvest in North Carolina and found that the closer a forest plot was to a red-cockaded woodpecker colony, the more likely the trees were to be harvested. Southern pines that were near existing woodpecker colonies also tended to be cut when the trees were much younger, apparently because landowners feared that the endangered birds would colonize their property and impede logging. “Such preemptive activity would be a legal land-use decision spurred by the potential for costly regulations,” Lueck

HOW THE TAX BREAKS WOULD WORK

The Endangered Species Recovery Act of 2007 would modify the Internal Revenue Code and provide \$400 million in tax breaks annually to landowners who help threatened or endangered plants and animals. A property owner could qualify for the credits by entering into a long-term habitat protection or restoration agreement with the federal government. A tax break would also be available to people who place a conservation easement on their land that benefits an imperiled species. The Treasury Department—in consultation with the Interior and Commerce secretaries—would decide how to allocate the credits. Priority would be given to actions that:

- ☞ Significantly increase the chances of a species recovering so it no longer needs ESA protection.
- ☞ Forestall the listing of a “candidate” species.
- ☞ Help eradicate or control invasive species that are jeopardizing an endangered plant or animal.
- ☞ Address multiple species and deliver conservation benefits in a cost-effective manner.
- ☞ Create neighboring or nearby habitat to benefit an endangered or candidate species.
- ☞ Resolve conflicts between the ESA and human activities, in particular military training and operations.

The Senate bill is S. 700; the House proposal is H.R. 1422

and Michael wrote in an April 2003 article in the *Journal of Law and Economics*.

In another study, which relied on questionnaires rather than raw data on habitat modification, University of Michigan scientists concluded that the 1998 listing of the Preble’s meadow jumping mouse prompted a backlash against the species. The results of a survey sent to affected landowners in Colorado and Wyoming revealed a disturbing trend: for every acre of private land managed to help the mouse, there was an acre denuded or otherwise altered to drive the mouse away. More than half of the respondents said they had not or would not let biologists survey their property—greatly hampering the collection of data needed to help the species.

“So far, listing the Preble’s under the ESA does not appear to have enhanced its survival prospects on private land,” the researchers reported in the December 2003 issue of *Conservation Biology*. “Our results suggest that landowners’ detrimental actions cancelled out the efforts of landowners seeking to help the species. As more land-

“The nation may start seeing the conservation of frogs and other endangered species [such as the Choctawhatchee beach mouse and the Chiricahua leopard frog (below)] as a wise investment.”

TOOLS FOR CONSERVING ENDANGERED SPECIES ON PRIVATE LAND

The proposed tax breaks would join a set of existing ESA programs that seek to encourage conservation and restoration, rather than just penalize damage and destruction:

- ☞ Safe harbors stop people from being punished with added regulation if they improve habitat. There are already more than three million acres of land covered by such deals.
- ☞ Candidate conservation agreements can forestall the listing of a species by rewarding private landowners who take proactive measures. If the animal does get listed, the landowner doesn't have to go beyond the conservation measures outlined in their agreement.
- ☞ Habitat conservation plans and conservation banks inject some flexibility into the ESA by allowing permit holders to offset their impacts by protecting or rehabilitating habitat elsewhere.
- ☞ The Private Stewardship Program awards grants on a competitive basis to support local, private, and voluntary conservation efforts.



owners become aware that their land contains Preble's habitat, it is likely that the impact on the species may be negative.”

This perverse set of incentives is a major challenge for the ESA because half of listed species have at least 80 percent of their habitat on private lands. In Hawaii, which has the most endangered species in the country, only 16 percent of the land is owned by the federal government. Texas, fifth on the list of states with the most endangered species, has virtually no federal land. To be sure, our national parks are vital for many listed species, but they often protect freaks of nature like geysers and geologic formations—not necessarily jewels of biodiversity. Our national forests and federal wilderness areas tend to encompass higher elevations where the prevalence of rock and ice may limit species richness. By comparison, the bottomlands along rivers and streams, where people have always lived, are often the most critical for endangered species.

Three-quarters of a century ago, ecologist and environmentalist Aldo Leopold recognized that ordinary citizens and their property would be essential for protecting U.S. wildlife. “Conservation will ultimately boil down to rewarding the private landowner who conserves the public interest,” Leopold wrote in 1934.

Giving conservation-minded landowners tax breaks would jibe with scientists' growing recognition

that in an increasingly human-dominated world we must broaden our conservation efforts beyond nature preserves. There will never be enough money—public or private—to buy or otherwise protect all of the valuable habitat that endangered species need to survive and recover. And our existing parks and wildlife refuges are often too small or too isolated to support viable populations of sensitive species.

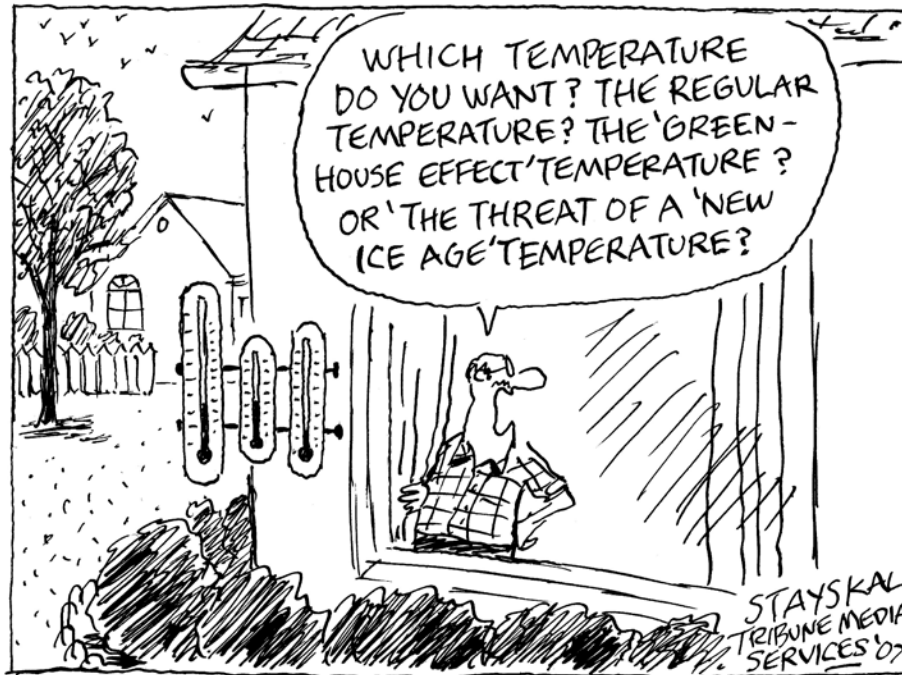
With Congress preoccupied with the Iraq war, energy policy, and other issues, the Endangered Species Recovery Act may remain a bill for some time. But with support on both sides of the aisle, the proposal appears to have a good shot at eventual passage. If the tax breaks do become reality, ranchers in Arizona and property owners across the nation may start seeing the conservation of frogs and other endangered species as a wise investment—not just a drain on their pocketbooks.



Mitch Tobin, a former reporter for the *Arizona Daily Star* in Tucson, was a Lone Mountain Fellow at PERC in December 2006. This piece is adapted from his forthcoming book on the Endangered Species Act. Contact him at mitchtobin@yahoo.com.

IMPRESSIONS

Compiled by Timothy M. Cranston



TO TELL THE TRUTH:

“The greatest challenge facing mankind is the challenge of distinguishing reality from fantasy, truth from propaganda.”

—Michael Crichton, scientist and author

“In the long run, the replacement of the precise and disciplined language of science by the misleading language of litigation and advocacy may be one of the more important sources of damage to society incurred in the current debate over global warming.”

—Richard S. Lindzen, MIT atmospheric scientist

“What accounts for scientists’ policy blinkers? I suspect part of the answer lies in an implicit assumption...that alternatives to fossil-fuel energy are just as cheap and convenient, but that dark corporate and government forces have prevented them from being disseminated. Never mind the countervailing evidence such as the fact that decades of \$5 and \$6 per gallon gasoline in Europe has failed to create economically viable alternatives to gasoline- or diesel-powered automobiles...”

“[Scientists’] credentials give them great authority on the world policy stage. Yet like the boyfriend who is in fact “high maintenance” while unwittingly believing himself to be “low maintenance,” climate scientists believe their policy recommendations to be based on science, rather than on unexamined prejudices that are yet to be subjected to scientific scrutiny. Only at our peril do we continue to dance to their tune.”

—Joel Schwartz, NROonline

MISCELLANEOUS

(We welcome readers’ quotes)

“When all is said and done, more gets said than done...Talk is cheap. The supply exceeds the demand.”

—Tim Raygor, friend of PERC

“Sometimes the only way you conquer the pull of power is to set it down.”

—Tony Blair, on his then impending retirement

THE SKY IS FALLING...MAYBE NOT

“I don’t like global warming because it kills animals, and I like animals...I worry about it because I don’t want to die.”

—9-year-old Alyssa Luz-Ricca
quoted in The Washington Post, 4/16/07

“When you really think about it people aren’t the problem when it comes to a changing climate, they are the solution. Human innovation and creativity have already changed the world for the better countless times and they will again. And that’s why it’s OK to chill about global warming!”

—Holly Fretwell, PERC research fellow and author of forthcoming children’s book *The Sky’s Not Falling: Why It Is OK to Chill About Global Warming*

A TRANSLATOR'S GUIDE TO ENVIRONMENTAL VOCABULARY

More entries from the fictitious guide started by Owen McShane and Wallace Kaufman (PERC welcomes readers' entries):

SOLAR ENERGY: radiation from a centrally located nuclear reactor that provides the primary support for all plant life, and that has recently been converted to electricity in extremely small quantities.

DIHYDROGEN MONOXIDE (DHMO): an often toxic chemical responsible for many deaths a year; less than a teaspoonful in the human lungs is lethal. Petitions to ban it have been signed at environmental fairs; other names: hydronium hydroxide, water.

WEED: Wildflower

WILDFLOWER: Weed

WHAT AFRICA REALLY NEEDS

"Some good ideas even come from economists. Julian Simon came up with the idea of bribing airline passengers to give up their seats on overbooked flights—and gone were the days when you relied on the luck of the draw to make it to your daughter's wedding. Economists first suggested creating property rights in African elephants, a policy that has given villagers an incentive to harvest at a sustainable rate and drive the poachers away. The result? Villagers have prospered and the elephant population has soared."

—Steven Landsburg, author of *More Sex Is Safer Sex: The Unconventional Wisdom of Economics*

"Environmental leaders must join the 21st century, acknowledge the mistakes [Rachel] Carson made, and balance the hypothetical risks of DDT with the real and devastating consequences of malaria. Uganda has demonstrated that, with the proper support, we can conduct model indoor spraying programs and ensure that money is spent wisely, chemicals are handled properly, our program responds promptly to changing conditions, and malaria is brought under control."

—Dr. Sam Zaramba,
Director General of health services, Uganda

CLIMATE CHANGE

"The poor old Scandinavian moose is now being blamed for climate change, with researchers in Norway claiming that a grown moose can produce 2,100 kilos of methane a year—equivalent to the CO₂ output resulting from a 13,000-kilometer car journey."

Spiegel Online, 8/21/07

"Researchers conclude that much or all of the allowance [CO₂ emissions cap and trade] cost would be passed on to con-

sumers in the form of higher prices. Those price increases would disproportionately affect people at the bottom of the income scale. For example, the Congressional Budget Office (CBO) estimated that the price rises resulting from a 15 percent cut in CO₂ emissions would cost the average household in the lowest one-fifth (quintile) of the income distribution about 3.3 percent of its average income. By comparison, a household in the top quintile would pay about 1.7 percent of its average income... A cap-and-trade program for CO₂ emissions would tend to increase government spending and decrease revenues... The higher prices caused by the cap would lower real (inflation-adjusted) wages and real returns on capital, indirectly raising marginal tax rates on those sources of income... In essence, such a strategy would transfer income from energy consumers among whom lower income households would bear disproportionately large burdens to shareholders of energy companies, who are disproportionately higher-income households."

— Congressional Budget Office

"The planet will continue to change, adapt and evolve, with or without us... We can't control these things... But we can take control of how we treat each other. The best we can do for the environment and for the planet is to learn not to let undemocratic power structures run our lives. The best we can do is to reject exploitation and domination and to embrace cooperation and solidarity. The best we can do is... to become active agents for change beyond head-in-the-sand personal lifestyle choices.

—Denis Rancourt
Physics professor, University of Ottawa

CZECHMATES

"[Hope] is not the same thing as joy that things are going well, or willingness to invest in enterprises that are obviously headed for early success, but, rather, an ability to work for something because it is good... The more unpropitious the situation in which we demonstrate hope, the deeper that hope is."

—Vaclav Havel
Dramatist and first president of the Czech Republic

"As someone who lived under communism for most of his life, I feel obliged to say that I see the biggest threat to freedom, democracy, the market economy and prosperity now in ambitious environmentalism, not in communism. This ideology wants to replace the free and spontaneous evolution of mankind by a sort of central (now global) planning... The environmentalists ask for immediate political action because they do not believe in the long-term positive impact of economic growth and ignore both the technological progress that future generations will undoubtedly enjoy, and the proven fact that the higher the wealth of society, the higher is the quality of the environment. They are Malthusian pessimists..."

—Vaclav Klaus, former Czech president and author

NATIONAL PARK GOES LOCAL

Cuenca is a city with a resumé. It is designated a World Heritage Site. Ecuadorans consider it their most beautiful city. Though hard for international visitors to fathom, it is the only city in Ecuador to treat its sewage before discharging it into the ocean or nearest river. But perhaps its most distinguishing claim is that it “owns” a national park insofar as it exercises considerable autonomy in financial controls, marketing, management, and enforcement. Even more strange, the city’s water and sewer department manages the park.

Cajas National Park, rich in scenery, biodiversity, and recreational opportunities, glitters above Cuenca, some 20 miles to the west. Stony peaks ascend to an altitude of 13,800 feet. It presents raw environmental beauty, yet is home to an extractive industry: water. Cajas' mandate is multiple-use—preserving the area for its water potential, shepherding the unique flora and fauna, and providing delights for tourists. Like the tin roofs and rain barrels used by resourceful people around the world, ways to collect and channel water from roofs to inhabitants below are the gifts of Cajas.

Cuenca, the water-user and the city with a sewage treatment plant, was an easy choice when the Ministry of Environment was forced by a 1997 law to decentralize management of protected areas. The law specified that management of Ecuador's 22 protected areas should fall to local municipalities. It seemed Ecuador was having trouble caring for its natural riches. The Ministry lacked funds, it was inefficient, and found itself distant from citizen participation and local support. Ministry orders went unheeded. Cuenca was chosen to pilot the hand-over.

Cajas, a little-known National Recreation Area, became Cajas National Park in 1996. Tourists and travelers discovered the park when a road was completed over the Andean divide to Guayaquil. As managed by the Ministry of the Environment, operations were sketchy. For example, about the only evidence that a park existed at all was that there were a couple of rangers in a hut arbitrarily collecting fees.

Cuenca gets 40 percent of its water from the city's drainage, so Cuenca's water, sewer, and telephone department (ETAPA) appealed to the ministry to take the management role. They were "fed up" with the central government's careless stewardship of the area's water and natural treasures. The transition took two years. The department changed everything, creating a legal framework with rules, building control cabins at the entrances, training rangers and guides, erecting a visitor's center, publishing maps and tourist materials, keeping records, and setting up research projects.

One of Cajas' cheerleaders is Carlos Lara (pictured above).

A dedicated family man, he guided our group of 13. Before the duties of marriage and fatherhood overtook him, Carlos burrowed about the trails and peaks of Cajas for years, earning him excellent qualifications for guiding botanically curious tourists like us. Stopping our bus at Lake Toredora (see page 20), Carlos led out, naming flowers and explaining the gorged water-holding capacity of "cushion plants." The cushion plant mass was

12 inches deep, bouncier than Berber carpet, suffused with water, but not releasing it under our step. This would be a standard lesson for school children from the city, so they would know the source of their water and the reasons for keeping the mountains clean.

Percy Nuñez, the Peruvian botanist of prodigious knowledge, dropped to his knees and hailed us to a crevasse as wide as a Panama hat. Water coursed in it noisily. On the crevasse wall, Percy pointed out "Merlin's Grass," not a grass at all but a member of a primitive genus, *Isoetes*, with a pedigree stretching 400 million years.

Carlos asked several times, "Do you like Cajas?" Who could not like Cajas? Its mangled ridges, twisted trees, ground-hugging flowers adapting to the high, cool altitude, and severity of climate were unexpected. Carlos hoped we would appreciate in a few hours what decades of closeness had infused in him. He knows Cajas like Goodall knows the misty forests of Tanzania.

Carlos holds a perspective that encompasses more years and more on-the-ground observations than anyone. Smitten since age ten, he began visiting the lakes and peaks of Cajas with his father. On our bus ride, Carlos told us how the city of Cuenca had been given management of the park, briefly explaining the unusual devolution. He added, "This has been good for the park—very good." Later he told me, "As a tour guide, I travel all over Ecuador. I would say that Cajas is at least ten times better than other national parks, because of local management." He gently urges us to stay on graveled paths. Because this is a "local national park,"

he takes a proprietary interest in it and its upkeep.

Peer review works to preserve the park's value. People in Cuenca's tourism and water businesses all know each other and the rangers, guides, scientists, and engineers all keep an eye on



"As a tour guide, I [Carlos Lara] travel all over Ecuador. I would say that Cajas is at least ten times better than other national parks, because of local management."

Pictured left: El Cajas is one of the oldest areas of the Andes.



Situated at the main entrance to the park is Lago Treadora—one of the largest lakes in Cajas National Park.

ETAPA. Social sanctions are immediate and surgical.

In the United States, on the other hand, when a problem needs rectifying in national parks, sometimes the only way to get after it is to make a publicity spectacle and bring pressure to bear on Congress. This process can be lengthy. Response times are shorter with local management. A truck spilled petroleum in Cajas. Within two weeks, new regulations were in effect, barring petroleum hauling. A fish farm was found to be polluting one of Cajas' 235 lakes. It was promptly shut down. In contrast, enemies of snowmobiles have been working for ten years to control their use in Yellowstone and the battle is still not over. The merits of snowmobile regulations aside, the alacrity with which local authorities can act, compared to national bureaucracies, is beyond dispute.

Local management, however, has not always been easy. For example, Cajas' managers have had a difficult time controlling grazing incursions. Asked if there were any dams in Cajas, Augustín Rengel of ETAPA said, "no," but that "it is possible that in the future it may be necessary to construct several dams." Asked if there are many conflicts between ETAPA and environmentalists, he said there were a few, one being precisely the possibility of dam construction. Such a dilemma will test the limits of the federal bequest and the ingenuity of local parties as they strive to both protect and provide. Asked what he thought would happen at the end of the ten-year decentralization trial, Augustín replied, "I hope that the initial period will be renewed forever," exactly the sentiment of our fervent guide, Carlos Lara.

In 1982, Richard Stroup and John Baden proposed turning over the management of 80 million acres of wilderness areas in the United States to a "Wilderness Endowment Board comprised of private naturalists rather than public bureaucrats." In

1984, Randy Simmons, while working at the Department of the Interior, proposed granting the wilderness area at Aravaipa, Arizona, to Defenders of Wildlife. The proposals promised better stewardship through superior incentives and streamlined administration. Some of the principles underlying their proposals are found in Ecuador's local solution. But the concept fared poorly in Washington, D.C. Neither the Wilderness Endowment Board nor the Aravaipa hand-over made it far against the entrenched interests of public management.

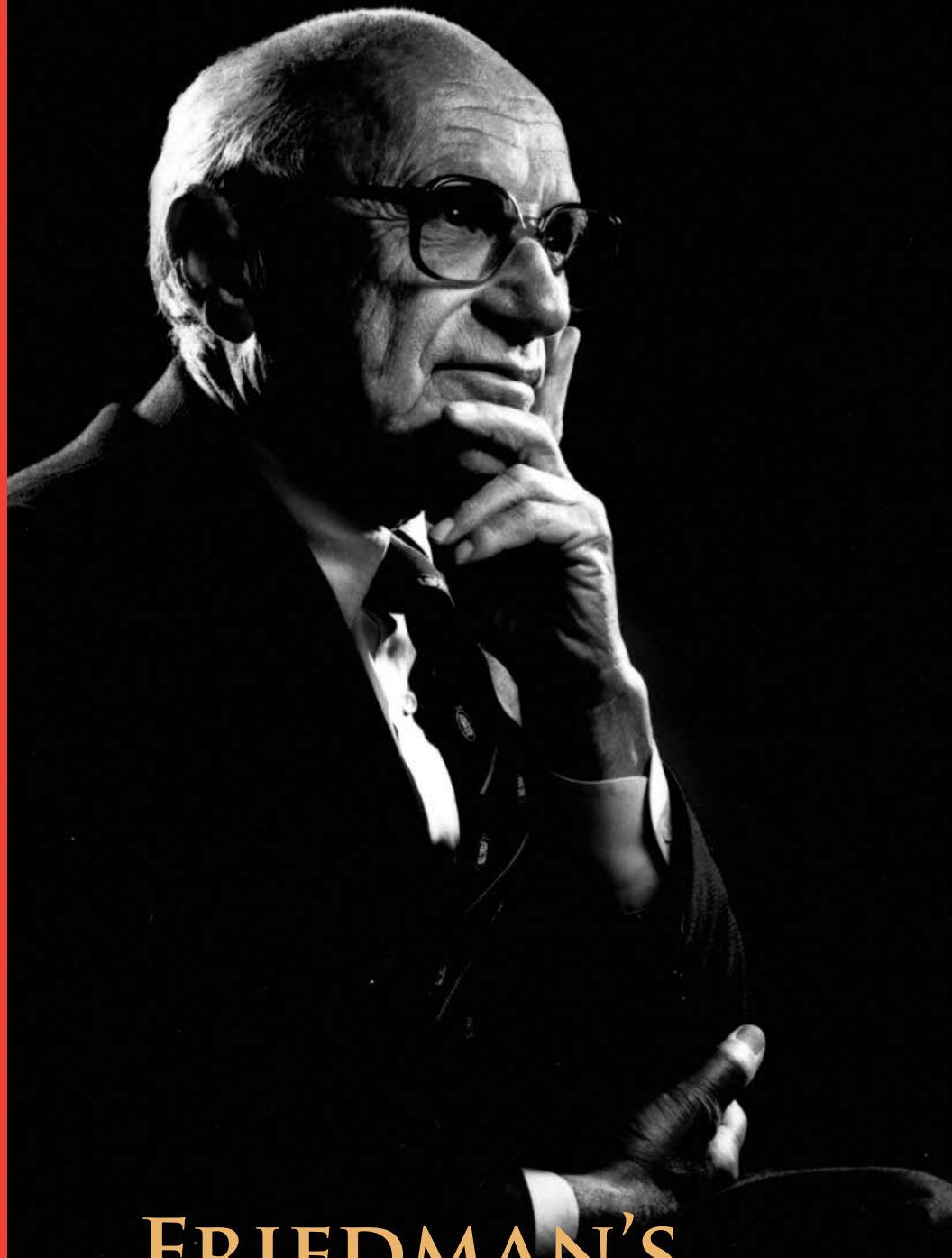
Imagine the National Park Service handing Yellowstone to the city of Cody, Wyoming, or Yosemite to Modesto, California. That is what Ecuador's Ministry of the Environment did when it assigned control and management of Cajas National Park to the city of Cuenca. It is a bold change for a country whose constitution breathes not a word about U.S.-style federalism and insists on central control over everything from law enforcement to the price of bottled propane. Ecuador's experiment with local control leads the world. And Cuenca adds one more accomplishment to its already impressive resumé: the city with its own national park.



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PHOTO TOP TOM BURNETT

To honor Milton Friedman and his vision that so greatly impacted our society, PERC celebrated what would have been Friedman's 95th birthday on July 31. Following are a few reasons why we chose to commemorate the world's finest intellectual freedom fighter. First is a recollection by Richard L. Stroup of one of his first encounters with Friedman in Missoula, Montana. Stroup is a PERC senior fellow and professor emeritus of economics at Montana State University. Second is an excerpt from an e-mail conversation between Friedman and Robert L. Bradley Jr., president of the Institute for Energy Research in Houston, Texas.



FRIEDMAN'S LEGACY FOR FREEDOM AND THE ENVIRONMENT

FRIEDMAN WAS AHEAD OF HIS TIME WHEN HE SUGGESTED PRIVATIZING FORESTS 36 YEARS AGO

Recollections by Richard L. Stroup

In 1971, John Baden and I attended the Mansfield Lecture program at the University of Montana in Missoula. Milton Friedman was the lecturer.

When Friedman landed in Missoula, retiring Forestry School Dean Arnold Bolle had just released the “Bolle Report” excoriating the forest service for mismanagement and environmentally ruining the forests they managed.

Friedman was asked by a reporter to comment on these allegations. His reply, in effect, was that we should remain calm and not do anything rash. Instead, he recommended taking several years—15 or 20 as I recall—to sell off the national forests so they would no longer be mismanaged. The audience was upset over his recommendation. John agreed with the crowd.

When Friedman gave a public talk the next day and opened the floor to questions, John jumped up from the audience and asked Friedman how he could possibly want to privatize the forests given all of the externalities—water quality issues, free rider problems, etc. Friedman asked John if he liked the way the public forest was being managed. John said “no” and went into more detail on the market failures. He knew far more about forests than Friedman, but Friedman knew about government weaknesses, and had good responses for John. The polite but earnest debate went back and forth for 15 minutes. I’d never heard of anyone standing up to Friedman for that long (nor have I since).

In any case, John and I continued to discuss the issue and, as a result, produced an article on privatizing the national forests. We went on to start a course at Montana State University-Bozeman titled “The Political Economy of the Environment.” Next came the idea to create the Center for Political Economy and Natural Resources. The center grew and evolved into the fine think and do tank it is today—PERC. We have Friedman to thank for inspiring us to apply markets to environmental problems back when nobody was considering the notion.

MORE RECENT THOUGHTS ON NATURAL RESOURCE ECONOMICS FROM FRIEDMAN

E-mail exchange between Milton Friedman and Robert L. Bradley Jr.

BRADLEY TO FRIEDMAN 9.06.03

Back around 1978 you wrote an essay, “The Energy Crisis: A Humane Solution” where you questioned the distinction between “renewable” and “nonrenewable” resources

since oil, gas, and coal are “producible ... at more or less constant or indeed declining cost because of the improvements in the technology of drilling and exploring and so on.”

This statement, during a time of record high oil and gas prices, was bold. It also predates most of the thinking of Julian Simon. The person making the point was Morry Adelman of MIT who remained focused on production costs unlike so many [Harold] Hotelling-inspired economists of the period.

- 1) How did you come to this view? Was it because of Adelman, your own reflections given a number of studies that came out from the Paley Commission (1952) and books from Resources for the Future in the 1960s, or both?
- 2) Do you believe there really is a natural resource economics in the sense that “depletable” resources have a fundamental difference from reproducible goods?
- 3) Do you believe, pending more research, that there might be an opposite “paradigm” (from depletionism) of resource expansionism where, indeed, natural resource prices on average can rise less than the rate of inflation because of the cascading effect of new knowledge and technology and expanding capital for mining? There is a lot of evidence right now that resource prices from the 19th century to the present have increased less than the general basket of goods, but I am wondering if there is something systemic that can be theoretically anchored in the “nondepletable” and indeed expanding nature of knowledge and capital (in capitalistic settings).

FRIEDMAN TO BRADLEY, 9.08.03

The basic point I believe in your natural resource discussion is that the economic product in question is not coal or oil or natural gas but energy.

The question is, what is the supply curve of energy? The use of coal or oil is simply a means of producing energy. The stock of coal, of oil, etc., is certainly in some sense finite, but that doesn’t mean that the potential amount of energy capable of being produced by whatever source is to be considered finite.

Energy will be produced in whatever way is cheapest at the time and as new means of producing energy are discovered the particular mode of producing energy will change from coal to oil to natural gas to atomic sources. That is the view expressed in the statement of mine that you quote.

In answer to your questions about that statement, I

have absolutely no idea what led me to think of it except that it is straightforward simple economic analysis.

Regarding your second question, I do not believe there is a natural resource economics. I believe there is good economics and bad economics.

Three, I do not believe what is involved is an obvious “paradigm.” The question is a factual one whether the long-run supply curve of energy (or other natural resource output), whether it is upward or downward sloping, is trending down....

BRADLEY TO FRIEDMAN, 10.14.04

The categories “good” and “bad” economics may not go far enough in my view. I propose to take an additional step to delineate between technically correct (and worthwhile) economics and economics that is superior for real-world understanding and policymaking. There is a lot of economics that is technically correct but misleading, even diversionary. Such economics must be handled with great care, particularly with students and policymakers who need to get the big picture.

I believe that at least in an Economics 101 sense, “good economics” as you define it can be at odds. Here is my example:

Hotelling in his 1931 article “The Economics of Exhaustible Resources” complained that standard economic theory was “plainly inadequate for an industry in which the indefinite maintenance of a steady rate of production is a physical impossibility, and which is therefore bound to decline.” He did not qualify this statement elsewhere in the article and even brought in the real world relevance of his demonstration. Hotelling was wed to the fixity notion of resources, and not surprisingly, a whole literature developed in the 1970s looking for the depletion signal.

The collateral damage went further. Some economists at Resources for the Future, previously a bastion of expansive-resource thought, fell into the depletionist trap of predicting that oil and gas prices had to rise. And you know what [Jimmy Carter’s energy czar] James Schlesinger and others in government were saying. This came out of the seductive demonstration of Hotelling in part, maybe large part.

[Erich] Zimmermann’s “good economics”—which would have interpreted the 1970s price behavior in institutional terms—was completely lost in the debate, although Adelman and others brought in some of his ideas through the back door.

Thus as we return to a 1970s-type mentality, I am trying to resurrect Zimmermann’s approach as “better economics” to Hotelling’s “good economics.” I am trying to get the profession to not look for a “depletion signal” and focus on property rights and other institutional factors to explain the change in petroleum scarcity.

I believe that you see the approaches of Hotelling and Zimmermann both as good economics. Forgetting labels such as Zimmermann’s “functional theory” and Hotelling’s “fixity theory,” would you go so far as to say that Zimmermann’s approach is “superior” economics to Hotelling’s “good economics.” Perhaps there are two answers: one as a theoretical economist and one as a historian of economic thought...

Perhaps from the above there could be three rather than two categories: bad economics, correct economics, and good economics.

I appreciate this exchange and believe it will be a contribution to the history of economic thought.

FRIEDMAN TO BRADLEY, 10.15.04

If you use a tool that is designed well for one purpose for a purpose for which it is not suited, that does not detract from the goodness of the tool for its purpose. The same thing goes with economics. Hotelling’s analysis is good economics. If it is applied properly to the case of oil it produces the right result, namely that oil is not as an economic matter an exhaustible resource. That result follows from the Hotelling demonstration that an exhaustible resource will have a price that is rising over time. Since the price of oil was not declining over time, it is not economically an exhaustible resource.

Zimmermann’s using Hotelling properly and drawing the right conclusion rather than the wrong conclusion is good economics and to be applauded, but it is not a different kind of economics and it does not mean that his economics is superior to Hotelling’s economics...[But] I have no doubt that if [Hotelling] had applied his study of exhaustible resources and looked at the data, he would have come to the right conclusion from it.

I must confess that I tend to stay away from this kind of methodenstreit. I have always said that I would prefer to do economics to talking about how economics should be done or was done or is done....


Sincerely yours,
Milton Friedman

 Visit www.friedmanfoundation.org for more information



THE BENEFITS OF CLIMATE CHANGE

Many people believe that human-caused emissions of greenhouse gases will lead to higher temperatures and increased precipitation during the 21st century. Similarly, it is thought that these changes may have an impact on economic well-being. The question remains: If such changes occur, will their economic effects be positive or negative? A definitive answer to this question is likely to be a long time coming, but recent research has shed new light on one important aspect. Olivier Deschênes and Michael Greenstone (2007) show that the changes in temperatures and precipitation forecast by the standard models of climate change will actually *benefit* agriculture in America.

The authors take no position on whether existing models of global climate change are valid. Instead, they ask this question: Assuming that the models' predicted increases in temperatures and precipitation occur, what are the consequences for American agriculture? They find that the lengthened growing seasons and added precipitation implied by the most widely cited global climate change models will modestly increase agricultural yields and thereby enhance the profitability of American agriculture.

Past research into the possible impact of climate change on agriculture has produced wildly varying results, with almost any set of consequences—positive or negative—seemingly possible. At one extreme, it has been estimated that climate change might reduce agricultural productivity so much as to cut the value of agricultural land by almost 20 percent. At the other extreme, the outcome might be increased productivity that pushes the value of agricultural land *up* by almost 30 percent.

Deschênes and Greenstone show that these widely differing numbers from past research are not the result of uncertainty about the climate and its effects on agriculture. Instead, they are the result of the statistical methods used by researchers. In particular, these methods turn out to be highly sensitive to small changes in the data samples, and to small changes in the way the data are used. To avoid this sensitivity, the authors employ a method in which the observed productivity impacts of past changes in temperatures and precipitation are used to infer the likely impacts of future changes in temperature and precipitation.



The most widely cited models of climate change predict that, over the remainder of the century, average temperatures will rise by about 5°F and precipitation will eventually average about eight inches more per year. Using these predictions, combined with the effects of past swings in temperature and precipitation, the authors conclude that agricultural productivity in the United States is likely to rise slightly (about 4 percent) due to climate change, yielding modest positive economic benefits.

Perhaps most importantly, the authors find that, over any plausible range, the impacts of climate change are largely invariant to the size of the climate change. That is, if temperatures rise by more than 5°F or precipitation increases by more than eight inches, productivity will rise even more—but not much more. Similarly, even if precipitation or temperatures *fall* over the next century, agricultural productivity will barely drop. In one sense, this is the powerful new finding to come out of this study: over a huge range of possible climate scenarios, agricultural productivity is largely unaffected. Given the widespread contention over the degree of likely future climate change and the extent to which it is human-caused, this is very good news. It suggests that agricultural productivity will be largely immune to the effects of climate change over the next century.

Climate change is obviously relevant far beyond American agriculture, so the present study is only one small piece of the puzzle we need to solve when thinking about environmental policy. Moreover, this study is surely not the last word on the likely effects of climate on agriculture. Nevertheless, its importance lies in two dimensions relevant for the broader debate over the human influence on the climate. First, it illustrates the importance of openly and critically reassessing what we think we know about the world. In the present instance it appears that the seeming uncertainty about the impact of climate change on agriculture has little to do with either agriculture or climate, and everything to do with human fallibility in studying their relationship.

The second key finding of the present study lies in its striking demonstration of the robustness of agriculture productivity to climate change. Even if precipitation and temperature change far more than any climate models now suggest they might, the likely effects on agricultural productivity in America appear to be de minimis. For those who have observed the resilience of Mother Nature and the adaptiveness of human beings, this may come as little surprise. But given the current state of climate research it surely comes as good news.

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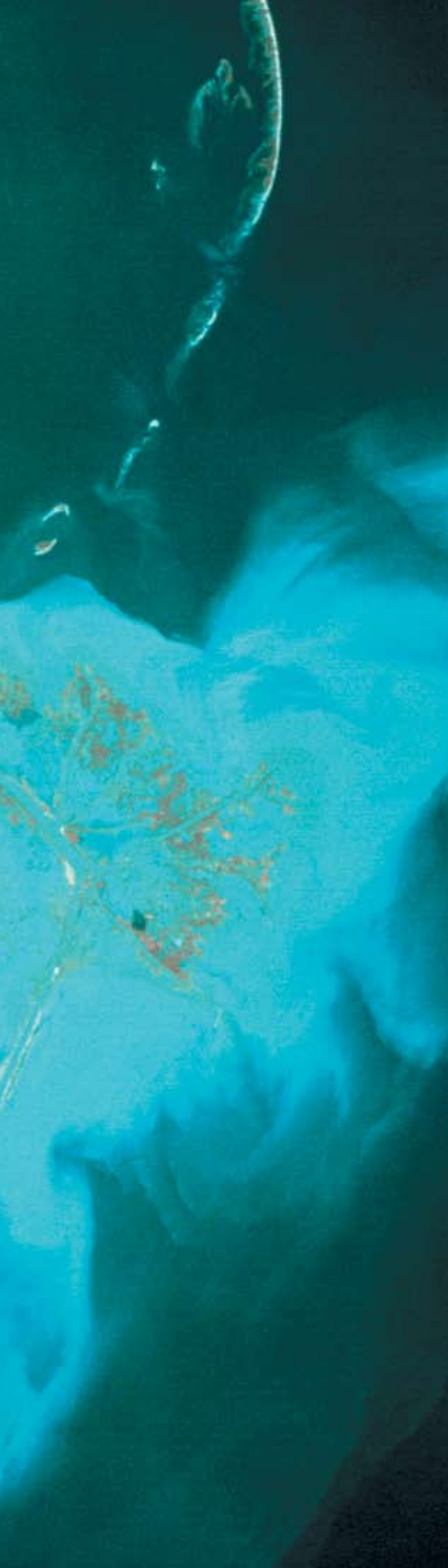
An aerial photograph of a river delta, likely the Atchafalaya, showing a complex network of waterways and land. A red warning sign is overlaid on the left side of the image.

WARNING

Army Corps of Engineers project ahead

IMAGINE CITIZENS WHO DON'T
KNOW OF THEIR NATION'S FIFTH
LARGEST RIVER, MUCH LESS ITS
NAME. IMAGINE BUREAUCRATS
WHO ACKNOWLEDGE BUT
DISREGARD WARNINGS OF
IMPENDING DISASTER ALONG

ITS FLOODPLAIN. IMAGINE
THAT, FOR POLITICAL GAIN,
LEGISLATORS INVEST
TAXPAYERS' MONEY IN
PROJECTS THAT INCREASE THE
PERIL. WELCOME TO
THE ATCHAFALAYA.



Why should Americans care? Because the billions of dollars Congress already has spent and the billions more they are poised to spend in the Lower Mississippi Basin, most visibly around New Orleans, will not only prove to be a colossal waste; the projects jeopardize the lives of thousands of people who live there.

The Atchafalaya River is a distributary of the Mississippi. Tributaries bring water to a river; distributaries carry some away. Nearly everyone has heard of the Missouri River, a tributary. The Atchafalaya carries three times the water away from the Mississippi as the Missouri brings to it.

Before reaching the Gulf, the Mississippi travels twice as far as the Atchafalaya from the point where the rivers split. Thus, the Atchafalaya's water moves faster, causing more erosion. As a result, in 1945 the Atchafalaya's streambed cut so deeply into the Red River, a tributary of the Mississippi, that all of the Red's water began to flow down the Atchafalaya. By pirating the Red, the Atchafalaya became the eighth longest river in the United States. Through a similar process, the Atchafalaya eventually will capture the Mississippi itself. It would have done that by 1975 if two decades earlier Congress had not ordered the Army Corps of Engineers to construct a dam across Old River, the connector between the rivers, freezing the prevailing water shares at one-third for the Atchafalaya and two-thirds for the Mississippi. As of the mid-seventies, the Mississippi has been rising (silting) as the Atchafalaya has been falling (eroding). Imagine, as nonfiction guru John McPhee wrote three decades ago, standing at the headwaters of the Atchafalaya and looking up three storeys at the Mississippi, the largest river in North America. Hydrologists have been sounding the alarm for much longer.

Why the danger? As the Atchafalaya erodes it threatens to undermine the Old River dams and drop a deluge into the Atchafalaya. A wall of water racing to the Gulf would scour farmlands and crush habitations—22,000 people live adjacent to the river banks.

Perhaps the event will prove less catastrophic. For 200 miles, the Mississippi lies within ten miles of the Atchafalaya drainage and occasional floods temporarily merge the rivers. When some future inundation recedes, upstream water may follow a flood-eroded channel into the Atchafalaya, preventing the Corps from stuffing the genie back into the bottle. The mortal threats are avoidable, but Corps plans perversely encourage people to return to the Lower Mississippi Valley rather than to remain where they found shelter following Hurricane Katrina.

CAUTION: TECTONIC PLATES AT PLAY

Continental landmasses riding atop tectonic plates sometimes agglomerate into supercontinents that eons later are ripped apart. Pangaea, the most recent supercontinent, formed 300 million years ago. Seventy million years later Pangaea began to rift apart. One remnant, prehistoric North America was nearly sundered into pieces, leaving a sunken, v-shaped scar—the Mississippi Embayment (Van Arsdale and Cox 2007). A great river has subsequently buried 600 miles of the Embayment by depositing a shingled sequence of overlapping deltas. That massive relentless alluvial sedimentation is the process Congress pretends the Corps can halt.

As the river pushes its delta outward it grows flat and unstable, eventually altering course by rolling off to one side. Over time it sweeps back and forth like a garden hose, relocating the mouth by up to 170 miles. Today's mouth extends farther into the Gulf than any predecessor—largely because of the Corps's ultimately futile attempt to delay the move into the Atchafalaya.

DANGER: PUBLIC GOODS GONE BAD

Mississippi River control began when the French established a trading post in 1718 near a portage between the river and Lake Pontchartrain. Levees provided relief as long as settlement was confined to small sections of the river bank, but failed during inevitable and frequent large floods.

As settlements spread, so too did levee building. But levee building poses two dilemmas. First, settlers on the left bank are advantaged if they build higher levees than settlers on the right, and vice versa. Like the barber chairs in Charlie Chaplin's *The Great Dictator*, levees ratcheting upward did little more than bounce the threat back and forth. Second, although levees work for garden variety floods, failure is widespread during large floods. Confining a flood like that of 1927 within the river's channel would require levees approximately 1,500 feet high—think Empire State Building, including the transmission tower.



Top: Aerial photo of the Atchafalaya River Delta.

Bottom: Dying, old-growth baldcypress are tangible examples of how changing site conditions affect ecosystems.

In the past, the flood control burden was borne by the locals so the bad aspects were self-limiting. If competing levees could not be coordinated or if levees got too high, incremental construction costs would begin to exceed the benefit of being flood free and people would halt further investment and move away.

With the Swamp Land Act of 1849, however, Louisiana's levee race began to tax pockets across the nation. The long-run benefit to locals no longer needed to exceed the long-run cost of the project to be undertaken; the short-run benefit merely had to be positive, cost be damned. With costs dispersed nationwide, net benefit can now be both negative and large while encouraging people to locate or remain in the extremely hazardous Lower Mississippi River Basin.

As much as those along the Mississippi's lower reaches benefit from water flowing down that channel, others along the Atchafalaya would have benefited if the water running there had gradually increased, but as taxpayers they too were forced to share the expense of projects that keep the water out. Even more perverse, the Corps's efforts are utterly hopeless in the long run and could create a major hazard. Whether from venality or ignorance, Congress has directed the Corps to halt a geological process that dates from the Age of Dinosaurs.

Congress cannot ration the Atchafalaya forever. Since time immemorial, the Mississippi has moved its mouth roughly once per millennium; it has been emptying through its present mouth for a thousand years. It is difficult to imagine a better warning sign. If the Corps continues to put its "finger in the dyke," a predictable and preventable disaster will follow in the Atchafalaya Basin.

BEWARE: INTEREST GROUPS IN ACTION

So why has Congress impeded the age-old cycle through which the Mississippi sweeps its lower channel? As William Shughart (2006, 34) noted, politicians work on things that have immediate and highly visible impact and shun those that solve or

PHOTO TOP LEFT USGS; BOTTOM LEFT/RIGHT COURTESY OF COERTE VOORHIES THE ATCHAFALAYA EXPERIENCE SWAMP TOUR

mitigate “dire events” that “will occur on someone else’s watch.”

McPhee suspected that the petrochemical refiners between Baton Rouge and New Orleans were benefiting from congressional decisions: the more money Congress invested in the Corps’s Old River projects, the more the gain for the refinery owners. From 1950 to 2005, refining activity increased from 200 million to 746 million barrels per year (U.S. Department of Energy: Energy Information Administration 2006). These petrochemical facilities along the Mississippi will become less valuable if the Atchafalaya is allowed to win the water fight.

But Congress should have ignored that interest group. The economic life of petrochemical capacity averages less than 18 years (Baldwin 2005). The plant along the river in 1950 could have been depreciated and rebuilt elsewhere an average of three times. Had the Corps not promised to keep Mississippi water confined to its existing channel, that capacity would now be located elsewhere.

NOTICE: VOTERS AT WORK

Will voters react negatively to projects that prove wasteful or even counterproductive? Probably not. Politicians eagerly claim credit when jobs roll in, then noisily blame nameless Corps employees—or even Mother Nature—when the projects go awry. Notice the blame Katrina is bearing for the damage to New Orleans. Katrina was not an unprecedented Louisiana hurricane, but Corps projects around New Orleans had severely impaired the city’s natural defenses, as even the Corps now admits.

Who, at the moment of a project’s failure, can know which politicians’ vote-trading with otherwise disinterested colleagues bears blame for decisions made long ago? How can voters punish now-retired representatives who pushed through misbegotten projects?

Government once constructed dams for flood relief, irrigation, and hydropower because it was assumed that the private sphere would undersupply them. Environmental groups now urge government to remove those dams because the private sphere will undersupply fish and wildlife habitat. Once the Corps has dammed all the promising sites, they will be able to get busy ripping the dams out.

Analogously, the Corps now asks Congress for massive



The Atchafalaya is North America’s largest river swamp and ranks among the top ten wilderness areas in the United States. The vistas have the appearance of pristine cypress and mixed wood swamp.

funding, not to allow nature to take its natural course down the Atchafalaya or to help those displaced by Katrina find safer homes, but to “correct” the mistakes along the lower Mississippi that earlier Corps funding initiated. Whether or not those projects leave matters better or worse, they benefit any politician who can channel the resulting jobs.

One major distinction between the Corps-induced damage following Hurricane Katrina and what portends along the Atchafalaya is that for the latter the initial catastrophe remains in the future—it can still be mitigated. But will this warning save lives and allocate scarce capital correctly? The disdainful indifference of a Congress that authorizes such badly misdirected projects and the cynical fecklessness of a Corps that executes them are astounding. Taxpayers everywhere must resist congressional funding of massive, dangerously counterproductive Corps projects. More important, those in mortal risk must appreciate their peril and demand rational action.

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GREENER PASTURES

Compiled by Linda E. Platts



FOSSIL FARMING BLOOMS WHERE BARLEY WITHERS

Once upon a time, an original Picasso on the living room wall was more than adequate proof that the owner had successfully summited the economic peaks. Now, the work of famous artists is no longer proof of stratospheric wealth. Instead, high-end decorators hired by the wealthy are busily tracking down T. Rex teeth on eBay, bidding millions at Christie's Auction House for mounted mammoth skeletons, or competing for foot-high dinosaur eggs. How else do you add interest to the den, drama to the entry hall, and curiosity to the coffee table? Fabergé eggs be gone!

Dinosaur decorating has come of age, according to a recent article in the *Wall Street Journal*, but it has also caused an uproar among many scientists and academics. Paleontologists such as world-famous Jack Horner at Montana State University's Museum of the Rockies, say commercial fossil hunters dig up the bones too fast and do not take proper field notes,

resulting in a huge disservice to science and the destruction of invaluable knowledge about past life on earth.

Horner recognizes that this burgeoning interest in dinosaur fossils is being driven by the market. And that market developed in response to a long, scorching drought across the western plains that has forced many ranchers to sell off their cattle. Left behind are piles of crumbling prehistoric rock and eroded hillsides that contain fossils of saber tooth tigers and horses the size of dogs that lived 33 million years ago.

In Winifred, Montana, farmer Larry Tuss, gave up on wheat and barley and decided to concentrate on the bones in his backyard. He has found five dinosaurs on his property, including a duck-billed hadrosaur, two long-necked, sea-dwelling Plesiosaurs, and a Certopian, which resembles a Triceratops. These are all being readied for sale by a fossil company.

While special permits are required to dig on public lands, private landowners strike their own deals with both hobbyists and private firms. Typically the owners give access to their

PHOTO COURTESY OF THE MUSEUM OF THE ROCKIES

land in exchange for 10 to 50 percent of the profits from any major finds.

Bucky Deflinger, 29, of Faith, South Dakota, made out well. He spotted some humongous teeth protruding from a hillside on his father's land; they belonged to two T. Rexes. One now resides at the Children's Museum in Indianapolis. And for his sharp eyesight, Bucky ended up pocketing half a million dollars on the deal, even after splitting the proceeds with the fossil excavating company.

While scientists generally remain unhappy with the market in dinosaur fossils, private landowners on barren stretches of the western plains are glad to have something to take to the bank.

ENERGY SAVINGS URBAN STYLE

Increasing urban energy efficiency has become a top priority for a large coalition of municipalities, banks, and foundations in sixteen of the world's largest cities. Participating banks will provide up to \$1 billion in loans to cities and private landlords to upgrade aging heating, lighting, and cooling systems. Typically such upgrades reduce energy use and costs by 20 to 50 percent according to the organizers of the initiative.

The *New York Times* reports that energy-saving investments are often neglected because the long-term benefits are not clear. Furthermore, most cities and private property owners lack access to the required capital. Former President Clinton, whose foundation is part of the coalition, said that the retrofits and upgrades will be good for the bottom line by saving money for owners of homes and businesses, making money for the companies providing the services, and creating more jobs while at the same time having an impact on climate change.

Retrofits remain a top priority in industrialized countries, but Thomas J. Wilbanks, an expert on energy and climate, warns that even more critical is the new construction in booming developing countries. These buildings should use the latest technologies and structural systems to insure the greatest possible energy-efficiency, he says.

Meanwhile, the energy-service companies that are upgrading older buildings are working at full tilt. The banks involved in the coalition, which are funding these projects, guarantee a certain level of energy and monetary savings for certain projects under the plan.

The senior vice president of Siemens Building Technologies, one of the energy-service companies, says that so far all of the upgrades performed by his company have paid for themselves in energy savings.

BIG MAC POLISHES IMAGE WITH BIODIESEL-FUELED TRUCKS

McDonald's claims that its latest initiative is not a publicity stunt. The company has announced that its cooking oil

from french fries, hash browns, and chicken McNuggets will be recycled and used to fuel its fleet of trucks in the United Kingdom, reports the BBC. Considering that the company has 1,200 outlets in the United Kingdom, it should have ample supplies to grease the wheels of this new venture.

In Austria, the company's trucks are already running on biodiesel. Company officials claim that the switch is the equivalent of taking 2,400 cars off the road.

For those Brits who hoped to power their own cars with biodiesel collected from the local McDonald's, they will have to look elsewhere as the giant U.S. company is going to take care of its own first. The plan is to combine 85 percent filtered cooking oil with 15 percent pure rapeseed oil to power 155 trucks around the British countryside.

Stay tuned for more news on the environmental revolution occurring at our friendly fast-food chain.

NEW JOBS CREATED BY DRIVE TO SNIFF THE ENVIRONMENT

A small, but growing, professional opportunity for those with a keen sense of smell is rapidly developing in the Guangdong Province of China. An environmental monitoring station in southern China is seeking the services of those with sharp noses who can sniff out foul gases in the air.

At present, eleven professional noses are being trained by air pollution experts in an industrial town near the Pearl River delta according to the *China Daily*. These experts can differentiate between hundreds of chemicals that can make people sick. Officials expect to enhance their detection skills and reduce more sources of potentially dangerous air pollution. The trainees must be able to differentiate between the smells from chemical plants, rubber factories, garbage dumps, and sewers. Eventually the trained noses will be used to complement the environmental monitoring station's scientific equipment.

Some of the trainees report that the work is quite unpleasant as they are required to stay in a lab and practice their sniffing skills over and over. Another drawback to this potential career choice is the lack of longevity. Typically, humans' sense of smell diminishes with age, therefore an accreditation test is required every three years in order for the professional noses to keep their jobs. There also is the unanswered question of what health impacts might be associated with a career spent sniffing out noxious and poisonous odors. All jobs have their drawbacks, but this one is probably best suited for the few and the _____ (fill in the blank).



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An Economist Looks at Global Warming

Investing in anticipation of environmental upheaval is a matter of numbers.

Global warming effects are expected to take a long time to appear, and there is great uncertainty about their extent. Moreover, where one sets the “discount rate” for that future damage—if it is discounted at all—will make a huge difference in estimates of its cost. For example, suppose the damage to generations 50 years from now equaled about \$2 trillion of their welfare. At a 3 percent discount rate, today’s value for the damage would be about \$500 billion; it wouldn’t pay to eliminate those harmful effects on future generations if it cost more than \$500 billion to ameliorate the harm through emissions taxes, carbon sequestration, and the like.

Is it fair to future generations to give their welfare less weight than that of present generations? It’s possible that future generations would in fact be better off if those now alive, instead of investing huge sums in greenhouse gas-reducing technologies, invested in capital to be available decades from now. It’s also likely that technologies will continue to improve, including those to help the environment.

—Gary S. Becker,
Senior Fellow, Hoover Institution

More Inconvenient Truths

Al Gore’s film makes global warming seem simple. It isn’t.

The recently published fourth report of the United Nations Intergovernmental Panel on Climate Change leaves little room for skeptics to claim that world temperatures are not increasing and that humans are not at least partly to blame. According to that report, humans are “very likely” to be responsible for rising temperatures. The debate undoubtedly will continue, but, whatever the truth, at least three important questions must be answered if we are to pursue sensible climate change policy. First, which humans are to blame? Second, how cost-effective are the proposed policies? And third, if they aren’t effective, what should we do?

Answers to such questions won’t be readily apparent to those who see *An Inconvenient Truth*, which sidesteps many inconvenient truths associated with climate change. It ignores Americans’ carbon sequestration. And there is little if any evidence to show that reducing carbon emissions, or even stabilizing carbon concentrations, will affect global temperatures or sea levels in the foreseeable future.

—Terry L. Anderson, Senior Fellow, Hoover Institution
and Executive Director, PERC

—Robert E. McCormick, Senior Fellow, PERC
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