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PERC REPORTS

Property and Environment Research Center

COVER STORY: INVASION OF ALIEN SPECIES

FROM THE EDITOR

Beyond Rhetoric

Yes, the world is awash in alien species. In the United States, zebra mussels have invaded the Great Lakes, kudzu covers swathes of the Southeast, and melaleuca is choking parts of the Everglades. But why has this invasion suddenly become an environmental challenge of grand proportions? Is it indeed such a disaster? In "Invasion of Alien Species," Wallace Kaufman goes beyond the battle cries and assesses how bad conditions actually are.

Always on the search for environmental success stories, we thought we had found one in the Old Works Golf Course at Anaconda, Montana, where a Superfund waste site has been transformed into a signature golf course studded with relics of Anaconda's past. Then we learned that the cost was $49 million. Still a success story? Ashley Fingarson reports; you decide.

The Interior Department has been a target of criticism from both left and right. In its *Mid-Term Report Card* on the Bush administration's environmental policy, PERC was among those dissatisfied with the department's slow progress toward relying on private initiative and local control. In an exclusive essay, Lynn Scarlett, Assistant Secretary for Policy, Management, and Budget, argues that the criticisms miss the mark. She explains the underlying vision and describes concrete steps the department is taking to achieve it.

Recognizing the importance of incentives, PERC has understood for years that the Endangered Species Act is fraught with perverse ones. Because the act can force landowners to stop using their land for anything except harboring species, landowners face pressure to "shoot, shovel, and shut up" (as one Montana source expressed it) instead of protecting rare animals. Now, Dan Benjamin reports on a study showing that some landowners are smarter than that. They don't "shoot, shovel and shut up" red-cockaded woodpeckers, but they do cut down trees earlier than they would otherwise. (One author of the article he cites is Dean Lueck, who wrote PERC's research study "An Economic Guide to State Wildlife Management.")

Meanwhile, Linda Platts offers environmental success stories in "Greener Pastures." Chiapas, Mexico, farmers grow organic coffee (and receive a premium price) and Ford Motor Co. solves the problem of recycling automotive aluminum.

This issue of *PERC Reports* continues our tradition of bringing the year to a vivid, four-color conclusion. Special thanks go to Mandy-Scott Bachelier and Dianna Rienhart for their striking design and to an anonymous donor who makes our four-color periodical possible.

Jane S. Shaw

From left: Kaufman, Scarlett, Fingarson, and Rienhart.




PERC

2048 Analysis Drive, Suite A
Bozeman, Montana 59718
www.perc.org 406.587.9591

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For details, see key on page 7.

Nothing unites a country like an invasion, and the war against invasive species has created rare common ground between the Bush administration and its sworn foes. In the past year, government agencies have joined environmentalists in an increasingly popular war against invasives (such as the purple starthistle at right).

How Severe a Problem?

By Wallace Kaufman

© Barry A. Rice/The Nature Conservancy

The problem is old, but the publicity is new. The definitions of invasive species vary, but today's focus is on species, often foreign, that invade new territories, crowding out native plants and making rapid changes in the ecosystem and often the local economy. Agriculture Undersecretary Mark Rey has called invasive species the most underappreciated problem affecting national forests (McClure 2003). U.S. Forest Service Chief Dale Bosworth named it the second greatest threat to national forests after fire. "Nationwide, invasive plants now cover an area larger than the entire Northeast, from Pennsylvania to Maine," he said. "All invasives combined cost Americans about $138 billion per year in total economic damages and associated control costs" (Bosworth 2003).

In the literature of environmental groups, the alert has a familiar doomsday ring: "An invasion is under way that is undermining our economy and endangering our most precious natural treasures," says NatureServe (2003), a network of natural heritage programs that monitors endangered species. Among the groups that have made invasives a top priority are the Nature Conservancy, Defenders of Wildlife, the Union of Concerned Scientists, World Resources Institute, Conservation International, the Wilderness Society, Environmental Defense, Natural Resources Defense Council, the Sierra Club, and the National Audubon Society.

Farms, forests, highway departments, parks, and homeowners have been fighting invasive species for over a century. Agricultural stores and the garden section of every department store offer remedies to attack invasive species ranging from herbicides to traps and bullets. Individual species such as chestnut blight, kudzu, and the zebra mussel have made national news from time to time. In the past year, however, government agencies have joined environmentalists in an increasingly popular war against invasives in general. Why has this old, ever-simmering guerilla war suddenly become a first-magnitude environmental issue?

© Barry A. Rice/The Nature Conservancy

While many imported plants enhance our landscaping and others provide 98 percent of our crops, some 5,000—including this kudzu—have gone wild to compete with 17,000 or so native plants.

First, nothing unites a country like an invasion, and the war against invasive species has created rare common ground between the Bush administration and its sworn foes.

Second, the problem is real, it is big, and it is both an economic and an environmental issue. Since the advent of European settlement in North America, over 50,000 species of plants alone have been introduced. While many enhance our landscaping and others provide 98 percent of our crops, some 5,000 have gone wild to compete with 17,000 or so native plants (Morse, Kartesz, and Kutner 1995; Morin 1995). Estimates of how fast and how extensively they are replacing natives vary, but no one who has seen the blooms of garlic mustard in eastern forests, the broad yellow fields of starthistle in the West, swarms of starlings in the suburbs, or the hair-thick stands of melaleuca in the Everglades can doubt that change is everywhere.

Australian melaleuca grows much more densely in the Everglades than in its native habitat and is spreading at a rate of 29,700 acres a year (Campbell 1994). It has real costs to both wildlife and to the free-flowing water regime that filters and provides much of Florida's water. In Utah's Great Basin, European cheatgrass has accelerated fire frequency from every 60 to 110 years to every 3 to 5 years, and cheatgrass has come to dominate some 5 million acres in Idaho and Utah (Whisenant 1990).

Animal invaders are not as numerous, but in many cases they cause greater and more immediate damage, especially insects and mites. Farmers may lose $13 billion in crops to introduced insects every year (Pimentel et al. 1999). About 100 introduced insects have become serious forest pests, accounting for some $2 billion in annual losses. To these obvious costs we should add the burdens on homeowners, fisheries, and human health, as well as the expenditures to control the invasives.

Other factors, too, lie behind this new war on invasives. For environmental pessimists, the damage done is one more proof that humankind has ruined nature and should not disturb nature's landscape plan. Emotional exaggeration and junk science are brought to the aid of this message and the cause of preservation: "An estimated 7 million acres are currently infested with invasive species on our national

forests," claims the National Forest Protection Alliance (2003). "At the current rate of spread, the entire national forest system will be covered with invasive species by 2035." This is a restatement of the "population bomb" argument that projects a given trend to infinity. Environmental misanthropes seem to think that this time the statistical nonsense might work because the problem and its costs are visible everywhere.

The invasive species issue also has a convenient link to one of the great bugaboos of liberal activists—globalization. Increased global trade has indeed sped up the movement of biological agents between countries, radically accelerating its ancient role in the spread of invasive species. Some environmentalists have already proposed controversial constrictions on international trade. Forestry activist and respected plant ecologist Jerry Franklin has declared, "It's time to stop moving green plants and raw wood between continents" (quoted in McClure 2003).

While the problem is large and even frightening (consider the arrival of the West Nile virus), the negatives are not the whole story. The invasive species issue shares the lopsided treatment given global warming. A complete balance sheet would note that many introduced species, including invasives, have had economic and social benefits. In fact, many species, like kudzu (used for erosion control in the Southeast), were introduced for their benefits and have provided those benefits even as escapees. Many invasives are only unwelcome when they are in superabundance or in the wrong place.

The zebra mussel, notorious for clogging power plant intakes, also filters and clarifies water, benefiting plant and fish populations. Tamarisk, or salt cedar trees, were introduced in the early 1800s for their ability to grow rapidly (up to 12 feet a year), provide dense windbreaks, and colonize heavily saline soils where little else will grow. It turns out salt cedar invasions have been a boon to populations of the endangered willow flycatcher, which prefers salt cedars for nesting (Barranco 2001). If Louisiana's efforts to create a market for the large muskrat-like nutria that destroys wetlands succeed, the market could turn a negative into a positive. Judgments about some invasives,

Tamarisk, or salt cedar trees, were introduced in the early 1800s for their ability to grow rapidly (up to 12 feet a year), provide dense windbreaks, and colonize heavily saline soils where little else will grow. They have been a boon to populations of the endangered willow flycatcher.

Courtesy of USDA-APHIS

Farmers may lose $13 billion in crops to introduced insects. This Asian longhorned beetle threatens trees, including maples that produce maple syrup.

such as salmon in the Great Lakes, are a matter of environmental preference, and the European honey bee, a continuing boon to farms and gardens across America, appears to have no organized opposition.

While farmers are well aware of the costs of invasives, they are also frightened by the potential for eco-pessimists to capture the issue. The "green plants" that Jerry Frankin wants to keep home could come to mean green vegetables and live animals. Michele Dias, a California Farm Bureau Federation attorney, says, "Unless farmers and ranchers become active in their approach to this issue now, due to heavy environmental influence, federal controls could far surpass the type of abuses of power already experienced with the Endangered Species Act" (Dias 2003). Activists have already convinced a judge in Maine to order salmon pens emptied, on the grounds that escaping hatchery salmon are invasives.

Yes, the invasive species issue is a real problem—more easily documented and already more damaging economically and environmentally than global warming. Environmental pessimists can take a major part of the credit for bringing the issue onto the public stage. Yet to see the invasive species issue as a choice between the native environment and alien species, between preservation and human meddling, between market choices and government controls, obscures the real issue. All species in America were introduced at some time, and all "native" dominants from Ponderosa pine to the American bison and bald eagle were once successful invasives. The heart of the matter is not figuring out how to restore some "native" ecosystem. After all, which native system would we restore? Pre-Columbian, pre-Indian, Ice Age, or pre-Ice Age? The choice is arbitrary.

We can never stop this problem, but we can learn to live with it if we commit ourselves to flexible informed management rather than to panic regulation and symbolic action. We will make intelligent decisions only when the debate shifts from the unsupportable notion that "native" is always better to the all-important question of how we manage change in our natural economy. Having identified and agreed on a real problem, we now must put the most effective tools in the hands of those who are most capable of tackling it.

No problem ever defied centralized solutions more than

invasive species in all their diversity of character, attacks, and local severity. The most effective managers are usually those who have an economic interest in the results. Thus, farmers, ranchers, forest owners and homeowners must have ready access to the best intelligence (that is, science) and the necessary defensive weapons. These may range from hunting rights for mute swans to using pesticides against garlic mustard and starthistle. Just when biotechnology is giving us powerful and diverse defensive measures unimagined just a decade ago, we would make a serious mistake to take a "one-regulation-fits-all" approach.

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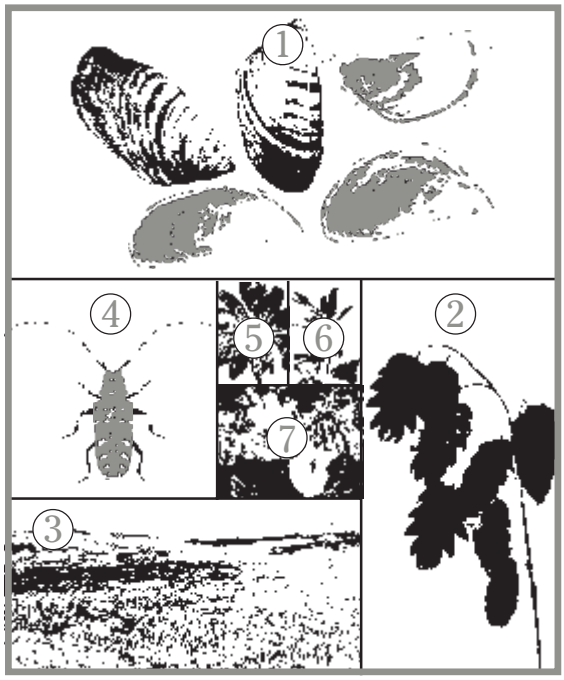
Wallace Kaufman is the author of Coming Out of the Woods *(Perseus Publishing) and* No Turning Back *(iUniverse.com) and is a previous contributor to* PERC Reports.

On the Front Cover

1. *Dreissena polymorpha* (Zebra mussel); © Barry A. Rice/The Nature Conservancy.
2. *Briza maxima* (Rattlesnake grass); © Barry A. Rice/The Nature Conservancy.
3. *Carpobrotus edulis, C. chilensis* (Iceplant); © John M. Randall/The Nature Conservancy.
4. *Anoplophora glabripennis* (Asian longhorned beetle); Courtesy of USDA-APHIS.
5. *Cichorium intybus* (Chicory); © Barry A. Rice/The Nature Conservancy.
6. *Vinca major* (Periwinkle); © Barry A. Rice/The Nature Conservancy.
7. *Spathodea campanulata* (African tuliptree); © John M. Randall/The Nature Conservancy.



Ashley Fingarson

CLOUD WITH A COPPER LINING

From Superfund Site to Golf Course

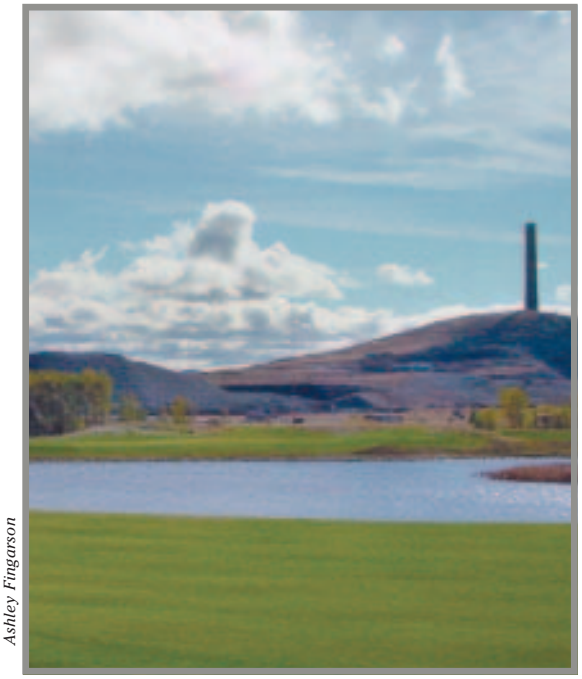
By Ashley Fingarson

The small mining town of Anaconda, Montana, almost became a victim of Superfund, the law that can taint an entire community if part of it is declared a hazardous waste site. But Anaconda acquired a signature Jack Nicklaus golf course instead.

The Old Works Golf Course just outside Anaconda is extraordinary. Set against the Pintlar mountains, the course incorporates remnants of the Upper and Lower Old Works—two copper smelters that started operation in 1883 and were shut down in 1903. Ruins of old buildings surround the course. Smelter ladles the size of golf carts—ladles that once carried molten copper to and from the furnace—lie near the first tee. What is left of an old brick flue runs up a nearby hill—one can almost envision the smokestack that once stood at the crest. A pile of black slag rises above the green fairways like a mesa. The famous Washoe Works smokestack (once the largest-volume smokestack in the world) is visible across the valley.

This stunning golf course did not come cheap. The transformation of a contaminated site under the control of the Environmental Protection Agency to a world class golf course cost $49 million, according to the Atlantic Richfield Company, which paid the bills. (The company was known as ARCO until it became a subsidiary of British Petroleum in 2000). “This includes everything from design of the course, to cleaning up, capping the contaminants, studies leading up to the design, and building the golf course itself,” says Marci Sheehan, associate environmental manager at Atlantic Richfield. Golf courses typically cost between $2 and $8 million.

Anaconda is thirty miles from the once-rich



Ashley Fingarson

This stunning golf course did not come cheap. The transformation of a contaminated site under the control of the Environmental Protection Agency to a world class golf course cost $49 million, according to the Atlantic Richfield Company, which paid the bills.

copper hill in Butte, Montana. Copper tycoon Marcus Daly built two smelters there, but closed them in 1903 after constructing the more modern Washoe Works across the valley. Over the years, smelting left its mark around Anaconda in the form of black slag mounds and the less visible but widespread contamination of soil and water from the wastes.

In 1977, ARCO purchased the Anaconda Copper Mining Company, a remnant of Marcus Daly's empire. But copper prices fell soon after, and ARCO closed the Washoe Works in 1980, leaving the town depressed.

Three years later, matters worsened. The Environmental Protection Agency designated the Upper Clark Fork river basin, a 118-mile stretch from Butte to Missoula, as a Superfund site—the nation's largest. The EPA named ARCO as the "potentially responsible party." That meant that ARCO had to clean it up.

Since then, Atlantic Richfield has spent over $130 million decontaminating and rehabilitating the area, and the job is far from finished. But the Superfund cloud had a copper lining.

In 1988, Gene Vuckovich, the manager of the city of Anaconda and the county of Deer Lodge, proposed turning the sterile Old Works land into a golf course. Tom Litman, now a golf pro at Old Works, recalls, "There were some skeptics when it was first talked about, but anything is possible with ARCO, which is one of the biggest corporations in the world, a subsidiary of British Petroleum." Vuckovich worked with Atlantic Richfield and brought in Jack Nicklaus, after interviewing seven of the top ten golf course designers in the country. "We didn't want any old course," says Vuckovich in a video describing the history of the golf course (Atlantic Richfield Co. n.d.).

Nicklaus began designing the links in 1992, and the course was officially opened in 1997. Crushed limestone covers the smelting waste, and sixteen inches of clean topsoil make up the base of the golf course. The irrigation system was designed to prevent contaminants from entering Warm Springs Creek, which flows through the course. Excess water is collected and moved to an evaporating pond so that it doesn't seep into the soil, where it could leach contaminants.

Nicklaus incorporated the black slag into sand traps. He found that the slag is easier to play in—"It's heavier than sand,

Ashley Fingarson

What is left of an old brick flue runs up a nearby hill—one can almost envision the smokestack that stood at the crest.

and balls don't sink in it and become covered." In fact, Nicklaus only had one concern with the course. "The trouble is—you're going to have to figure out how to play white sand after this" (Atlantic Richfield Co. n.d.). The 18-hole golf course is comparatively long at 7,700 yards.

Deer Lodge County owns Old Works, which is open to the public. Although Old Works' net revenues will never cover the costs of decontamination, the course does cover its operating costs, which are between $1.2 and $1.4 million each year. For the first ten years of operation, earnings are being placed into a reserve account. Once the reserve is met, the county will use its net revenues for purposes such as parks or historic preservation.

"This golf course has definitely helped the economy tremendously," says Litman. "Without the golf course, Anaconda would be a ghost town—a slight exaggeration, but there are not many jobs here." About 22,000 rounds of golf are played at Old Works each year, about half by out-of-state visitors. The facility has been featured in numerous golf magazines—at least once every year since it opened, according to Litman.

In spite of its high cost, Anaconda's experience may have set a precedent. Litman notes that in Casper, Wyoming, an AAMCO refinery is also a cleanup site. A proposed golf course there should be completed by 2005. Robert Trent Jones, whose grandfather is famed golfer Bobby Jones, is working on the design there, Litman says.

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Ashley Fingarson, a student at Montana State University, has written two other articles for PERC Reports.

A CLOSER LOOK AT INTERIOR

PERC's criteria—respect for property rights, enhancement of local decision making, use of market forces, and application of fees for service—lie at the foundation of many of our decisions, says Assistant Secretary Lynn Scarlett.

An Official Explains Its Philosophical Vision

By Lynn Scarlett

Last winter PERC published its *Mid-term Report Card* on the Bush administration's environmental policy. Gauging agency actions against criteria central to PERC's vision of free market environmentalism, the *Report Card* gave the administration marks that ranged from fair to poor. Our performance record at Department of the Interior deserves another—and closer—look.

PERC's criteria—respect for property rights, enhancement of local decision making, use of market forces, and application of fees for service—lie at the foundation of many of our decisions. Secretary Gale Norton articulates a vision of "four C's"—conservation through cooperation, communication and consultation. The language of the four C's departs from the business school lingo of prices, contracts, and profits, but its philosophical vision builds upon principles of entrepreneurship, local action, and respect for private property. It centers on three-pronged results—healthy lands, thriving communities, and dynamic economies.

The four C's vision seeks to advance personal stewardship. Individuals, alone and together, on farms and in factories, in backyards and in neighborhoods, are restoring riverbank habitat, replanting native grasses, and innovating to prevent pollution. These citizen stewards predated our arrival in Washington. We are seeking to nurture their efforts through shifts in how the Department of the Interior spends money and through administrative, legal, and legislative actions.

Consider our spending priorities. In 1998, land acquisition under the Land and Water Conservation Fund reached a peak of $900 million, falling to nearly a half-billion dollars in the final budget of the Clinton administration. While we are committed to fully funding the Land and Water Conservation Fund (LWCF) at $900 million, our focus is away from land acquisition and toward private stewardship and cooperative conservation.

Our proposed land acquisition budget under LWCF in fiscal year 2004 declined to around $140 million at Interior, of which $40 million was proposed as part of a legal settlement regarding an oil and gas lease. Instead of land acquisition, we proposed funds for a Landowner Incentive Program and Private Stewardship Grant program, each targeting landowner efforts to protect threatened and endangered species.

Our Cooperative Conservation Initiative (CCI) cost-share grants and Partners for Fish and Wildlife Program both provide federal land managers financial tools to join in conservation partnerships across a mosaic of land ownerships. In 2003, we issued over 250 of these CCI cost-share grants totaling around $13 million. We partnered with more than 700 individuals, organizations, tribes, and local governments who contributed $24 million in funds or in-kind efforts.

The effect of these efforts is to help focus the nation's attention on private

stewardship and away from a long-standing presumption that conservation requires federal (or state) dominion over lands. These partnerships springing up across the nation depend upon individuals working together voluntarily across property boundaries, interests, and multiple challenges.

What we have underway with these experiences in cooperative conservation is a discovery process—a spontaneous search for decision-making structures that foster innovation, tap local ideas and insights, and inspire private stewardship.

Crystal Foreman Brown

- Along the Ducktrap River in Maine, for example, environmental entrepreneurs—who include farmers, conservationists, a local snowmobile association, and Interior's Fish and Wildlife Service—are engaged in a constant search for solutions tailored to the locale, using new tools to reduce erosion and restore grasses along the riverbank.

- In Arizona, the Malpai Borderlands Group has created a grass bank (see photo at left) that enhances prairie habitat while providing a sort of insurance to local ranchers by giving temporary respite for cattle during times of drought and fire.

- In Alaska, scientists teamed with the fishing community, drawing on their experiential knowledge, to come up with new fishing techniques that would not jeopardize albatross.

- Outside Pittsburgh, in Buffalo Creek, Pennsylvania, dozens of farmers engage in conservation as partners and participants as they fence off more than 100 miles of streams and riparian areas. They are planting native warm spring grasses and installing owl, wood duck, and even bat boxes.

Accompanying this shift in spending are a number of administrative, legal, and legislative actions to advance environmental entrepreneurship; respect private property, contracts, and water rights; and strengthen local decision making.

Among the most significant achievements is the agreement among the state of California and various irrigation districts and water districts on how to bring California's consumption of Colorado River water within the 4.4 million acre-feet level established decades ago as part of a multistate water rights compact. The agreement emerged through delicate and lengthy negotiations centered on state water law, water contracting, and water rights. The final agreement relies upon a fundamental tool of markets—water transfers—as a key component.

More broadly, through our proposed Water 2025 initiative, Interior is working with states, water districts, tribes, and other citizens to better meet the water needs of the West through conservation, water transfers, better collaboration among users, and new technologies. The entire approach builds upon a foundation of state water rights, existing contracts, and a competitive grant process.

Entrepreneurship likewise plays a signal role in the President's Healthy Forests Initiative. Decades of inadequate management of forests and rangelands, buildup of underbrush, intrusion of nonnative species, and tree densities 10 to 20 times what occurred in pre-European settlement times have created conditions that put lands at risk of catastrophic fires. The Healthy Forests Initiative proposes to use stewardship contracts through which private and nonprofit contractors can remove brush and trees that are unhealthy or too densely distributed to achieve healthy forest conditions. Under such contracts, taxpayer costs are offset by the value of the materials removed.

Working, as the Interior Department does, at the confluence of people, land, and water, we face complex challenges, must accommodate citizens with competing goals, and operate within contexts of constrained resources. Along with challenges of water and fire have come challenges presented by burgeoning populations in the West, with more and more folks seeking recreation opportunities on public lands. In the 1990s, Congress provided the Interior Department with recreation fee demonstration authority, allowing our land management bureaus to charge recreation fees and retain most of the revenues on site to invest in visitor-serving infrastructure and activities.

Over recent years, these fees have brought to the land management agencies some $170 million annually that has been reinvested in national parks, wildlife refuges, forests, and publicly managed rangelands to enhance recreation services. This demonstration fee authority is nearing the end of several extensions. Interior has testified repeatedly on the importance of permanently authorizing the program. In doing so, we have also highlighted innovative relationships with local governments in which Interior has partnered with them to collect fees and manage recreation sites. Entrepreneurship and enhancement of local decision making lie at the heart of these recreation fee programs.

Conservation banking, greater protections for those participating in endangered species conservation agreements, guidance on implementing the National Environmental Policy Act in ways that promote local engagement in decisions—these administrative tools all reflect a commitment to entrepreneurship, respect for private property, and enhanced local decision making.

At a recent conference here in Washington, one fellow participant—an influential member of the previous administration—stated that the test of commitment to an environmental ethic is how much punishment one is willing to mete out. This statement is a reflection of an "old environmentalism" that turned to Washington for answers, focusing on top-down prescriptions, paperwork, and process, and tended to view the "stick"—fees, fines, and punishment—as the primary tools with which to achieve environmental results.

Our compass is different. We know that cooperation, innovation, and entrepreneurship—in the workplace, on the lands, in our forests—form a powerful foundation from which to advance healthy lands, thriving communities, and dynamic economies.

Lynn Scarlett is Assistant Secretary for Policy, Management, and Budget in the U. S. Department of the Interior. She was formerly president of the Reason Foundation. With Jane S. Shaw, she wrote "Environmental Progress: What Every Business Executive Should Know," PERC Policy Series*, PS-15.*

GREENER PASTURES

By Linda Platts

A Taste of Mexico

Watch your step, Starbucks. Indigenous farmers from Chiapas, Mexico, are opening cafés in Europe, the United States, and Mexico. Started in 1997 by a group of Mexican small investors and a nonprofit organization of peasant coffee farmers, Café La Selva (The Jungle Café in English) is winning customers in the world of gourmet coffee while preserving rural landscapes.

The certified organic coffee is grown without pesticides or fertilizers by small-scale farmers, and the beans are shipped directly to the coffee shops. This direct route to a retail market along with the organic label earns Chiapas farmers nearly twice the market rate for their coffee beans. Proceeds from the company support 1,350 indigenous families in farming communities. In addition, women in the communities supplement this income by selling baked goods to the cafés.

In 2002, La Selva won a competition sponsored by the World Resources Institute that connects small investors with sustainable businesses. The prize was assistance with a business plan from graduate students in business as well as consulting services from the firm of Booz Allen Hamilton. Café La Selva has opened a shop in Atlanta. New York is next on the agenda, to be followed by as many as 50 new coffee shops in the next five years.

By helping farmers to remain on the land and practice organic farming, the La Selva coffee chain is helping preserve biodiversity while also improving local living standards.

—GreenBiz.com

A Scrappy Company

As you gaze out over the shiny hood of your brand new Lincoln Town Car, you might be looking at a hunk of scrap metal. Ford Motor Co. has spent years seeking an efficient, cost-effective system to reuse aluminum scraps. The results are in now, showing savings of up to 40 percent for high quality aluminum.

In Ford's Chicago plant, huge machines stamp the hoods of various vehicles from large sheets of aluminum. Scrap pieces fall to a conveyor belt below, which carries an assortment of materials left over from the manufacturing process. In order to reuse the aluminum, it has to be separated from the other scrap. Ford turned to OmniSource Corp. of Fort Wayne, Indiana, which designed a system using magnets and shaker tables

Linda Platts is PERC's editorial associate and Web site manager (www.perc.org). "Greener Pastures" showcases market approaches to environmental protection and natural resource use that benefit private entities as well as the public.

that separates ferrous metals and other contaminants from the aluminum. The remaining clean aluminum is pressed into 1,000-pound bales and shipped back to the Alcan Aluminum Corp. where it originated

The returned aluminum is remelted and re-rolled into aluminum sheets and in turn shipped back to Ford. Alcan realizes a significant reduction in costs because remelting aluminum requires only 5 percent of the energy that is needed to create primary aluminum from ore. These savings also are passed along to Ford. And while the OmniSource separation system was a $400,000 investment, the car manufacturer is now saving more than $2.5 million a year by recycling high quality aluminum.

The project's success has encouraged other car companies to explore recycling options and at the same time incorporate more aluminum into their vehicles. The benefits extend to overall weight reductions for new cars, which can increase fuel efficiency.

The closed-loop aluminum recycling program meets criteria set by Ford chairman Bill Ford: to reduce waste, enhance efficiency, and reduce costs.

—Recycling Today

Teeing Off on Pollutants

Researchers at Purdue University say that water hazards on golf courses can do a lot more than provide a challenge to players. They can remove a host of pollutants and improve water quality.

A study of wetlands built on the university's reconstructed Kampen Golf Course shows that water is trapped and cleaned by golf course grass, wetland plants, sediments, and microscopic organisms. The grass itself traps and uses most of the nutrients and chemicals applied to the course as well those contained in runoff from adjacent areas.

To optimize the usefulness of ponds and wetlands, Purdue scientists discovered that the depth of the water and its speed of flow should be varied in order to encourage a diverse population of microbes. The ponds at Kampen are able to remove a wide variety of chemicals and solids from the water, including atrazine, nitrogen nitrate, ammonia nitrogen, phosphorous, aluminum, iron, and manganese.

The ponds work efficiently to clean runoff not only from the golf course, but also from two highways, a motel parking lot, a gas station, and a development of 200 homes. Golf courses with carefully constructed wetlands can be good neighbors, providing benefits to people and the environment.

—Associated Press

The Lure of the Jungle

Slash-and-burn agriculture has long been a way of life for farmers living in forested areas of the Dominican Republic. Maltiano Moreta, president of the Ecological Society, noticed that the steady destruction of forests near Cachote was also eradicating habitat for endemic bird species such as the Hispaniolan parakeet, parrot, and trogon.

He persuaded local farmers that a forest reserve would attract tourists and create economic opportunities. With the cooperation of landowners, Moreta established a 5,000-acre community forest reserve. A grant from the Global Environment Facility helped villagers develop tourist facilities and promote their forest attractions. While thousands of tourists flock to the Dominican Republic's beach resorts, only recently have they begun to venture into the forests—some of country's poorest regions—for hikes and ecotours.

Another small community, Los Calabazos, used grant money to build a small restaurant and rustic bungalows. Now, those bungalows are booked by tourists who hike the trails and swim in the cool, clean waters of the nearby Yaque River.

Moreta expects that Cachote will have similar success with its ecotourism venture, improving living conditions and encouraging local people to protect their natural resources.

—Environmental News Service

Preemptive Cuts

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

Daniel K. Benjamin is a PERC senior associate and professor of economics at Clemson University. His regular column, "Tangents—Where Research and Policy Meet," investigates policy implications of recent academic research. He can be reached at: wahoo@clemson.edu.

Under the Endangered Species Act (ESA) it is illegal to destroy a member of an endangered species or to damage the species' habitat. Yet the presence of an endangered species on a parcel of land may reduce or even eliminate the land's value in uses other than species protection. In the thirty-plus years of the ESA's existence, isolated reports have suggested that owners might be seeking to protect the value of their properties by reducing their suitability as habitat—possibly before any endangered species arrive. Recent research appears to validate these reports.

Dean Lueck and Jeffrey Michael (2003) show that owners of timberland close to land with colonies of protected red-cockaded woodpeckers (RCW) are more likely to harvest their timber when it is less mature. Because RCWs rely on mature timber stands for nesting, these actions reduce habitat for the birds and, perhaps, further threaten their existence.

The red-cockaded woodpecker is a nonmigratory, territorial woodpecker that resides primarily in southern pine ecosystems ranging from Texas to Florida to Virginia. It has had endangered status since 1970, with only about 4,700 nesting pairs believed to exist today. About 20 percent of these birds inhabit private lands, most notably in North Carolina, the area studied by Lueck and Michael. When RCWs leave their birth colony they may travel up to 15 miles to excavate a nest in a suitable pine, one preferably 70 years old, but at least 40 years old. During the period of this study (the late 1980s), the owner of any timberland on which RCWs were nesting was not allowed to harvest timber within a 60- to 300-acre area around the nest. This government-mandated restriction could cost a landowner up to $200,000 in lost timber profits.

Because RCWs are willing to travel up to 15 miles to found a new colony, landowners within such a radius of existing colonies face a substantial risk of economic loss due to RCW colonization. One might expect them to take steps to reduce or eliminate the chance of such loss, and this is exactly what Lueck and Michael are able to establish. Because of the woodpeckers' insistence on mature pines for their nests, the simplest way to protect against colonization is to log trees before they reach the age preferred by the RCW—and this is what many landowners appear to have done.

Land within 15 miles of a property that is relatively heavily populated with red-cockaded woodpeckers is about 15 percent more likely to be harvested. Overall, proximity to high-density colonies cuts harvest age by about three years.

Of course, many things affect the harvest decision, including the value of the standing timber, the productivity of the land, and the species of pines involved. After controlling for all these factors, Lueck and Michael find that for properties located within 15 miles of existing RCW colonies, harvesting decisions are systematically influenced in two ways. First, landowners are more likely to harvest; indeed, land within 15 miles of a property that is relatively heavily populated with RCWs is about 15 percent more likely to be harvested. Second, landowners threatened by woodpecker colonization tend to harvest trees when they are younger. Overall, proximity to high-density RCW colonies cuts harvest age by about three years. Although landowners are no doubt changing behavior in a variety of ways, this finding is consistent with about 10 percent of landowners reducing their rotation periods from 70 years to 40 years.

Looking only at the timber side of things, the damage done by the ESA in inducing earlier logging is probably small: When stands are managed solely for commercial timber harvest, they tend to be harvested before the age of 40 (and thus before they are attractive to RCWs). The damage really comes on stands managed for conservation uses, such as for environmental amenities and hunting, in addition to timber. These are the properties most likely to be harvested, and harvested sooner due to the ESA, resulting in the loss of these amenities.

The other damage comes to the woodpecker itself. The ESA surely has protected some colonies by preventing habitat destruction where colonies were already located. But some of this beneficial effect has been eliminated because the ESA promotes habitat destruction on property close to RCW-colonized lands. The authors estimate that up 80 percent of the apparent benefits of the ESA were wiped out by the perverse incentives it created: Even while saving up to 84 colonies on one set of properties, it may have prevented the formation of up to 67 colonies on other lands.

Following the period covered by this study, the Fish and Wildlife Service chose to ease ESA rules as they applied to lands inhabitable by RCWs. These regulatory changes reduced the costs to landowners of colonization, and thus presumably reduced the incentive to harvest timberlands prematurely. But the evidence developed by Lueck and Michael makes two points abundantly clear. First, because of the perverse incentives created by the ESA, this law has accomplished less than many people think. Second, people respond to incentives; only by giving them appropriate incentives will we maximize the environmental protection achievable with a given expenditure of resources. Incentives matter, not just to people, but to woodpeckers, too.

REFERENCE

Lueck, Dean, and Jeffrey A. Michael. 2003. Preemptive Habitat Destruction under the Endangered Species Act. *Journal of Law & Economics* 46(1): 27–60.

LETTER TO THE EDITOR

"Simple, Well-known Facts"

Daniel K. Benjamin's piece ("Eight Great Myths About Waste Disposal," a *PERC Policy Series* paper excerpted in *PERC Reports* September 2003) is reminiscent of one published several years ago by the *New York Times* which prompted a national backlash against the newspaper and the author of the skewed article. These views pop up every so often and serve as catalyst for reexamination. Unfortunately, they do little to reinforce public participation in recycling programs. They certainly do not help improve an already apathetic recycling rate.

Mr. Benjamin's trite formula is just as pathetic; a cliché about an industry which has proven itself an economic and environmental necessity. The fact that he chooses the word "myth" to describe simple, well-known facts about waste disposal puts him in the same category of overzealous public education programs aimed at increasing recycling rates. At least such programs attempt to improve our plight. In contrast, Benjamin quotes questionable nine-year-old data stating recycling to be a waste of resources. Perhaps Benjamin would care to responsibly provide examples of misleading education programs overstating the benefit of recycling. In the meantime, this polluted world can use all the help it can get, even if recycling programs are mandatory.

Keith Bell
Recycling Programs, Inc.
Lake Worth, FL

The editor responds: Keith Bell assumes that all recycling is worthwhile, and that information showing curbside recycling to be wasteful must be out of date. Yet in his longer piece Benjamin explains why mandatory curbside recycling is almost inevitably wasteful: "In the ordinary course of everyday living, we reuse (and sometimes recycle) almost everything that plays a role in our daily consumption activities. The only things that intentionally end up in municipal solid waste—the trash—are both low in value and costly to reuse or recycle. Yet these are the items that municipal recycling programs are targeting, the very things that people have already decided are too worthless or too costly to deal with further" (p. 21–22).

Overstatement of the benefits of recycling is routine in schools. *Facts, Not Fear* (by Michael Sanera and me) found that textbooks promote recycling simplistically. A popular children's book, *50 Simple Things Kids Can Do to Save the Earth*, urges children to start recycling centers at school and to lobby for curbside recycling, without caveats. The purpose of Benjamin's essays was to provide analysis of a topic that is usually treated glibly.

Jane S. Shaw, a senior associate of PERC, is editor of *PERC Reports*. She believes that vigorous debate about controversial environmental topics furthers understanding and lays the foundation for better policies. Send your letters to her at: *PERC Reports*, 2048 Analysis Drive, Suite A, Bozeman, MT 59718 or shaw@perc.org.

PERC REPORTS

Welcome to this year-end issue of PERC Reports. *We encourage you to join us in thinking about ways to enhance environmental quality through property rights, markets, and local control.*

Mandy-Scott Bachelier

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