Vol. 36, Issue 1
Summer 2017

PERC REPORTS

FOR FREE MARKET ENVIRONMENTALISM

THE FUTURE OF PUBLIC LANDS

FROM THE EDITOR

Shawn Regan

All is not well on America's public lands. Wildfires burn millions of acres each year, costing billions of dollars. Armed conflicts have erupted over grazing rights in recent years. And battles over national-monument designations are raging from Bears Ears in southeastern Utah to the North Woods of Maine.

For all their wonder and beauty, public lands are as polarizing as the rest of our political landscape. That should come as no surprise. After all, the federal government owns nearly one-third of the United States, including almost half of the American West. Decisions about how to manage public lands are fundamentally political, and they affect the lives of millions of people. Yet the laws and regulations governing these lands tend to encourage conflict rather than cooperation, and disputes are more likely to be resolved by litigation than by collaboration.

Ryan Zinke, the new secretary of the interior, has pledged to "restore trust" among the communities most affected by public land policies. In an interview with me (see page 14), Zinke says the federal government's approach has been far too centralized and "heavy-handed." One of his top priorities is to ensure that local managers can "make decisions that are more collaborative and locally driven." Will Zinke be able to bring about meaningful reforms? Time will tell.

There are certainly plenty of ways to improve public land management, and many of them are discussed in these pages. Roger Sedjo explores innovative management proposals for our national forests and asks whether it's time for a new mission for the U.S. Forest Service. Melinda Harm Benson and Brian Yablonski examine lessons learned from the Valles Caldera National Preserve in New Mexico, one of the largest U.S. public land experiments. Timothy Fitzgerald and Randal Rucker tackle another pressing issue: the tens of thousands of wild horses and burros held in government holding facilities, which will soon cost taxpayers an estimated $1 billion over the animals' lifetimes. And Tate Watkins takes us to the Great Smoky Mountains to explore how to mitigate growing conflicts between private landowners and public wildlife.

In every case, it's clear that innovation is possible—and sorely needed. Thanks to the support of the M.J. Murdock Charitable Trust, this issue of *PERC Reports* explores the future of America's public lands. It reflects the spirit of what economist and public land expert Marion Clawson wrote in 1984: "I reject any idea that we today are less imaginative and resourceful than the men and women who pressed for the establishment of the national forests, national parks, and grazing districts. We too can innovate; let us try." That's still true today—so let's try.

TELL US WHAT YOU THINK **shawn@perc.org**

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PERC REPORTS
For Free Market Environmentalism
Vol. 36, Issue 1
Summer 2017

(ISSN 1095-3779)
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PERC REPORTS
FOR FREE MARKET ENVIRONMENTALISM
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Vol. 36, Issue 1 Summer 2017

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A Moral Case for Markets

Why we should harness markets to manage public lands

Public lands have long been celebrated as national treasures owned and enjoyed equally, by all citizens. Teddy Roosevelt, the "conservationist president," championed this sentiment in a 1910 speech describing his vision for a new nationalism: "I believe that the natural resources must be used for the benefit of all our people, and not monopolized for the benefit of the few," he said. "People forget now that one hundred years ago there were public men of good character who advocated the nation selling its public lands in great quantities to the men who could cultivate it for their own uses."

In recent months, this equal-ownership, equal-access argument has been a popular refrain among groups opposed to public land reforms, such as transferring federal lands to state management or shrinking national monuments designated by President Barack Obama. One campaign by outdoor retailer Patagonia, for instance, celebrated "the fundamental idea that our federal public lands belong to all Americans and represent a core part of our country's heritage."

But the truth is: although federal lands are owned and paid for by every U.S. citizen, our use and enjoyment of them is far from equal. Annual visitation to national parks is a paltry 5 to 6 percent of the total population. Visitation rates to other federal lands, such as those managed by the U.S. Forest Service or Bureau of Land Management, are even lower, with most users coming from nearby communities.

Political management of these lands creates a situation in which the costs of ownership are shared by all, but the benefits are disproportionately enjoyed by a small fraction of the population. This is precisely the immorality Roosevelt sought to avoid, but today, rather than cultivators, railroads, or timber companies exploiting public lands, it's the recreationists who are enjoying a monopoly.

During his eight years in office, President Obama created 26 new national monuments totaling 88.3 million acres, while adding another 465.2 million acres to existing monuments. By the stroke of his pen, without any input from Congress, those lands and waters are now off limits to almost everything but recreational use.

Markets offer a more effective, economical, and egalitarian alternative to the political management of federal lands. As the articles in this issue make clear, even without full-blown privatization, harnessing markets to manage public lands can align the costs with the benefits of "keeping public lands in public hands."

Markets offer a more effective, economical, and egalitarian alternative to the political management of federal lands.

Moreover, markets can improve the experience of those who use public lands the most. While some groups fear public-private partnerships and other market approaches might "turn citizens into customers," making our public lands more customer-centric is precisely what's needed. These innovations can align the incentives of public land managers and users, helping to address maintenance shortfalls, overcrowding, and other issues facing federal lands.

Later in that same 1910 speech, Roosevelt argued that "there are many people who will go with us in conserving the resources only if they are to be allowed to exploit them for their benefit. That is one of the fundamental reasons why the special interests should be driven out of politics."

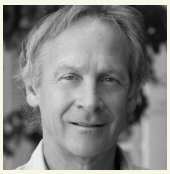
We couldn't agree more. Defenders of the status quo should consider whether they are paying the full cost of their public land use, or whether they are free-riding on the U.S. taxpayer. There's a strong economic argument for harnessing markets to manage public lands, but there's a moral one as well.

Reed Watson is the executive director of PERC. In "Frontiers," he describes how PERC is improving environmental quality through property rights and markets.

Should Federal Lands be Transferred to Western States?

There is a great divide in the United States. Land in the East is mostly privately owned, while nearly half of the land in the West is under federal control. In recent years, several states have considered resolutions demanding that the federal government transfer some of this land to state ownership—specifically, millions of acres of multiple-use lands managed by the Forest Service and Bureau of Land Management. These efforts are motivated by concerns over restrictions on natural resource development, land management practices, limitations on certain forms of access, and low financial returns to neighboring communities.

Should some federal lands be transferred to western states? If so, how would it affect their management? And if not, what else should be done to improve federal land management? In 2016, PERC hosted a workshop on "Innovations in Public Land Management" to explore policy solutions with leading experts from a variety of perspectives. We asked many of them for their perspectives on these questions. Their responses are featured on pages 6-9.



Keep Lands Federal, But Find Creative Solutions

by John Freemuth

"Innovative solutions on public lands far outweigh the costs and consequences of transferring federal lands to the states."

Federal lands have issues that should be addressed, but they should not be transferred to the states.

Although he was not referring to federal lands, James Madison put it succinctly: "The federal Constitution forms a happy combination in this respect; the great and aggregate interests being referred to the national, the local and particular to the State legislatures." Federal lands are nationally important and should be managed by the national government, which can do a better job incorporating the diverse perspectives and interests of those who use and enjoy the lands.

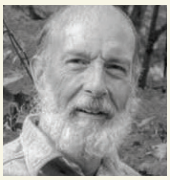
Some claim that states can do a better job at managing the federal lands, but their claim never answers the question "at what?" Rep. Mike Simpson of Idaho recently asked the Congressional Research Service to analyze the cost of managing the federal lands in his state. The estimated cost was more than $300 million, not including the massive cost of fire suppression. Public support for the transfer idea declined rapidly when it became apparent that the only way to raise $300 million would be through land sales, resource extraction, and tax increases.

There are clearly problems with federal land management. The collaborative movement has sprung up throughout the West to address some of these issues, allowing participants to solve problems and "practice democracy" at more local levels. But the collaborative movement comes with its own challenges, and its solutions are tenuous. Local interests of all persuasions are often frustrated when on-the-ground federal managers leave for another position or are transferred to another region. Momentum is stalled when new managers are not as well versed in working and listening with collaborative groups.

There is also a growing conversation about public land law reform—or even a new Public Land Law Review Commission, which was established in 1964 to recommend public land reforms. While the devil is in the details, those conversations should continue.

Finally, innovative solutions have begun to emerge in certain areas. For instance, the Sawtooth National Recreation Area and Jerry Peak Wilderness Additions Act, which was signed into law in 2015, allows some ranchers with federal grazing permits in the region to voluntarily retire their permits and receive compensation from a third-party conservation group. This is a creative way to resolve a significant public land conflict. Solutions like these far outweigh the costs and consequences of transferring federal lands to the states.

John Freemuth is a professor of environmental policy at Boise State University and the executive director of the Cecil D. Andrus Center for Public Policy.



Congress Should Turn Federal Lands into Trusts

by Randal O'Toole

"While the lands would nominally remain federal, trusts would manage land to produce revenue and be funded out of their own revenues, not tax dollars."

"Of certain administrators," said Great Northern Railway founder and noted soil conservationist James J. Hill in 1910, "it might be said 'they make a desert and call it conservation.'" Hill was critical of the Forest Service and other federal land agencies for wasting money and doing more harm than good to the environment.

More than 100 years later, federal lands remain controversial. Years ago, PERC's Don Leal did a notable study finding that state forest lands were often better and more profitably managed than federal lands. This appeared to support renewed calls for transferring federal lands to the states.

I followed up Leal's research by reviewing more than 150 state land agencies, including forest, park, and fish and wildlife agencies. I learned that the vast majority were as poorly managed as federal agencies. They lurched from budget crisis to crisis; they were alternatively torn one way and then the other as different political groups took power; and their environmental records were far from pristine.

As Leal found, a few agencies were well managed. These were the state trust agencies, created to manage lands that the federal government had given to the states to help fund schools. Although the word "trust" was not used in the legislation that transferred lands to the states, the state courts interpreted these gifts under ancient British common law for fiduciary trusts.

Among other things, the trust doctrine required the states to manage the lands at a profit; to manage them solely for the benefit of schools or other designated beneficiaries; and to preserve the corpus of the trust, which was a stronger "sustained yield" requirement than appeared in federal law. This doctrine gave the agencies a clear mission and strict accountability to meet that mission.

In short, what made the agencies Leal studied succeed was not that they were state owned but that they were trusts. The solution to the federal land conundrum is to turn those lands into federal trusts. While the lands would nominally remain federal, the trusts would manage them to produce revenue and be funded out of their own revenues, not tax dollars.

Debates over timber versus recreation or grazing versus wildlife would be resolved by people's willingness to pay for those uses. In this way, trusts would encourage people to cooperate rather than be polarized over land management.

Randal O'Toole is a Cato Institute senior fellow and author of "A Matter of Trust: Why Congress Should Turn Federal Lands into Fiduciary Trusts" (Cato Institute, 2009).

Don't Change Ownership, Change the Rules

by Jay O'Laughlin

"Certain areas of public lands should become 'dominant-use zones' where timber harvesting is given priority over other uses."

The present situation on national forests has stimulated proposals for transferring lands to state ownership. In part this is because timber management and all other uses are restricted by policies designed to protect endangered species and biodiversity. Changing such rules, rather than ownership, offers potential for on-the-ground improvements in timber management.

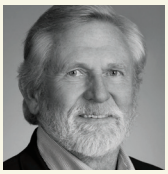
I suggest that certain areas of public lands identified as suitable for timber production should become "dominant-use zones" where timber harvesting is given priority over other uses. Congress would need to design guidelines for these zones—such as requiring they be established via collaborative processes among diverse stakeholders—and also reform the way biodiversity is protected by making changes to the Endangered Species Act and the National Forest Management Act. These suggestions would essentially make species protection on federal lands the same as on state and private lands.

First, Congress should direct the U.S. Fish and Wildlife Service to rewrite ESA rules so that the act's "take" prohibitions—which include actions that "harm" protected species—do not include adverse habitat modification outside of ESA-designed critical habitat areas, defined as areas essential for species recovery. Including such prohibitions in areas that are not required for species recovery imposes costly restrictions on timber production and other activities outside of critical habitat areas.

Second, the NFMA requires the Forest Service to manage for diverse plant and animal species, codified in a rule requiring "viable populations" of species selected by agency biologists. The rule should be scrapped, and biodiversity protection should be refocused on ESA-designated critical habitat. NFMA plans describe where timber, motorized recreation, and other activities may occur. These land-use maps should also identify ESA-designated critical habitat and other dominant-use zones. If additional habitat protection needs arise during formal collaboration among stakeholders, NFMA plans should be amended, and timber production could be adjusted accordingly. Much of the rest of the NFMA should be scrapped, including some of the law's uneconomic timber-management stipulations.

Essentially, the NFMA plan would delineate dominant-use zones for wilderness, species protection, and other uses. If a collaborative group agrees that timber harvesting is acceptable in some places, then the plan should be amended to identify dominant-use timber production zones, subject to guidelines issued by Congress. These zones could include categorical exemptions from environmental review under the National Environmental Policy Act and, where critical habitat overlaps the zone, expedited ESA consultation.

Jay O'Laughlin is a professor emeritus and director emeritus of the College of Natural Resources Policy Analysis Group at the University of Idaho.



Western States Would Retain Transferred Lands

by Robert H. Nelson

"Fiscal considerations would likely pose no significant obstacles to a large-scale transfer of federal lands to Utah."

Critics of transferring large areas of federal land to western states often argue that the states will have no choice but to privatize the lands. The costs of managing the lands, they contend, will be so great that states will be forced to sell off major parts of such lands.

One state that has studied this issue closely is Utah, which has proposed a transfer of 88 percent of the federal lands within its border to state control (national parks and wilderness areas would remain federal). In 2014, Utah released a 732-page analysis showing the likely fiscal impacts.

The direct costs of managing federal lands in Utah were $251.4 million in 2012. Factor in payments in lieu of taxes (federal payments made to local governments to offset losses in property taxes due to non-taxable federal land ownership) and the total federal cost of managing the lands proposed for transfer came to $286.8 million.

As for the financial benefits, mineral leasing revenues on federal lands in Utah in 2013 were $308 million. Utah received $138.1 million as its share of these mineral revenues, while the feds retained $169.7 million. Federal surface land revenues in 2013 were $23.7 million, with only a small part going to the state. Based on these numbers, the net fiscal impact on Utah of a transfer would have been a loss of roughly $100 million in 2013 ($189.7 million in new revenues offset by $286.8 million in management costs).

What about wildfire costs? Federal wildfire suppression and prevention costs in Utah averaged $76.7 million per year from 2008 to 2012. The increased acres burned annually and intensity of wildfires in the West in recent years are due in large part to past federal mismanagement. The federal government should therefore continue to fund its existing wildfire management activities. In that case, Utah would incur a minimal total cost of about $20 million—a relatively small price to pay for taking control over such a vast area of the lands within its borders.

On the federal side—even with a transfer to Utah of full mineral rights, and with the federal government retaining wildfire responsibilities—the U.S. government would come out slightly ahead, gaining about $20 million in 2013. And in practice, Utah would likely have lower land management costs and earn higher revenues than the federal government. Thus, fiscal considerations would likely pose no significant obstacles to a large-scale transfer of federal lands to Utah.

Robert H. Nelson is a professor in the School of Public Policy of the University of Maryland, and from 1975 to 1993, worked for eight different secretaries of the Interior Department.

The Federal Government Can't Manage Them Alone

by Leisl Carr Childers

"The question of who is responsible for managing public lands is less important than the question of who uses the land and derives benefits from it."

At the heart of the debate over transferring federal lands to state control are questions about who is responsible for the management of public lands, who gets to use those lands, and who benefits from that use. These questions have driven every debate about public lands management since the federal government committed to retaining land with the creation of national parks, forests, and rangelands in the early 20th century. By the late 1970s, these questions spurred a national dialogue when ranchers and those who worked in extractive industries such as mining and lumbering expressed outrage at a series of policy changes that threatened these traditional uses.

In this "Sagebrush Rebellion," as it became known at the time, local residents whose livelihoods depended upon public land resources protested the rapid and frequent changes in land management, which increasingly emphasized federal oversight and decision-making, environmental restrictions, and higher fees for resource development. This upheaval drew sharp boundaries between public land users and land managers, extractive industries and environmental preservation, local and national interests, as well as between competing land users.

These same divisions are still apparent today. Those who view public lands as a national resource best used for economic development prioritize the productive use of the lands in ways that financially benefit people and the broader economy. Those who see public lands as spaces for personal encounters and experiences with nature favor large-scale federal agencies that control and direct land use. And those who earn a living off public lands seek to manage their own activities directly and consider many of the lands as part of their home.

In each of these cases, the question of who is responsible for the management of public lands and which types of uses are allowed is less important than the question of who uses the land and derives benefits from it. Historically, at least in theory, every American has a stake in their public lands and can enjoy the benefits of their use in some manner, though these uses have and will continue to change. Much of the ability of Americans to enjoy public lands comes from the fact that they are federally managed, but the federal government cannot manage them alone. Perhaps the greater question is how we, as individuals, communities, corporations, and states, can better assist the federal government in this management.

Leisl Carr Childers is a historian at the University of Northern Iowa and author of *The Size of the Risk: Histories of Multiple Use in the Great Basin* (University of Oklahoma Press, 2015).

States Would Restrict Access for Recreation

by Randy Newberg

"For many of us who use federal lands for hunting, camping, and fishing, federal land transfers would bring big challenges."

As a public land hunter, I do not think federal lands should be transferred to states. If lands were transferred they would likely end up as state trust land, and public access rules on trust lands in the West are as varied as they are complex. Most of all, they are highly restrictive.

State trust lands are not "public lands" like federal lands are. Rather, they are managed to generate revenue for specific beneficiaries, usually public schools. Arizona and New Mexico go so far as to insist that "state trust lands are NOT public lands." Arizona requires an access permit for all activities, even for walking your dog.

For many of us who use federal lands for hunting, camping, and fishing, a transfer would bring big challenges. At best, it would decrease public access. At worst, it would result in land disposal, locking us out of recreational opportunities. This nearly happened in Oregon's Elliott State Forest, which the state put up for sale in 2015 (although, in response to public pressure, it recently announced it would retain the forest after all).

Colorado, for instance, prohibits hunting on its trust lands unless permission is granted by the lessee, usually at a significant cost. State transfer would eliminate access to 23 million acres of federal lands currently open to hunters in Colorado.

In Montana, trust land access restrictions were similar to Colorado's until an ugly legislative battle in the early 1990s. Now, recreationists have to purchase a permit to access trust lands, and there are heavy restrictions on days of use, off-road travel, and camping locations. New Mexico and Wyoming prohibit camping on state trust lands. And because overnight stays are required to hunt the best lands in those states, "no camping" often means "no hunting."

If hundreds of millions of acres of federal lands currently open to recreation were transferred to states with restrictive rules, it would amount to a divestiture from all of us who currently enjoy using these lands. Moreover, the outdoor recreation economy is a fast-growing industry that relies on public lands.

Above all, state transfer will result in land disposal, as states would end up selling the lands to comply with profit-requirement of their state trust mandates. Even if lands are not sold, restrictive rules will reduce public access for hunting and other forms of recreation, hurting locals and the businesses dependent on public land access.

Randy Newberg is an avid hunter and advocate for sportsmen dependent on public lands for hunting access. He hosts the "Fresh Tracks" TV show and *Hunt Talk* Podcast.

What Matters is How the Lands Are Managed

by Holly Fretwell

"Public land policies must align the incentives of land managers with a clear desired outcome and then give them the autonomy to find the best way to get there."

How land and resources are managed is less about who manages them and more about the laws and regulations under which they are managed. The outcomes of a transfer of federal lands into state hands, therefore, would hinge upon what the management system of the transferred areas would look like.

State trust land agencies, for example, are mandated to generate revenues for every activity for the benefit of schools and other public institutions. This fiduciary responsibility—which, due to its straightforward mandate, creates autonomy and flexibility for state managers—encourages decision-makers to balance various resource uses by comparing their market values.

In a recent study at PERC, we found that state trust managers generate significant financial returns across multiple land uses. By contrast, the Forest Service and Bureau of Land Management lose money on every activity except mineral development. Overall, the states we examined earned an average of $14.51 for every dollar spent managing their trust lands, while the Forest Service and BLM generate 73 cents for every dollar spent.

These findings are not surprising. They reflect the different statutory, regulatory, and administrative frameworks that govern state and federal lands. After all, state trust agencies are required to generate revenue, while federal land agencies are not. Federal managers have little incentive to cut costs or increase revenues because they are not required to do so. Moreover, overlapping and conflicting federal regulations raise management costs and provide no clear mandate for federal land managers. The end result is that, compared to state trust lands, there is relatively little resource development or active management on federal lands, apart from providing general conservation protections and recreation opportunities.

More local control of public lands makes sense. Local communities have a lot to gain and lose from nearby resource management decisions. Nonetheless, good management depends on more than the level of ownership. To encourage environmental and fiscal responsibility, public land policies—both state and federal—must align the incentives of land managers with a clear desired outcome, and then give them the autonomy to find the best way to get there.

In the end, what matters is how the lands are managed. If transferred lands were managed as state trust lands, they would likely generate much greater revenues than the federal government does today. However, doing so would also greatly change what those lands are managed for.

Holly Fretwell is a research fellow at PERC and author of *Who Is Minding the Federal Estate?: Political Management of America's Public Lands* (Lexington Books, 2009).

There Are Unresolved Legal Questions

by Donald J. Kochan

"Despite what transfer critics say, it is not true that perpetual federal ownership and control is mandated by the Constitution."

Transfer legislation passed in Utah and others states has been designed to allocate land ownership along lines consistent with original agreements, understandings, and expectations of the states.

One of the strongest legal arguments for a federal transfer of public lands to states is the "compact-based duty to dispose." The argument is as follows: When several states, including Utah, entered the Union, the enabling acts that formed their agreements for entry were informed by the predominant ethic of the time, which favored the disposal of federal public lands. When states gave up their claims to title to unappropriated public lands, like Utah did in Section 3 of its enabling compact, they arguably did so for selfish purposes. They helped the federal government clear title so that it could find willing purchasers for the property, facilitating transfers in which the state had a financial stake. The lands would otherwise have been unlikely to sell or would have sold at lower prices to account for title risks, leaving the state at a financial disadvantage. Thus, states became invested in and relied upon the existence of disposal, and they lost the benefit of their bargain when disposal ceased.

This coordinated reading of the sections found in these state compacts is the logical one, consistent with the rules whereby courts interpret multiple sections in agreements like these compacts to make sure the meaning they give each makes sense when viewed in combination. In the 1995 case *Mastrobuono v. Shearson Lehman Hutton, Inc*, for instance, the U.S. Supreme Court explained a "cardinal principle of contract construction: that a document should be read to give effect to all its provisions and to render them consistent with each other."

These and other theories of the federal government's obligations to dispose land remain untested in the courts, but there are credible arguments to be made. Despite what transfer critics say, precedent does not foreclose them. Transfer opponents too often commit two principal errors when discussing the legal issues: They lump together all legal arguments in favor of transfers rather than confront theories independently, and they overstate the case law, making largely conclusory statements that transfer demands are invalid or rely on nothing more than distinguishable dicta. Although it is true that federal supremacy exists for lands while the federal government possesses them, it is not true that perpetual federal ownership and control is mandated by the Constitution.

Donald J. Kochan is associate dean for research and faculty development and professor of law at Chapman University's Dale E. Fowler School of Law, and the author of "Public Lands and the Federal Government's Compact-Based "Duty to Dispose: A Case Study of Utah's H.B. 148–The Transfer of Public Lands Act" in the *Brigham Young University Law Review* (2013).

A Cold Day in July

New research on the life-saving power of air conditioning

Men cooling off under a water pipe leakage during an extreme heat wave in Kolkata, India.

For at least 200,000 years, humans have been adapting to the climate. We've migrated, tamed fire, and developed clothes, shelter, and agriculture. In the 20th century, adaptation took on a new twist with the development of air conditioning, which made vast swaths of the developed world more habitable to humans. And according to recent research by Barreca et al. (2016), it now appears that air conditioning is a lifesaver. The authors estimate that residential AC saves about 20,000 lives a year in the United States alone, and it has the capacity to save far more around the world.

It has long been known that extreme temperatures, too hot or too cold, can kill. Of course, the specific hazards of extreme temperatures vary widely: Residents of high-latitude nations, such as Russia and Canada, are at disproportionate risk from cold, while people living closer to the equator are most threatened by heat. Moreover, although a warming climate over the past 150 years has prevented far more cold-weather deaths than it has caused extra hot-weather fatalities, further warming could endanger tens of thousands of lives in Central and South America, Africa, and southern Asia.

Barreca et al. begin by documenting a remarkable decline in human deaths caused by temperature extremes in the United States. The mortality threat of days with mean temperatures above 80° F fell by about 75 percent over the 20th century, with virtually the entire decline coming after 1960. Almost 20,000 fewer people now die from heat each year in the United States than if the pre-1960 effects of high temperatures still prevailed. Although cold temperatures also became less lethal over this period, the decline was much smaller. In effect, adaptations to extreme temperatures were almost solely in ways that offered protection from the heat.

The authors evaluate three key 20th-century developments that might have helped Americans beat the heat: the spread of

electricity, improved access to health care, and the adoption of residential air conditioning. Electrification enabled a wide range of adaptive innovations, including fans, refrigeration, and air conditioning. Increased access to health care improved preventive and interventional treatments for the effects of temperature extremes. Air conditioning markedly reduced the adverse effects of higher ambient temperatures. As it turns out, residential AC explains essentially the entire 20th-century decline in U.S. heat-related deaths. (Of course, electrification was necessary for AC, but the former took place between 1930 and 1960, while residential air conditioning did not begin to spread until about 1960—and it was only *after* 1960 that high-temperature mortality rates fell sharply.)

Quite apart from explaining the large drop in U.S. heat-related fatalities during the 20th century, this research has important implications for the future. Many climate scientists forecast that warming will continue through the 21st century. If it does, deaths from excessive heat may rise sharply. In the United States, that potential risk will be essentially eliminated by the presence of residential air conditioning, which the authors estimate will be saving 60,000 American lives each year by the end of the century.

Of course, in many developing nations there is little installed air conditioning. But Barreca et al. show that there are striking similarities between developing countries today and the United States prior to the adoption of air conditioning. Consider, for example, India and Indonesia, home to more than 20 percent of the world's population and generally regarded as highly threatened by warming temperatures. Just as almost no one in 1940s America had residential AC, the same is true today for rural India and Indonesia. Moreover, U.S. measures of infant mortality, life expectancy at birth, access to health care, and electrification around 1940 were all quite similar to such measures in India and Indonesia today. These factors suggest that for important parts of the developing world, residential air conditioning may be an effective and feasible life-saving response to the hazards of a hotter future.

Much of the public discussion of climate change has focused on mitigation—coordinated efforts to reduce the emissions of greenhouse gases such as carbon dioxide. The problem with mitigation is twofold. First, the piecemeal mitigation undertaken thus far, such as pollution and fuel consumption standards for cars and trucks, has had little impact on greenhouse gas emissions. Second, effective mitigation strategies (global carbon taxes or cap-and-trade programs) require coordinated international action, and 30 years of talking and treaty-writing have produced no real action. Most recently, despite the spotlight on the 2015 Paris climate accord, that agreement is purely voluntary and nonbinding, providing no incentives for any nation to alter the future path of its emissions.

Climate adaptation requires no unwieldy (and uncertain) concerted international action, and it can be fine-tuned to the particular circumstances of time and place.

The great advantage of adaptations such as air conditioning, coastal construction techniques that reflect potential sea-level changes, and climate-tuned agricultural practices is that they can be accomplished at the local level. Hence, climate adaptation requires no unwieldy (and uncertain) concerted international action, and it can be fine-tuned to the particular circumstances of time and place. What is best for coastal Florida is unlikely to be optimal for inland Siberia. With adaptation, residents of each area need not be saddled with policies suited to the other.

For millennia, humans have thrived like no other species precisely because we have adapted to the adversities we have faced. Innovation, such as air conditioning, has played an important role in that success. As we confront the prospect of a warmer future, these are lessons that will serve us well.

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When Industries Love Regulation

Trump's Paris exit and the Bootlegger-Baptist disarray

BY BRUCE YANDLE

By walking away from the 2015 Paris climate agreement, President Donald Trump ended the United States' commitment to reduce carbon emissions and made good on a key campaign promise. But amidst the fallout from the move, Mr. Trump's exit from the Paris accord had some unlikely opponents—namely, large industrial giants who, at first glance, would seem thrilled to no longer be required to reduce emissions.

The fact that environmentalists supported the agreement is no surprise. What's often overlooked is that they were joined by a strong coalition of industrialists who saw it to be in their vital interest to support the global accord. Exxon Mobil and ConocoPhillips, two of the world's biggest oil producers, both urged Trump to stay in the Paris agreement. They were joined by Microsoft, Apple, Nike, the German industrial giant Siemens, and its Swiss counterpart ABB, to name a few, who supported the accord.

Why would these industrialists call for the same carbon-reducing policies as environmentalists? After all, each firm can individually engage in pollution-reduction actions—as they often do—without imposing their behavior on everyone else. Why do they want global standards?

As always, there are multiple motivations at play. Microsoft and Apple, for example, are deeply engaged in software development for electric cars. Siemens and ABB are global providers of efficiency-improving electrical machinery, which they argue can reduce total energy consumption, operating costs, and carbon emissions. Getting a strong Paris nudge to the market for their favorite products could help the bottom line.

This unlikely coalition is evidence of yet another version of the age-old alliance between bootleggers and Baptists. The story goes like this: While the churchgoers normally wouldn't deign to associate with moonshiners, the two groups share a common interest and political end. They both want to shut down liquor stores on Sunday. But they have very different reasons for doing so. Baptists provide moral support for the policy, while bootleggers receive bottom-line benefits. When combined, the two groups tend to form winning coalitions in a variety of contexts.

Consider how these forces play out in the climate-policy debate. Environmentalists play the role of the Baptists, who for moral reasons support Sunday closing laws. Today, instead of closing liquor stores, these environmental "Baptists" want to shut down carbon emitters. In recent years, environmentalists have supported restrictions that, assisted by market forces, have shuttered coal mines, closed or penalized power plants, limited fossil-fuel emissions, and regulated automobiles. Since the 1970s, the environmental Baptists have preferred central government command-and-control regulation and have often argued successfully against the use of decentralized common law, prices, and fees for accomplishing their goals. Command-and-control policies, of course, call for larger bureaucracies to design and enforce the rules and empower politicians who, in solemn support, deliver on environmental promises.

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But another group, the opportunistic industrialists, also often prefer the same command-and-control approach as environmentalists. These environmental "bootleggers" are like the characters in the original story who love seeing the liquor stores—their economic rivals—closed on Sundays. Competition is eliminated for one day a week. These environmental bootleggers love command-and-control regulations that raise rivals' costs and limit the entry of new competition. They welcome taxpayer subsidies and government-guaranteed loans for developing new solar cells, improved batteries, emission-free automobiles, and other forms of clean energy, and they perhaps smile at the prospect of cartelizing world markets with coordinated rules and higher prices that may result from global emission-reduction agreements that they help design.

With firm-specific government subsidies for the development of clean technologies and a seat at the regulators' table, the environmental bootleggers, like their earlier counterparts, can laugh all the way to the bank. Meanwhile, millions of widely dispersed consumers of their products may each face slightly higher power bills from older energy sources while enjoying the benefits of zero-emission cars and improved solar systems. (It is also possible, of course, that new technologies can bring cleaner outcomes as well as lower-cost energy, offering benefits to consumers as well as comfort to those who worry about sustainability and the long-term well being of the planet.)

Both the bootleggers and the Baptists were rumbling as Mr. Trump was formulating his decision. General Electric, Tesla, Google, and Microsoft harmonized with the Sierra Club, Friends of the Earth, Natural Resources Defense Council, and Environmental Defense Fund. With one voice, they called out: "Do not abandon the Paris accord." Leaders of the world's major nations and emerging ones welcomed the Bootlegger-Baptist chorus. As the news of Mr. Trump's decision spread, mayors of major U.S. cities and leaders of some state governments indicated their commitment to do their part to uphold the accord's carbon-reduction efforts.

> Why would industrialists call for the same carbon-reducing policies as environmentalists?

With such widespread support for the Paris accord from the classic Bootlegger-Baptist interest group duo, what then explains Mr. Trump's move?

The Trump exit signaled that something had gone wrong as the environmental pilgrims were making their way to Paris. Harking back to the original Bootlegger-Baptist story, we must remember the operators of the closed liquor stores and the folks who enjoy a drink on Sunday—the people who bear the costs of the government's policies. They were unorganized, widely dispersed, and sometimes thought to be immoral. They were forgotten. In today's setting, the forgotten ones are the coal miners, oil and gas well operators, and generators of coal-fired electricity, located in West Virginia, Kentucky, Pennsylvania, Ohio, Wyoming, and Montana. In some cases, they were thought to be less than moral, too. Now, they have been told that they will be forgotten no longer, that better times are in the offing.

Mr. Trump's exit suggests that we might be observing the start of a new chapter in America's environmental saga—a disturbance in how the Bootlegger-Baptist framework normally functions to support costly environmental regulations. But do not bet against the environmental coalition in the longer term. It is, after all, strong, well organized, and loaded with deep-pocket bootleggers. And remember, the market is the ultimate environmental regulator, and market forces seem to be calling for a cleaner world.

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Zinke Rides In

But will the new interior secretary take on the federal lands bureaucracy?

BY SHAWN REGAN

Earlier this year, Ryan Zinke arrived at his new job on horseback. Dressed in boots, jeans, and a cowboy hat, and seated somewhat awkwardly on an English saddle, Zinke rode a 17-year-old Irish sport horse through the streets of Washington, D.C., to Interior Department headquarters, where he would begin his first day as President Trump's interior secretary. Zinke, a fifth-generation Montanan who had previously held the state's at-large seat in the House of Representatives, wanted to make a point: Things are going to change in Washington, D.C.

"The rough riders have arrived in Interior," Zinke later told me. "There's a lot of anger and resentment out west that our voice isn't being heard." His tone marks a stark shift away from the Obama administration's brand of coastal environmentalism, which often sought strict public land protections, and toward a rough-and-tumble management style that is more accepting of traditional land uses. As Zinke would later tell a crowd of western ranchers: "The war on the West is over."

Higher-profile positions in the Defense and State Departments may get more attention, but secretary of the interior is no lightweight cabinet post. The Interior Department's various agencies, which include the National Park Service and the Bureau of Land Management, oversee 500 million acres of surface land—more than one-fifth of the nation—and nearly five times as many subsurface acres onshore and offshore. The department's Fish and Wildlife Service is charged with protecting endangered species and regulating their habitat on private lands, and its Bureau of Indian Affairs is responsible for upholding the government's obligations to Native American tribes. For many people who live and work in the American West, the importance of the interior secretary rivals that of the president.

Given that Zinke was relatively unknown on the national scene, his appointment was a bit of a surprise. His appearance at the Republican National Convention last year was met with puzzlement by many delegates who had never heard of him. His résumé includes a 23-year career as a Navy SEAL, from which he retired in 2008. After two years in the Montana state legislature and one term in Congress, Zinke now finds himself in charge of a sprawling bureaucracy with widely varying responsibilities, from listing endangered species to managing livestock grazing on public lands. Perhaps of most importance to the current administration, the Interior Department also controls vast fossil-fuel resources, which Trump has promised to tap.

"I had no expectations, no anticipations, of being the secretary of the interior," Zinke says. In a recent speech, he recounted how it came to be: After being summoned to Trump Tower, he had a short, wide-ranging discussion with the president-elect, but he left the meeting unclear about what position he was being considered for. When he received a congratulatory call from Vice President–elect Mike Pence the next day, Zinke responded: "What job?" Zinke's main experience, drawn from his military service, was in national security. But as a westerner who for a short time sat on the House Natural Resources Committee, Zinke had also begun to cultivate an image as a "conservative conservationist." Although Trump promised during the campaign to rein in the Environmental Protection Agency and ramp up domestic energy production, he said little about public land issues. Would he scale back Obama's conservation efforts, attempt to rescind Obama's national monument designations, and encourage logging, grazing, and other forms of development that have declined in many rural western communities? And would he take up some of the more controversial proposals that are brewing in the West to devolve control of federal lands to the states?

Zinke offers few clues as to what the future holds. His stated views present a somewhat unclear message about the direction of public land policy in the age of Trump and whether his "rough rider" approach will truly confront Washington's dysfunctional and overbearing federal land bureaucracies.

More than a steward of land and resources, Zinke talks like a commander of a department in need of strong leadership, tactical proficiency, and a winning attitude. "This is an important mission that we are going to accomplish successfully," he tells me. "And the president has given me the guidance to win."

In this respect, Zinke is the real deal. During his time in the Navy, he led a number of SEAL operations across the globe. His service included stints on SEAL Team One, leading counterinsurgency and contingency operations in the Persian Gulf and the Pacific, and two tours on the über-elite SEAL Team Six. He later served as deputy and acting commander of a combined special-operations task force in Iraq and was awarded two Bronze Stars. The 2014 book *Eyes on Target* claims that Zinke "was responsible for killing or capturing 72 known enemies, insurgents, and terrorists."

Zinke will now set his sights on America's many natural resource and land management challenges. Catastrophic wildfires regularly burn through the nation's forests and budgets. Armed standoffs, such as last year's occupation of the Malheur National Wildlife Refuge in Oregon, have recently erupted over grazing rights. The crumbling infrastructure in our national parks has created a $12 billion maintenance backlog. Endangered species protections have closed off millions of acres to energy development. And current environmental policies are more likely to provoke

"We are going to be the department that works with local communities, that listens to issues at the community and state level," Zinke says.

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One of Zinke's top priorities is to make sure that the "troops in the field" can "make decisions that are more collaborative and locally driven, rather than having to go to D.C. for a decision of whether to clean a toilet or not."

conflict and litigation than to encourage cooperation and a sensible balance of land uses. In part, Zinke says, the problem is that Interior's basic approach has been far too centralized and "heavy-handed."

"From a military perspective," he says, "the strength of any force is the sergeant, the chief, and the frontline. If they feel like they don't have the right authority or the right resources to make the decisions, a lot of times there's frustration. The decisions that are being made are oftentimes from Washington, D.C., and they're not appropriate everywhere." One of Zinke's top priorities is to make sure that the "troops in the field" can "make decisions that are more collaborative and locally driven, rather than having to go to D.C. for a decision of whether to clean a toilet or not."

Zinke sees energy development as a national-security issue—and one he is now well positioned to deliver on. "The world is a lot safer when America is stronger, and much of that strength, quite frankly, relies on energy being reliable, affordable, and abundant," he says. Trump has already signed executive orders to begin withdrawing Obama's Clean Power Plan, which required states to cut carbon emissions from power plants, and he has instructed the Interior Department to lift his predecessor's bans on new federal coal leases and offshore drilling in the Arctic. "We can't power the country on pixie dust and hope," Zinke said at the time.

PARADOXICAL ON POLICY?

Many thought Trump's election, supported in no small part by rural America, would usher in a new era in public land policy, perhaps even delivering on the promise of the "Sagebrush Rebellion" of the 1970s and '80s, which sought to transfer large amounts of federal land to western states. Such a movement has been simmering once again in recent years, primarily in Utah, a state where two out of every three acres are owned by the federal government.

In 2012, Utah's Republican governor, Gary Herbert, signed a bill calling on the federal government to transfer 30 million acres to the state. Its backers argued that restrictions on development and access were harming local communities. Washington, not surprisingly, didn't listen, and Utah's lawmakers have since pursued various tactics to try to assert greater control over the land in their state.

As a candidate, Trump indicated that he opposes the transfer movement. "I don't like the idea because I want to keep the lands great," he told *Field & Stream*. "And you don't know what the state is going to do." Zinke is an outspoken critic of the idea. "I am absolutely against transfer and sale of public lands. I can't be more clear," he said at his confirmation hearing in January. In 2016, Zinke resigned as a delegate to the Republican National Convention over the party's proposed support for transferring federal lands.

Overall, Zinke is viewed as a mixed bag on policy. His opposition to the transfer of public lands has won him praise from some in the environmental community and criticism from some conservatives who see the transfer proposal as the ultimate way to achieve the local management Zinke ostensibly favors. He has been a vocal supporter of the Land and Water Conservation Fund—the federal government's primary funding source for acquiring new public lands from private landowners—despite efforts by other House Republicans to reform the program so as to address maintenance needs on existing public lands. As a state senator, Zinke twice earned higher annual ratings from the Montana Conservation Voters than any other Republican in the state's legislature—although while in Congress, Zinke earned just a 4 percent lifetime score from the League of Conservation Voters, who criticized his "anti-environmental record" and his support for "more dirty and dangerous drilling." A recent *Wall Street Journal* editorial argued that Zinke's environmental positions have not been conservative enough, claiming that his "history of deference to Washington landlords isn't Trumpian."

Zinke calls himself "an unapologetic admirer" of Teddy Roosevelt. At his confirmation hearing, he said that Roosevelt "had it right when he placed under federal protection millions of acres of our federal lands and set aside much of it as national forests." This view allows Zinke to brand himself as a pro-conservation Republican, but it also raises questions. Roosevelt, after all, was a Progressive Era leader. He favored centralized control of the nation's natural resources, with management not by locals but by the expert judgment of Washington bureaucrats. Along with Gifford Pinchot, the founder of the Forest Service, TR advocated what historian Samuel Hays called "the gospel of efficiency," or the belief that "experts, using technical and scientific methods, should decide all matters of development and utilization of resources."

Today's public land management practices and institutions—which Zinke readily criticizes—are largely the product of this Progressive Era thinking. Such an outlook favors large-scale public ownership of natural resources, federal bureaus devoted to efficient management and the promotion of the public interest, and formal comprehensive planning, all allegedly guided by science and insulated from political influence.

That isn't how it has worked out in practice, however. Public land management today is neither scientific nor efficient, and it's hardly resistant to political pressures. Interest groups regularly exploit the government's conflicting mandates and its lack of clear direction. The result is what former Forest Service chief Jack Ward Thomas has called "a Gordian knot" of laws and litigation, which hinders agencies' ability to respond to changes or resolve competing demands for resources. "What we're witnessing is a bureaucracy of litigation, of management by neglect, that has been causing a catastrophe for our land and a lot of anger," Zinke says.

Ironically, Zinke is now tasked with reining in the very powers that Roosevelt helped create to set aside public lands. The Antiquities Act of 1906, signed by Roosevelt, allows the president to declare federal lands off limits to most forms of development. Obama used the act to designate more national monuments than any other president, including the 1.35 million-acre Bears Ears National Monument in Utah, which he created in the final weeks of his presidency despite opposition from the state's governor, legislature, and congressional delegation. In April, Trump issued an executive order instructing Zinke to review all national monuments of more than 100,000 acres created since 1996 and recommend whether the president should rescind any or reduce their size. But it is unclear whether Trump has the authority to do so without an act of Congress.

Zinke is clearly no Progressive Era true believer. While in Congress, he held listening sessions on a draft bill that would have required local residents to approve monument designations made under the Antiquities Act. "When it comes to a monument, I think the state should have a say on it," he said at his confirmation hearing. And although he opposes the land-transfer movement, he has supported proposals that would allow some federal lands to be managed by state-appointed advisory committees. "We are going to be the department that works with local communities, that listens to issues at the community and state level," Zinke tells me. In practice, his appeal to Roosevelt seems to be a way to justify taking a more active role in the management of public lands, as TR and other Progressive Era conservationists did by advocating the development of the nation's natural resources.

THE RIDE AHEAD

In the west, where nearly half of the land is federally owned, these issues have salience. And while there is debate over the best path forward, there is widespread agreement on one thing: Something needs to change.

Today's public land management is costly, dysfunctional, and acrimonious. Decisions are political, not scientific, and they are often based more on national values than on local ones. Bureaucratic red tape keeps agencies in perpetual gridlock without any clear sense of purpose or direction and wastes billions of dollars each year. And disputes over grazing rights, endangered species, and natural-resource development are tearing at the social fabric of many western communities. Zinke is right that much could be done to address these issues even while preserving federal ownership of the land. But ultimately a new public land paradigm, not a recycled one, will probably be required to cut the Gordian knot.

Over the years, our public land policies have followed broader trends. In the 19th century, federal land disposal via the Homestead Acts reflected the dominant classical-liberal ideas of the time and a belief in small government. The 20th-century Progressive movement reversed course and held that federal lands were best retained and managed by experts. Later in the century, as the administrative state expanded, multiple-use management emerged as a way to reconcile interest-group competition. The Sagebrush Rebellion paralleled the Reagan-era deregulation movement.

What is the future of public land policy in the age of Trump? Will it reflect the broader backlash against Washington elites, who are seen as indifferent to the well-being of local communities? Or, as Zinke seems to suggest, will it seek to return to some bygone era—almost certainly fictitious—when federal decision-makers achieved the proper balance between conservation and resource development? And, more practically, can Zinke convert the populist zeal associated with Trump's rise into concrete and workable plans for reform?

Time will tell. For now, the "rough riders" are running the Interior Department and bring with them Zinke's western ethos, which he summarizes this way: "When you leave a campground, you leave it in better condition than you found it."

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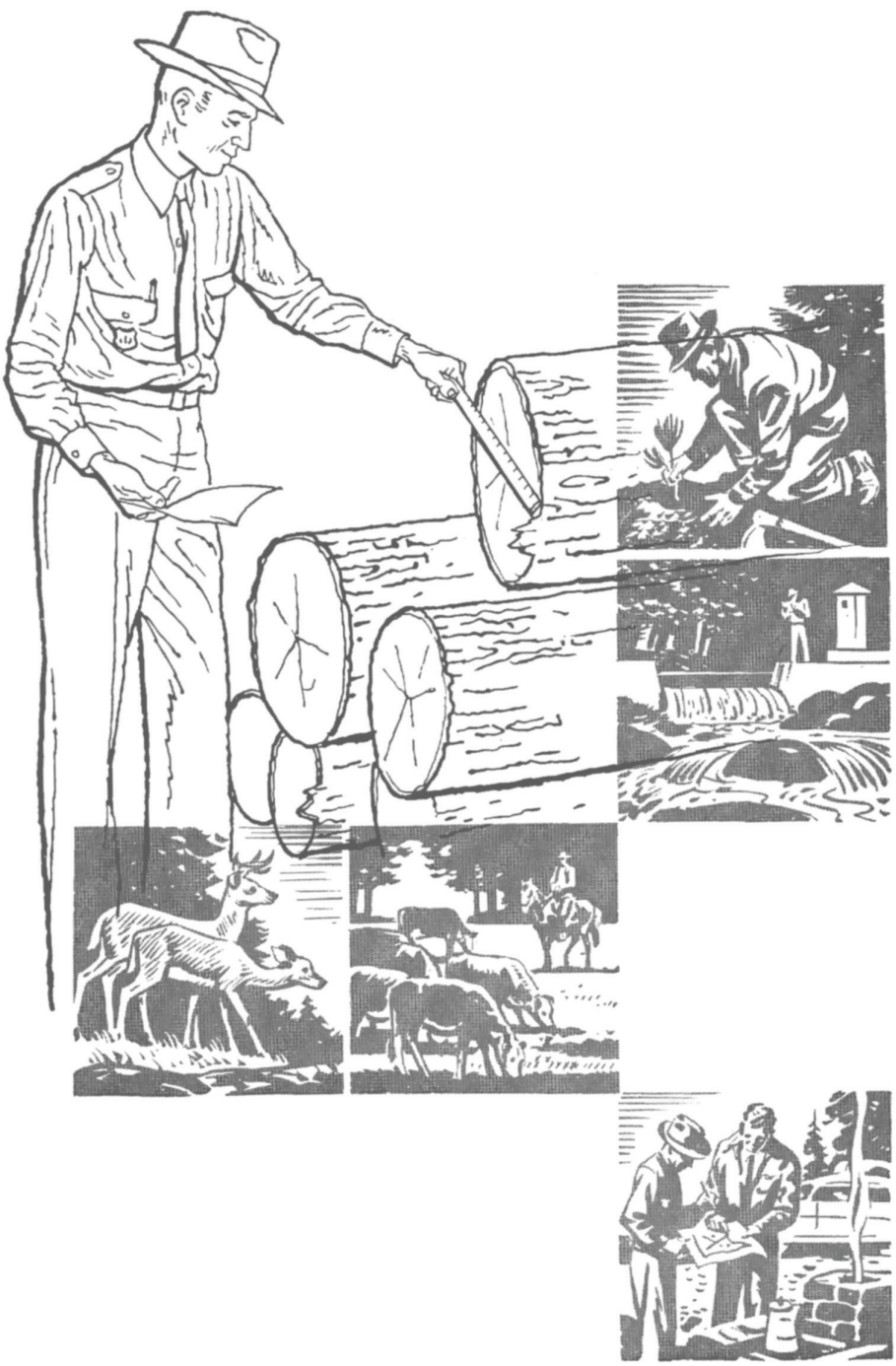


FOREST SERVICE

Do we need a new mission for our national forests?

BY ROGER A. SEDJO

At the end of the 19th century, a question loomed over our nation's forests: Would there be enough wood and water to satisfy an expanding country? There were growing concerns that the nation's forests were being rapidly depleted and that their ability to serve as a repository for water and other important values was diminishing as well. In 1905, when Congress created the U.S. Forest Service, the intent was to manage these public forests through a government bureaucracy as part of a broader federal public land system.

Over the years, there have been various suggestions of ways to reform the Forest Service, and in particular how to improve efficiency within the context of government ownership and management. More recently, alternative approaches that might involve substantially less control by the federal government have been put forth. The factors driving these suggestions of alternative management and ownership arrangements include competing demands by various constituent groups, battles between commercial and environmental interests, and general concerns about efficiency. Some of the proposals would attempt to reform the Forest Service from within, while others would involve changes in ownership, market decisions, and the fundamental control by the federal government. But in every case, the proposals reflect a desire and appetite for change.

INNOVATIVE APPROACHES

The early organizational structure of the Forest Service was formed within the context of what we now call the Progressive Era. The dominant view at the time was that government technocrats using scientific approaches would know how to best manage resources, including forests. The Forest Service was created to allow for scientific management of national forest lands. At that time, however, management was light, and harvesting levels were low. Economist Marion Clawson has characterized this early period from the creation of the Forest Service until World War II as one of custodial management, whereby the agency emphasized basic forest protection, including minimal fire protection.

This was followed by an era of intensive forest management from the late 1950s to the late 1980s. Concurrently, beginning in the late 1970s, a period that Clawson called "consultation and confrontation" also began and gave rise to the "timber wars," which were characterized by battles between the timber industry and environmentalists over harvest levels and management practices. Ultimately, environmentalists won the timber wars. Timber harvests on public lands fell from about 12 billion board feet in 1989 to 2 billion board feet in 2000. The early 1990s brought about an era of ecosystem management, marked by a transition away from timber production toward a focus on forest conditions. While the prior goal had been to manage forests to be a golden goose that laid as many eggs as possible, the ecosystem-management approach was to manage the goose to look good—to make its plumage appear pristine—with little regard for egg production.

Along the way, the Forest Service has faced a number of important critiques of its management. Some, like Clawson's, were not much concerned about the government owning national forests but wanted to see it manage them more effectively, particularly when it came to timber production. Clawson was concerned about how unproductive the agency had been despite the substantial investments made by the government, and he noted the higher productivity of private forest lands. Other economists, like John Krutilla, had a positive view of government ownership and valued environmental outputs over commodities. Krutilla's goal was to improve management by providing a vehicle to optimize the joint value of the forest outputs—both commodity and non-commodity, including environmental and ecological outputs. He suggested that the national forest system should be viewed as a multiproduct firm, with the values of the outputs determined by both the market and also by techniques developed to value non-market outputs. Beginning in the 1970s, new legislation required the Forest Service to take management planning and non-commodity output production seriously. It developed a number of forest-planning models that focused on timber output but placed environmental constraints on that output.

Other analysts, however, have been less concerned with management *per se* and more focused on forest ownership and incentives, including market incentives. John Baden and Richard Stroup, for example, were among the first to challenge the notion that the federal government should own such large areas of U.S. forests and to question the incentives faced by government managers. They argued that markets and the signals they provide should receive more attention. Moreover, they challenged the idea that public ownership would efficiently provide the correct level and mix of outputs. Baden and Stroup argued that the market would do better and favored privatizing the forests. The Sagebrush Rebellion, also of that era, called for the federal government to transfer the ownership of national forests and other public lands to the states. Indeed, the ideas of decentralization and privatization appear to have peaked during the Reagan administration.

Still others have suggested that external forces should guide forest management. Randal O'Toole has argued that the crucial distinction is not who owns the land but what system of governance guides land managers. He suggests that federal land managers should charge fair-market values for all resources and outputs and should be funded exclusively out of the receipts they collect. In addition, O'Toole argues that federal lands should be turned into fiduciary trusts, which have legal obligations that would fundamentally change the incentives facing land managers. O'Toole is not the only one to propose these changes. Others arguing for trusts include Sally Fairfax of the University of California, Berkeley, who developed outlines for state forest trusts. Such a model would shift management from the federal agency to various trusts that would allow for greater management flexibility.

Robert Nelson has argued for more decentralized decision-making for national forests through a variety of mechanisms, including privatizing or shifting control to states, as well as a number of alternative management arrangements. For example, in a recent publication from PERC, Nelson proposed a charter forest system, in which land ownership would be retained by the federal government but management would be freed from the rigidities and other bureaucratic constraints that have plagued Forest Service managers in the past. Management goals could

be set within the context of tight environmental regulations. Other approaches include various models to shift power from the agency to other decision-making entities that would generally have greater flexibility and autonomy.

THE NEXT CHAPTER

What will be the future mission of the Forest Service? Traditionally, national forests have provided industrial wood, water, wildlife habitat, and general environmental services. Recently, in response to concerns over climate change, other "uses" have emerged, such as the role of forests in capturing and storing carbon dioxide. As discussed above, in the post-war period, the Forest Service had primarily focused on wood production. But this emphasis has declined over the subsequent decades, and other uses and values have gradually developed in response to new constituencies. However, these constituencies often provide little support to the Forest Service and its budget.

Is there a new mission for the Forest Service? If so, what is the appropriate ownership, what are its goals and objectives, and how should it be managed? And do any of the current proposals offer a viable alternative?

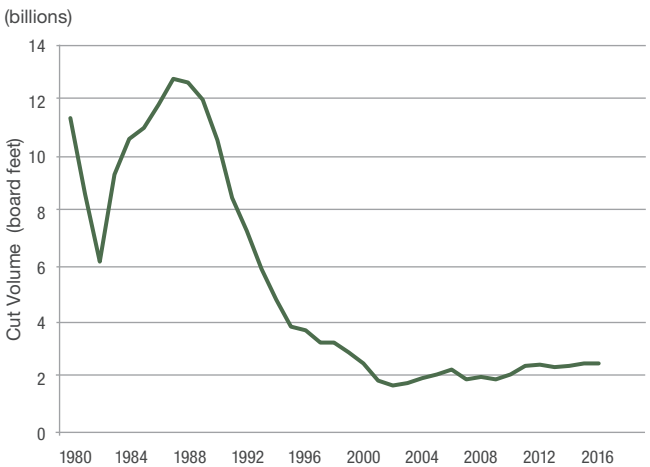
Ever since timber production declined, the Forest Service has struggled to find an acceptable mission. An overarching problem is that without timber revenue, the agency has had a harder time securing funding. As a government agency now almost entirely reliant on Congress for funding, the Forest Service finds itself in an undesirable situation.

To face this new reality, the Forest Service likely needs a new and clear mission. One option could be a return to the custodial management of the pre-World War II era. Alternatively, the agency could focus on providing recreational amenities. A third option might be to support wildlife, biodiversity, and the maintenance of ecological systems. These are arguably good choices, but in many cases it would result in a Forest Service mission that is almost identical to that of the National Park Service. With the dramatic reduction of timber harvesting that has already occurred, however, few may contend against this outcome.

One mission that has been thrust upon the Forest Service is firefighting. With the growing incidence of wildfires in national forests in recent years, the agency has been forced to devote more and more resources to fire suppression. Congress, however, has not appropriated new funds for this purpose, so funds have

U.S. Forest Service timber harvests declined rapidly after the 1980s

Volume of timber cut on national forests (1980-2016)



Source: USFS

been drawn from other parts of the Forest Service's budget. Moreover, there is no clear consensus about how much the Forest Service should do to reduce wildfires. In California, local environmentalists have called for remedial actions to reduce fuels in national forests—for instance, by thinning or removing dead or dying trees that increase the chances of wildfire. Yet other national environmental groups insisted that the forest be left relatively untouched, with no fire-reducing activities. More generally, a growing group of environmentalists argues against fire control since they do not consider it part of the "natural system." Indeed, science supports the reduced fire suppression up to a point, since there are forest types that require fire to regenerate successfully. But where is the line?

Finally, there is the question of climate change. Forests contain vast stores of carbon. Indeed, in the United States, forest growth offsets 13 percent of total U.S. carbon emissions. Obviously, national forests play a large role in managing carbon, and the Forest Service's management decisions will have significant effects on emission offsets, or lack thereof.

SCOPE FOR CHANGE

The Forest Service was created primarily to promote continuous water flows and to ensure adequate timber availability. Thus, it was viewed as a producing agency and therefore assigned to the Department of Agriculture rather than the Department of the Interior. Over the years, some groups have expressed strong sentiments for nationalizing most of the nation's private forests, presumably into the National Forest System. They argued that the forests were largely nonrenewable and that the private system would not incur the costs of reforestation. Toward the middle of the 20th century, however, the evidence on reforestation became much clearer. It became apparent that private-sector forests were thriving, and many of them had been substantially reforested. In fact, it was the Forest Service that was roundly criticized for inadequate management and regeneration, and it is these criticisms that have led to subsequent proposals for different ownership or administration systems that would generate better results on national forests.

Although certain incremental management adaptations may be feasible, the Forest Service has resisted fundamental change. In particular, the agency has been reluctant to give up its management prerogatives. Although the Forest Service meets with local interests during its planning process, it has insisted that final decisions remain with the agency and its political masters. Similarly, the agency has resisted turning some forests over to state control, even if only for management, as proposed during the Sagebrush Rebellion. Notably, it has also resisted relying more on markets to decide how it should manage its forests. Even to this day, targeted harvest levels are determined administratively in response to political pressures, with little consideration of market conditions.

THE POLITICAL ENVIRONMENT

It is difficult to imagine the political process supporting significant changes in the Forest Service within its current institutional structure. Periodically, there have been discussions about relocating the agency into the Department of the Interior, but such proposals have been strongly resisted within the Forest Service as well as externally. Internally, such proposals are resisted because the agency enjoys a great deal of autonomy within the Department of Agriculture. Similarly, for most outside interests, there is little gain from undertaking a battle that would be associated with such major institutional or locational changes in the Forest Service. Moreover, since environmentalists have won the timber wars, the contentiousness between the timber industry and other interests has largely disappeared—timber production from national forests is now so low that most of the industry has lost interest in harvesting timber on federal lands.

Although there have been many suggestions for major changes in the management, administrative structure, and ownership of national forests, few of these suggestions have been acted upon in any significant way. Some of these alternative arrangements could undoubtedly improve facets of the overall efficiency of the Forest Service. However, most of these proposed changes are unlikely to occur at this time. Currently, the agency receives relatively little criticism. The contentiousness of the timber wars have largely died down. And since timber harvest levels have rapidly declined, as have the harvests of old-growth forests—a source of immense conflict in the earlier era—national forest issues do not capture the headlines as much as they once did.

Today, the Forest Service might reasonably be viewed as an agency with two main purposes: maintaining biodiversity and serving as a wildfire-fighting organization. There are also concerns about the role these forests may play in sequestering—or, in the case of wildfire, releasing—carbon. Moreover, there are concerns about the agency's budget, and in particular the question of adequate funding for firefighting, which is currently creating funding shortfalls for many traditional national forest programs. One result of these changes has been a *de facto* remaking of the Forest Service's mission. With the decline in timber production on national forests, the major function of the Forest Service in the future could become tourism, habitat maintenance, and wildfire control. This is the direction the Forest Service has moved in recent years.

Roger Sedjo is a senior fellow at Resources for the Future. He has written or edited 14 books related to forestry and natural resources.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— Kimberley A. Strassel, *Wall Street Journal* Editorial Board
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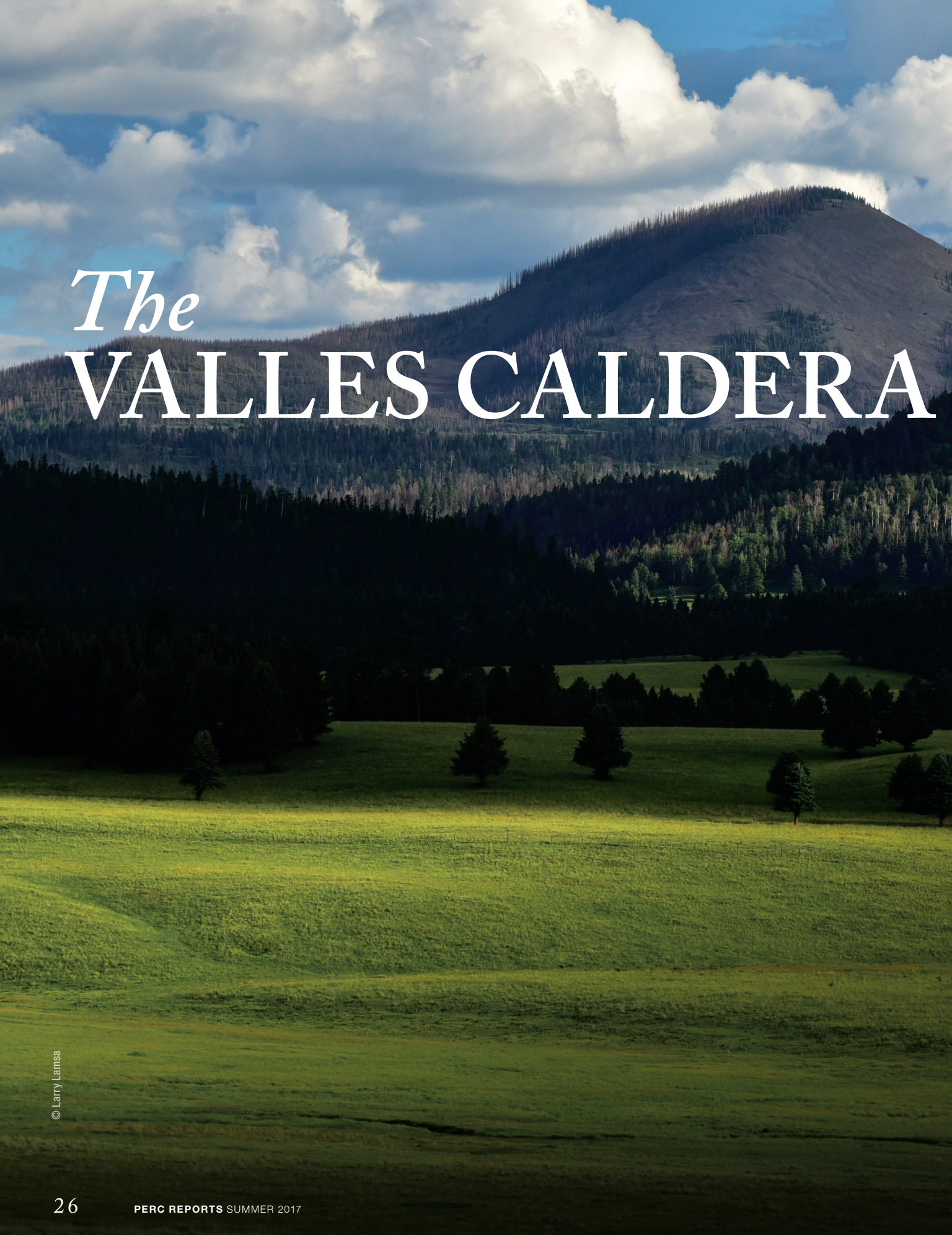

The VALLES CALDERA

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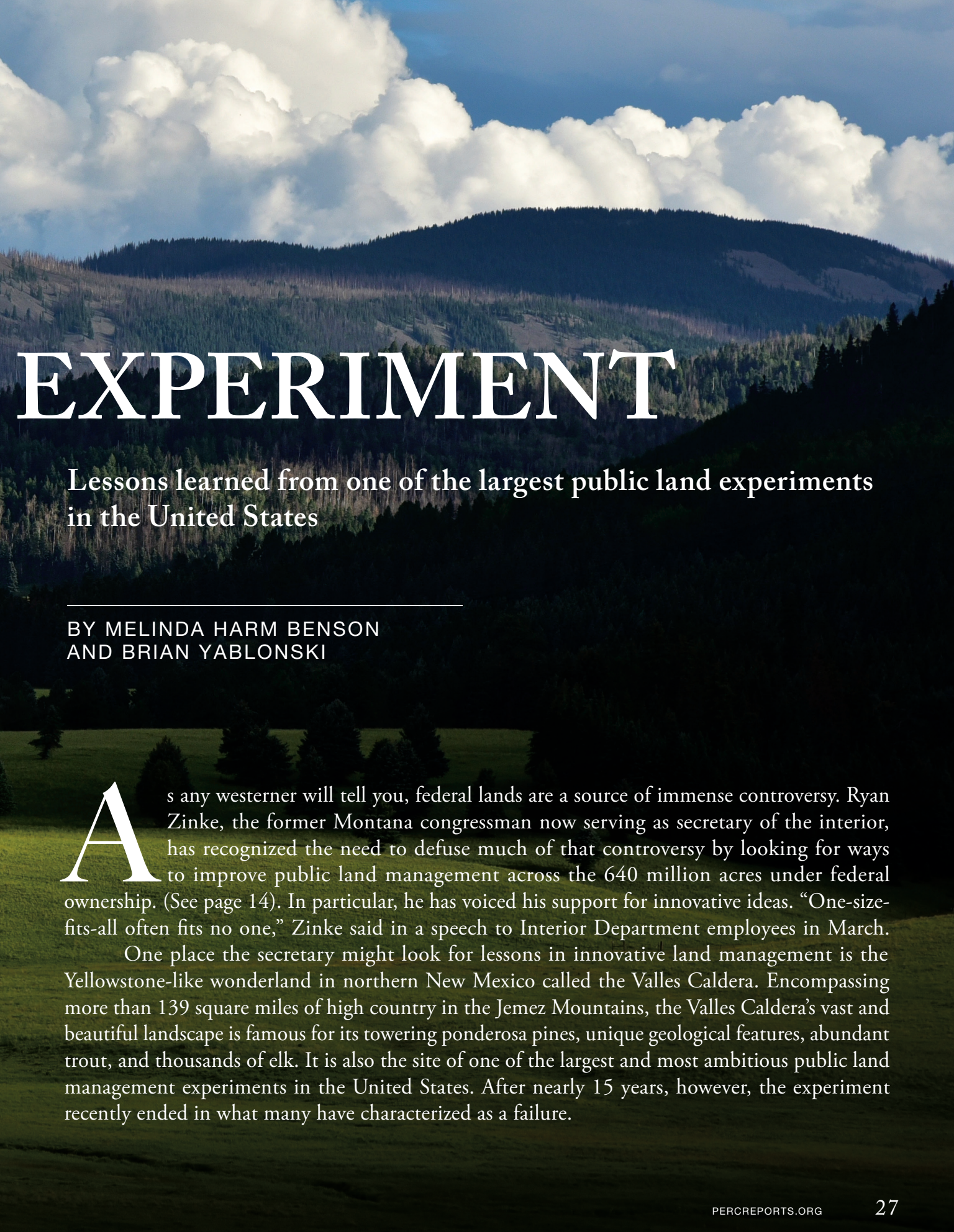


EXPERIMENT

Lessons learned from one of the largest public land experiments in the United States

BY MELINDA HARM BENSON
AND BRIAN YABLONSKI

As any westerner will tell you, federal lands are a source of immense controversy. Ryan Zinke, the former Montana congressman now serving as secretary of the interior, has recognized the need to defuse much of that controversy by looking for ways to improve public land management across the 640 million acres under federal ownership. (See page 14). In particular, he has voiced his support for innovative ideas. "One-size-fits-all often fits no one," Zinke said in a speech to Interior Department employees in March.

One place the secretary might look for lessons in innovative land management is the Yellowstone-like wonderland in northern New Mexico called the Valles Caldera. Encompassing more than 139 square miles of high country in the Jemez Mountains, the Valles Caldera's vast and beautiful landscape is famous for its towering ponderosa pines, unique geological features, abundant trout, and thousands of elk. It is also the site of one of the largest and most ambitious public land management experiments in the United States. After nearly 15 years, however, the experiment recently ended in what many have characterized as a failure.

The Valles Caldera was widely seen as a test case for a more financially driven, market-based approach to public land management. The effort was described in these pages in 2004 as a possible new paradigm for federal lands—one that might afford its managers more of the flexibilities of a private-land manager while still remaining public land ("Valles Caldera National Preserve," Winter 2004).

In this article, we summarize several lessons learned from the Valles Caldera experiment. We argue that the preserve did not become the test case for financially driven management that many thought it would be. Various laws and regulations, including the preserve's own enabling statute, hampered its success and ultimately prevented the trust that was instituted to manage the preserve from living up to those expectations. Instead, it operated in a sort of public land purgatory—neither wholly public nor private, and granted few of the practical benefits of either a privately run corporation or a public land agency. The story of the rise and fall of the Valles Caldera National Preserve provides helpful lessons—if not a cautionary tale—in how to proceed with new and innovative land management models, one that is particularly useful for today's public land debates.

'SOMETHING NEW AND DIFFERENT'

Back in 2000, Congress passed the Valles Caldera Preservation Act, creating the Valles Caldera Trust as a new type of federal land management entity based on a fiduciary trust model. The trust was created to manage an 89,000-acre property—formerly known as the Baca Ranch, which had recently been acquired by the federal government to manage as a preserve—as an alternative to traditional park and forest management. Although the federal government would own the land, the Valles Caldera Trust would manage the property, governed by an autonomous, diverse board of directors instead of a federal agency. The preserve was to be managed according to the principles of multiple use and sustained yield, like other federal lands, but the Valles Caldera Preservation Act also included a unique mandate that the preserve become financially self-sustaining by 2020.

In the beginning, there was hope that the experiment could circumvent some of the political deadlock, stagnation, and litigation that are common on federal lands. Larry Gess, who conducted research on public administration of the trust during its early years, noted a sense of optimism that the experiment presented an opportunity to reexamine traditional public land management. "The clear majority of people interviewed expressed their belief and hope that the Valles Caldera National Trust can represent something new and different," he wrote. "Importantly, they feel the conversation can be moved from that of environment versus economic opportunities, to one in which environmental protection, wise natural resource use, and economic progress can be accomplished." Moreover, the emphasis on financial self-sufficiency came from former U.S. senator Pete Domenici and other conservatives with the idea public lands could and should be able to pay for themselves.

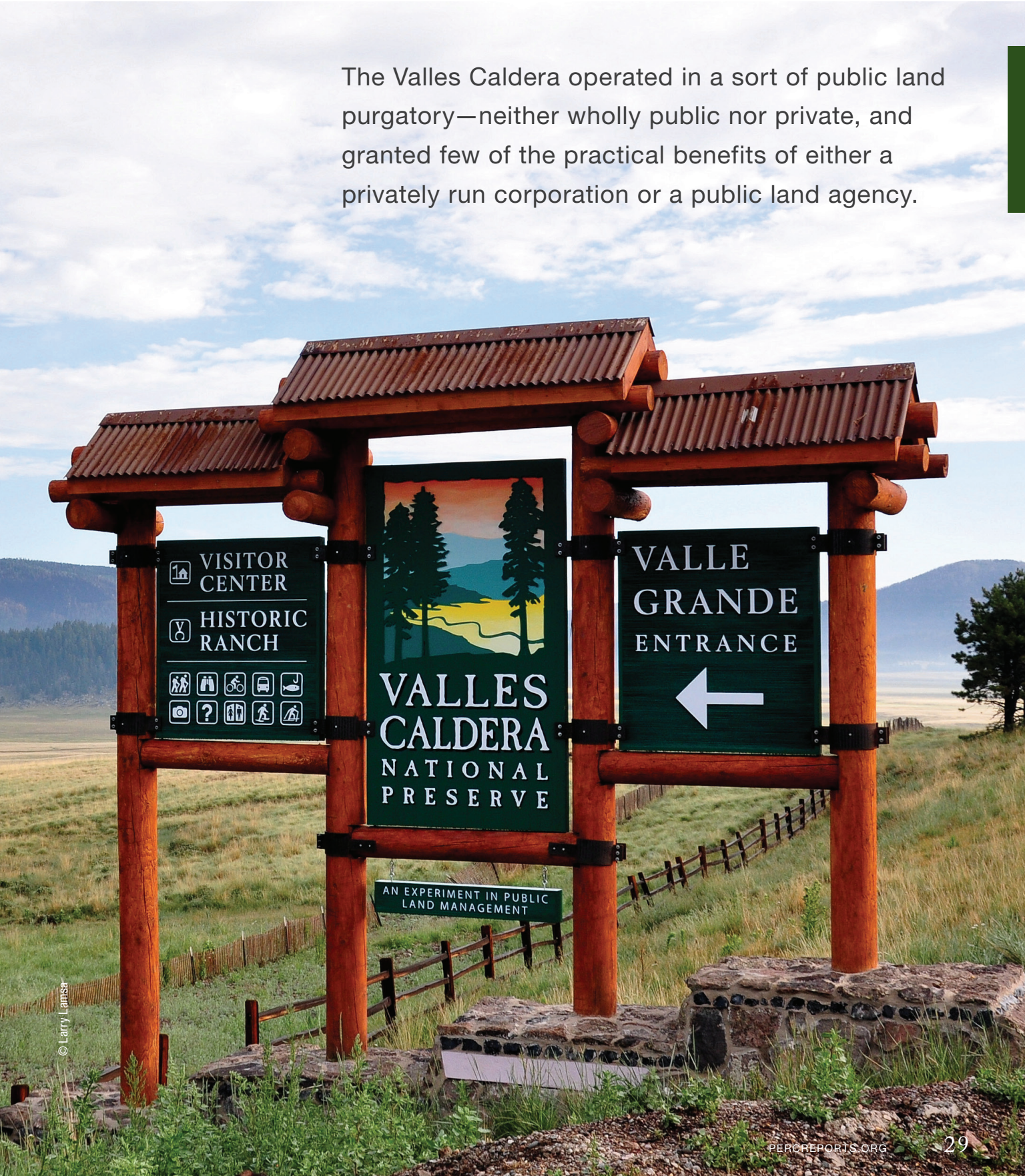
In practice, despite efforts to entrust the management of the preserve to an autonomous board instead of a myriad of planning rules and regulations, the trust still bore many of the same costly regulatory and bureaucratic burdens as other federal lands while enjoying few of the advantages of a corporate board-run entity. In the end, these and other obstacles hampered the trust's ability to deliver on its initial promises. The experiment ended in December 2014 when President Barack Obama signed legislation transferring management of the preserve to the National Park Service.

GOVERNMENT OR CORPORATION?

Many of the trust's challenges stemmed from its dual identity as a government and a corporate board-run entity, which ultimately prevented the trust from becoming financially self-sustaining. Although the trust model was intended to grant managers more of the flexibilities of a private-sector operator, as a government corporation the trust still faced many of the same compliance duties and statutory requirements that apply to federally owned lands. These included the need to develop assessments of the environmental impacts of proposed activities as required by the National Environmental Policy Act (NEPA), as well as various procedural and auditing requirements under the Government Performance and Results Act and the Government Corporation Control Act. These statutory requirements posed significant problems for the trust—in particular, they hindered its ability to comply with its mandate to achieve financial self-sufficiency.

In fact, early on the trust determined that, despite its Congressional mandate, financial self-sufficiency was not going to be a practical goal, in part due to the cost of complying with federal laws and regulations. In a 2005 report, the Government Accountability Office noted that the Valles Caldera Trust had failed to develop strategic and performance plans, measurable goals and objectives, annual performance reports, and a strategy for self-sufficiency. In response, the trust's board issued a formal response noting that it was keenly aware of the financial self-sufficiency mandate but that financial sustainability would not be the primary goal for the trust. Instead, it would be one

The Valles Caldera operated in a sort of public land purgatory—neither wholly public nor private, and granted few of the practical benefits of either a privately run corporation or a public land agency.



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of many management challenges "on par with all of the other provisions" of the trust's enabling act.

Over time, the trust determined that the cost of compliance with environmental laws should not be included as expenses and, in 2009, recommended to Congress a modification of the goal for financial self-sustainability: Instead of pure financial self-sufficiency, it would work toward a more modest goal of cost recovery for its operational (as opposed to administrative) programs, such as grazing leases and recreational access. Although the self-sufficiency mandate was never statutorily changed by Congress, by the end of the experiment, the trust's formal interpretation of its financial sustainability goal was to establish "a public-private model of administration to optimize revenues and develop philanthropy to support the preservation, enhancement and operation of the Valles Caldera National Preserve." Overall, revenue from the trust's various programs brought in approximately 28 percent of its budget, which came close to cost recovery of its operational programs.

Further complications resulted from a significant leadership vacuum within the trust—one not usually associated with other board-run entities. Not only did the trust experience high turnover of its board of trustees, but it also managed to go through 14 different executive directors over 14 years, with none staying longer than two years. Similar challenges were faced with other key staff positions.

Public use and access for all activities were relatively limited on the preserve due to concerns over liability. When the preserve was acquired, it was in rough shape in terms of both ecology and infrastructure. For example, there were an estimated 1,200 miles of roads and several bridges, most of which were constructed with little planning or engineering. Most of the existing buildings from previous ranching operations were in various states of disrepair, and the existing water treatment facility was not functioning, and as a result the preserve did not have potable water.

Furthermore, the trust's status as a government corporation raised questions regarding possible liability if any accidents

Trail access for recreational activities on the Valles Caldera was limited due to liability concerns.

were to occur on the preserve. In particular, it was unclear whether the trust had the authority to purchase insurance and whether it would have access to a "judgment fund," a source of money federal agencies can use when found liable for damages under the Federal Tort Claims Act.

Ultimately, it was determined that the trust did not have access to the judgment fund, and it was forced to purchase its own liability insurance. This placed a continued, and to some extent unpredictable, stress on its resources. In its 2013 annual report, the trust noted: "As the numbers of visitors and public programs increase, the cost of insurance will continue to consume a larger portion of the trust's appropriated budget." From 2007 to 2008, for instance, the cost of insurance doubled to more than $83,000 per year, and eventually rose as a high as $90,000. The trust never had a tort claim filed against it, but its annual report noted that "should the trust's liability insurance actually sustain a valid claim, it is very likely that private liability insurance would thereafter be either unobtainable or unaffordable."

Concerns over liability influenced the type and extent of recreational opportunities on the preserve. For example, snowmobiling was never considered as a recreational option because it would have increased insurance costs prohibitively. Trail access for hiking, mountain biking, horseback riding, and other activities were also limited by season, date and time, and location due to liability concerns.

LIMITATIONS OF THE TRUST

Another constraint on the Valles Caldera Trust's capacity to become financially self-sufficient was its inability to engage in contracts beyond the life of the trust experiment. The statute prohibited the trust from entering into leases lasting longer than 10 years. In practice, this created constraints unlike any facing a typical corporation. For example, the trust had the opportunity to purchase the land in Jemez Springs where its administrative offices are located, but its inability to borrow money for the purchase made that impossible. Even more importantly, this provision limited the trust's ability to attract concessionaires or other long-term business partners, such as Xanterra Parks and Resorts, which operates lodging and other activities in many national parks.

Perhaps the most limiting aspect of the trust's design was its relationship to the U.S. Forest Service. The trust's enabling act placed it as a unit within the National Forest System but separate and apart from the Forest Service's organizational structure, which divides the country into regions. This had two ramifications that impeded the success of the experiment.

The trust was deprived of some protections enjoyed by federal agencies and some freedoms provided to corporations. One of the lessons to be learned is that it is challenging to be both the government *and* a corporation at the same time—especially where there is a general expectation of public access and use.

First, the preserve became a line item in the Forest Service's annual appropriation request to Congress, and as a result the trust had to compete each year for resources in an already financially strapped agency.

Second, the Forest Service changed its policy on procurement procedures toward the end of the experiment, which undermined the trust's management flexibility. Originally, the trust's enabling act explicitly exempted it from time-consuming government procurement regulations and policies. This meant that the trust had the ability to issue its own purchase orders and contracts under its purchasing policies, which were approved by the Office of Management and Budget. For this reason, the trust initially operated with relative autonomy and much more nimbly than most federal agencies. That changed in October 2012, when the Forest Service declared that all trust procurements—contracts, purchase orders, agreements, grants, and small credit card purchases—had to follow Forest Service procurement regulations and policies, despite the language of the statute. As a result, all purchases had to be documented on forms used by the Forest Service and approved by the agency's procurement office in Albuquerque. Procurements that used to take 24 to 48 hours took weeks to months to be processed, and contracts that were once processed in several weeks now took up to a year to complete.

In short, the trust was deprived of some protections enjoyed by federal agencies and some freedoms provided to

corporations. One of the lessons to be learned is that it is challenging to be both the government *and* a corporation at the same time—especially where there is a general expectation of public access and use.

ADAPTIVE MANAGEMENT

Despite its challenges, the trust did achieve some notable successes. In particular, its early commitment to science-based adaptive management created perhaps the most interesting and positive outcome of the experiment: The management of the Valles Caldera was never the subject of a single lawsuit—a remarkable feat for public land management in the American West, where environmental groups, ranchers, and other interested parties increasingly rely on litigation to influence decisions involving public lands.

One of the unexpected successes from the experiment included its approach to natural resource decision-making. As noted above, the trust was required to comply with NEPA. The trust viewed this as an opportunity to incorporate collaborative process and science-driven management into its decision-making procedures. Because the preserve was essentially starting from scratch, it invested heavily in gathering baseline data—the end product of which was a powerful spatial geodatabase that allowed the trust to quantitatively analyze the existing condition of the preserve and model proposed management scenarios. This baseline data also provided a starting point for monitoring ecological functions over time. In addition, the preserve embraced adaptive management, a process that allows management actions to provide a basis for learning to guide future decision-making.

In 2014, the National Association of Environmental Professionals gave its "Excellence in NEPA" award to the Trust in recognition of its NEPA process for its "Landscape Restoration and Stewardship Plan," which received only one negative public comment despite its aggressive program for forest thinning, prescribed fire, and other often-controversial forest-restoration programs. As Jorge Silva-Bañuelos, the executive director of the trust during its final years, explained at the time: "Managers from other agencies have asked me how we justify the amount of money we invest in our science programs. I tell them to think about all the money we save in litigation costs."

PUBLIC LANDS PURGATORY

In the end, the preserve did not become a test case for a market-based approach to public land management. Many obstacles made this unachievable. In some sense, the preserve found itself in public lands purgatory. Instead of getting the best of both public and private management, it got the worst. As a public land unit, it received few of the benefits enjoyed by other public lands, including liability protection and access to the federal government's judgment fund. Likewise, it received few of the benefits of a corporation, including the ability to enter into long-term contracts and relief from the bureaucratic and regulatory requirements of federal agencies. At the same time, it continued to carry the obligations of being both public and private, including balancing conservation, multiple use, open access, and a need to cover its costs. However, the trust's approach to collaborative, science-based management reduced conflicts and increased public support for the preserve. In this way, the experiment taught us less about "trust" as a governance model than "trust" as a characteristic of relationships—confidence that builds among stakeholders over time.

If a public lands model could capture that collaboration while addressing the limitations that impaired the trust's ability to succeed, then the lessons learned at the Valles Caldera might prove valuable for other future innovations in federal land management. Closer attention to liability concerns, along with a recognition that environmental compliance issues like those required by NEPA can be costly and need to be taken into account, would increase the likelihood of success with any similar experiments in the future.

Our public land ethos may be deeply entrenched in our culture and political process, but that ethos, while time honored, should not limit efforts to improve federal land management. As the new interior secretary seeks to encourage creative conservation solutions, he should heed the lessons learned from the Valles Caldera but not let the perceived failure of it deter us from trying new things.

Melinda Harm Benson is the dean of the Haub School of Environment and Natural Resources at the University of Wyoming and the author of the recent article "Shifting Public Land Paradigms: Lessons from the Valles Caldera National Preserve" in the *Virginia Environmental Law Journal*.

Brian Yablonski is an adjunct fellow and board member at PERC, chairman of the Florida Fish and Wildlife Conservation Commission, and author of "Valles Caldera National Preserve: A New Paradigm for Federal Lands?" in the Winter 2004 issue of *PERC Reports*.

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— Daniel S. Holland, Supervisory Economist,
Northwest Fishery Science Center, NOAA Fisheries

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A helicopter gives the final push into the wild horse gather site as a wrangler awaits behind the jute fence in the Star Ridge portion of the Owyhee herd management area.

© BLM Nevada

YOU CAN'T DRAG THEM AWAY

How to rein in the costs of the federal government's wild horse program

BY TIMOTHY FITZGERALD
AND RANDAL R. RUCKER

She is a stocky little bay with a sock, a star, and a snip. To some, she embodies the spirit of the American West; to others, she symbolizes the tens of thousands of wild horses that threaten the viability of its arid rangelands.

She came from the Jackson Mountains in northern Nevada, born on the range somewhere between the gold fields near Winnemucca and the annual Burning Man gathering in the Black Rock Desert. On an October day in 1997, the two-year-old filly was herded up into government corrals by wranglers on horseback with assistance from a helicopter, never to return to the slopes of King Lear or Parrot Peaks. But she was fortunate because she avoided the miserable fate of some wild horses—chewing off each other's tails in their desperate search for nutrition on the barren range or dying hung up in barbed-wire fences in frantic quests to find water. In February 1999, after nearly 16 months in the care of the U.S. Bureau of Land Management, the mare—then four years old—was relocated from public rangelands into private hands, adopted by a new owner in Ohio for a $125 fee.

Thousands of horses and burros just like her—whose ancestors were too wild, too remotely located, or were released by farmers decades ago when tractors replaced them—now roam wild in the western United States and are protected by the Wild and Free-Roaming Horses and Burros Act of 1971. A nation with more real cowboys would mold this natural resource into a remuda unmatched in the world, suitable for Border Patrol agents, national park police, or even the interior secretary to ride to work. But as Neil Young, Willie Nelson, and others have reminded us, real cowboys are hard to find. Wild horses, on the other hand, are not—government holding pens teem with tens of thousands of them.

The policies employed by the Bureau of Land Management to manage the estimated 67,000 wild horses and burros on public rangelands in the western United States are controversial for a variety of reasons. Wild horse advocacy groups have argued continuously and strenuously for the well-being of horses. Other groups that have a stake in western public land management have also contributed to the debate. These include ranchers who lease public rangelands for livestock grazing, advocates for other wildlife that compete with horses for forage and water, and environmental groups concerned with rangeland health threatened by excess populations of wild horses and burros.

In addition to disputes over land use and animal welfare, another concern has been the rising costs of current policies. Between 1998 and 2016, appropriations for the wild horse and burro program more than quintupled, from $15 million to $80 million. Last year, former BLM Director Neil Kornze estimated that taxpayer costs to care for the 46,000 wild horses currently held by the BLM in long-term, off-range corrals and pastures would exceed $1 billion over the course of the animals' lifetimes. Horses in these holding facilities typically have been captured by the agency, vaccinated, held in short-term facilities for up to two years, and offered for adoption at three separate auctions without a single buyer offering the minimum bid of $125. Kornze recently cited estimates that these lifetime costs would reach $50,000 per captured horse.

Why are taxpayers shelling out $50,000 a head to care for horses whose value is so low that no qualified private horse buyer is willing to offer $125 for one? In our recent research, we conduct an economic analysis of the federal government's wild horse and burro program and consider several policy alternatives to address these and other questions. But to begin answering them requires disentangling the biological, political, and economic problems inherent in managing wild horses and burros.

A HISTORY OF THE PROGRAM

Early attempts to manage wild horses involved private landowners capturing and training the best animals in the herds and culling the others. In 1959, legislation prohibited the use of motorized vehicles to capture and kill wild horses and burros on public lands, but it did not establish a clear legal status for the animals, nor did it provide for enforcement of the law's provisions.

In response to lobbying efforts by wild horse advocates, Congress unanimously enacted the Wild and Free-Roaming Horses and Burros Act in 1971. The act mandated that the secretaries of the Interior and Agriculture Departments protect and manage wild horses and burros on government-owned rangelands to achieve and maintain a "thriving natural ecological balance." In response, the agencies established management areas where wild populations could be maintained over the long run.

If left unmanaged, wild horses and burros—which are not native to the United States and have no natural predators—double in number every four to five years. This biological reality soon presented problems under the Wild Horses and Burros Act. As populations rapidly increased, rangeland quality deteriorated so badly that some of the protected animals died of starvation. In response, the BLM removed wild horses and burros from the range and put them up for private adoption, with the first of these taking place in 1973. In 1976, following favorable public response to the initial auctions, the agency implemented a nationwide adoption program, which continues to be the primary mechanism for transferring horses and burros from the BLM to private owners.

In 1978, the Public Rangelands Improvement Act directed the secretaries of the Interior and Agriculture Departments to determine appropriate horse and burro population levels for each

Wild horses removed from public rangelands are brought to corrals like the one pictured here, in Hines, Oregon, and prepared for the adoption program.

management area, as calculated based on the capacity of federal rangelands to sustain the animals. When population estimates suggest that the number of horses in an area exceeds the maximum acceptable level, the BLM conducts "gathers" to reduce on-range populations to acceptable levels. During these gathers, private contractors wrangle horses and burros into temporary on-site corrals, where the BLM selects animals to permanently remove from the range. The remaining animals are released back into the wild.

Animals that are selected for removal during gathers are taken to short-term holding facilities where they are vaccinated and freeze-branded with unique government identification codes. They are then eligible to be adopted by private buyers through the government's Adopt-a-Horse program. Qualified buyers can acquire a horse at a competitive auction with a minimum bid of $125. Buyers obtain title to horses only after a 12-month probationary period and after they agree not to sell the adopted animals for slaughter, among other restrictions.

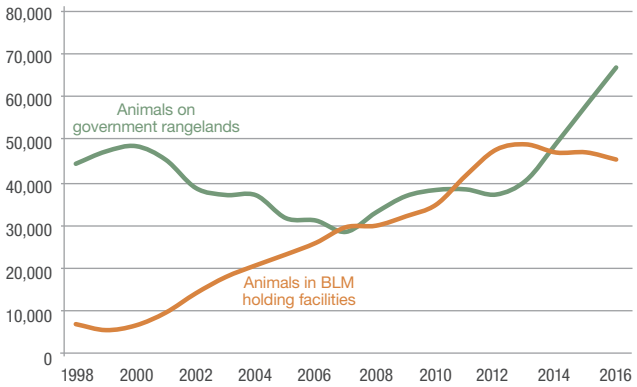
The Adopt-a-Horse program, however, fails to secure bids for all the horses rounded up from the open range. To address the growing inventory of unadopted horses, in 2004, Congress implemented an additional way to transfer horses to private parties by allowing the BLM to sell wild horses and burros that are more than 10 years old or that have been unsuccessfully offered for adoption at least three times. No limits are placed on the number of horses that can be sold through this mechanism, and prices are negotiated by the BLM on a case-by-case basis. Title is transferred at the time of sale, and no limitations are imposed on purchasers except that resale for slaughter is prohibited. In our analysis, we find that between 2005 and 2010, about 4,100 horses were sold using this option at an average price of $17 per horse.

Horses that are neither adopted nor sold are transferred to long-term holding facilities where the animals live out their days, often for up to 25 years or more. Most long-term holding facilities are located on private pastures in midwestern and western states and leased by the government for multi-year periods.

WRANGLING THE COSTS

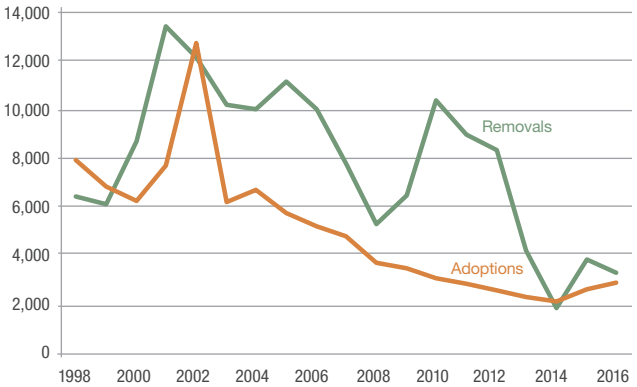
Today, there are approximately 67,000 wild horses and burros on the range—more than double the current target population of about 27,000. In other words, to comply with the

Estimated Population of Wild Horses and Burros



Source: BLM Public Land Statistics, GAO

Removals and Adoptions of Wild Horses and Burros



Source: BLM Public Land Statistics

provisions of the Wild Horses and Burros Act, the BLM would have to remove 40,000 horses from the range (see charts).

The rapid increase in the number of animals on the range in recent years illustrates the BLM's predicament. Over the past three years, the growth rates of horses and burros on public rangelands have averaged 18 percent. At that rate, the population will double every four years—meaning it could more than quintuple to 350,000 animals in a decade—unless the agency increases its removals.

Horse and burro populations in both short- and long-term BLM holding facilities have also been increasing. The number of animals held by the agency grew from an average of about 7,000 from 1998 to 2000 to more than 45,000 in every year since 2012. Since the late 1990s, the share of the wild horse and burro program's budget devoted to holding costs roughly doubled, from about one-third to two-thirds.

Gathering more wild horses from public rangelands doesn't solve the problem—it only pushes it off the range. Between 2001 and 2006, 10,000 to 14,000 animals were removed each year, and in all but one of those years, removals exceeded adoptions, meaning that more animals are being held in government-run holding facilities. Furthermore, gathers are a point of contention for wild horse advocacy groups who object to the need for, and the techniques used in, reducing range populations. Since 2013, the BLM has removed fewer animals from federal rangelands, and the difference between removals and adoptions has been relatively small. This has slowed the growth in the inventory of horses held by the BLM, but it has contributed to the growth in on-range populations.

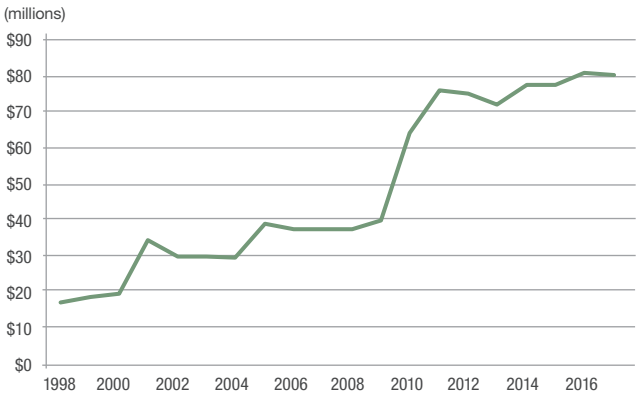
As a result of these management choices, the costs to taxpayers of the wild horse and burro program have risen markedly in recent years. The BLM now spends about $80 million each year on the program, with a large portion of that spent caring for thousands of horses that private buyers are not willing to pay $125 to adopt. Although the reduction in animal removals over the last few years has resulted in both the number of wild horses held by the BLM and the taxpayer costs of the program leveling off, the agency faces a dilemma. If all 40,000 excess animals currently on the range were gathered in the near future, then the costs of holding them could add roughly another $1 billion to the costs of the program over the lifetimes of the captured animals. On the other hand, if the animals are left on the public lands where they now roam, they're likely to degrade rangelands, leaving the public-range resources one drought away from a calamity that no group—not the BLM, stockgrowers, horse advocates, or environmentalists—wants to see.

REINING IN THE PROBLEM

Clearly, the BLM must change the way it manages wild horses and burros. From an economic perspective, the problem is that there are more wild horses and burros offered for adoption by the BLM than prospective buyers are willing to purchase at the $125 minimum. There are three options that could help address the problem: decrease the supply of wild horses, increase the demand for them, or decrease the minimum acceptable price for adoption. The BLM has taken steps along each of these margins, but frequent opposition from one interest group or another has stalled its efforts.

The excessive supply of wild horses ultimately stems from the fecundity of their on-range populations. The BLM has experimented with equine contraceptives such as the vaccine porcine zona pellucida, which reduces conception rates but is expensive to administer and is only effective for a relatively short period. Other attempts have been foiled by controversy. Last fall, for instance, in response to a lawsuit filed by a wild horse advocacy group, the BLM withdrew from a cooperative research effort with Oregon State University to develop new and more effective contraceptives. Another approach would be to increase the amount of public land available to wild horses, thereby decreasing the number of horses that need to be offered for adoption

Treasury Costs of Wild Horse and Burro Program



Source: BLM, GAO

From an economic perspective, there are three options that could help address the problem: decrease the supply of wild horses, increase the demand for them, or decrease the minimum acceptable price for adoption.

in the short term. But with the wild horse population growing 18 percent annually, any forage on additional acreage would be quickly consumed. And because there are currently no "unused" acres, devoting more rangeland for wild horses would mean displacing domestic livestock or other wildlife species. This situation reflects a political problem rather than a scientific one.

To bolster demand, the BLM has partnered with several horse-training programs, including high-profile efforts like "Extreme Mustang Makeover," sponsored with the Mustang Heritage Foundation, to feature professional trainers working with charismatic wild American mustangs. One benefit of such programs is that wild horses are trained and subsequently made available for adoption. Our research suggests that the demand for these trained horses is high enough to fetch prices that more than cover training costs. In addition, the BLM engages in training programs with several western state penitentiaries, in which prisoners work with horses to make them more readily adoptable. Given the looming financial burden of unadopted animals stemming from the reality that the number of on-range animals will have to be reduced in the near future, the agency would do well to pay for training if it continues to decrease the number of excess animals destined for long-term holding.

Since 2004, the BLM has had the option to sell certain wild horses outside of the Adopt-a-Horse program. This is certainly a step toward lowering the minimum offer price, but this option is currently only available for horses that are at least 10 years old or have failed to attract the minimum adoption bids multiple times. Several thousand animals have been sold under this option, and the BLM's proposed 2018 budget calls for an expansion of these sales. This option, however, brings its own concerns—primarily that some high-volume buyers may purchase animals only to illegally send them to slaughter in Mexico or Canada.

Another seemingly feasible option would be to lower the minimum acceptable bid at Adopt-a-Horse auctions—perhaps even to a negative price. For instance, suppose the BLM actually paid people $100 to adopt wild horses. If so, the agency could save taxpayers almost $50,000 for each horse that would otherwise live out its days in BLM holding facilities. Our analysis suggests that with such a $100 payment by the BLM, almost all the animals placed in long-term holding over the last several decades would have been adopted, and taxpayers would have saved $450 million. Implementing this strategy, however, might require amending the Wild Horses and Burros Act.

The BLM and wild horses are caught between two rocks and a hard place. One rock is existing users of government land such as livestock producers and other forms of wildlife that compete for finite rangeland resources. The second rock is wild horse advocacy groups that view any reduction in on-range populations as inhumane to the animals. The hard place is the reality of increasing program costs and the need for ever-greater appropriations. Over the past two decades, the dramatic increases in taxpayer costs suggest that these have been a relatively flexible margin for adjustment. But as expenditures for wild horses in BLM holding facilities eat up more and more funds, the pressure to find a pragmatic solution will build. Taxpayers and the health of western rangelands stand to benefit from such a solution, though perhaps not as much as the wild horses themselves.

Timothy Fitzgerald is an associate professor in the Rawls College of Business at Texas Tech University.

Randal R. Rucker is a professor of economics at Montana State University and a senior fellow at PERC.

Their research paper "You Can't Drag Them Away: An Economic Analysis of the Wild Horse and Burro Program," coauthored with Vanessa Elizondo, was recently published in the *Journal of Agricultural and Resource Economics*.

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Human–Wildlife Conflicts Come East

As locals clash with elk reintroduced to the Smokies, can strategies from the West serve as a blueprint to mitigate conflicts?

BY TATE WATKINS

When a North Carolina farmer shot seven elk that wandered onto his family's dairy farm last year, locals were outraged. The elk herd regularly aggravated their livestock, tore down fences, and devoured the winter wheat meant for the farm's dairy cows. One January day, the farmer decided that he'd had enough.

State biologists from the North Carolina Wildlife and Resources Commission investigated the killings, which they ultimately deemed legal given that the animals were "depredating" private property. But the episode infuriated the state employees, one of whom described it as "spite killing." Many locals saw the farmer's response as unwarranted and disproportionate given the amount of damage caused by the elk.

The wild elk came from just a few miles away in the Great Smoky Mountains National Park. The National Park Service, with assistance from the Rocky Mountain Elk Foundation, reintroduced them to the park 15 years ago, roughly a century-and-a-half after humans hunted the species out of existence in Tennessee and North Carolina.

Reintroducing a big-game species into a well-populated area undeniably creates challenges, but human-wildlife conflicts in the East certainly aren't limited to encounters with elk. Coyotes now roam the streets of Atlanta, New York City, and just about every community in between. Feral hogs cause an estimated $1.5 billion in crop damages and control costs, primarily in the South. And nationwide, vehicle collisions with deer cost roughly $4,000 per claim on average—but especially in West Virginia, where motorists are more likely to hit a deer than in any other state.

Humans have figured out how to live alongside wild animals with varying degrees of success, but there are proven strategies to manage the inevitable human-wildlife conflicts that accompany efforts to reintroduce large wildlife such as the Smokies elk. Many such strategies have helped mitigate clashes farther west, as with wolves and bison in and around Yellowstone National Park, although the presence of such species remains controversial in many places. The key to ensuring that a successful conservation story doesn't devolve into spite-killings or legal wrangling—whether in the East or the West—is for conservationists to set their sights on transforming wildlife from liabilities into assets in the eyes of private landowners.

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ELK RETURN—AND BRING PROBLEMS

In 2001, 25 elk that originated from a Canadian herd were brought to the Smokies, with 27 more animals added to the park the following year. Today there are approximately 150 elk in the herd, most ranging in eastern reaches of the park. The animals have proven to be quite the draw—after the elk were introduced, visitors to the relatively remote Cataloochee Valley alone practically doubled, rising to about 140,000 people each year.

Predictably, some of the elk have begun to wander off national park land and onto highways, which tourists and retirees frequent much of the year. The elk also increasingly roam onto nearby farms and private residences, where they've destroyed crops, gardens, orchards, and fences and aggravated or even killed dogs and livestock.

But elk aren't the only large mammals North Carolinians live with. The state's roughly 1.25 million white-tailed deer constantly consume crops and other forage on private land. Even more expensive are the nearly 20,000 animal-related vehicle collisions in North Carolina each year, which cost an estimated $48 million. (Ninety percent of such crashes involve deer.) Yet the state's 10 million residents have found ways to manage human-deer conflicts over the decades, whether by using reinforced fencing, repellents, hunting, or other strategies.

Admittedly, the state's new elk may prove trickier to deal with than deer. A mature bull elk can grow to 700 pounds—three to four times the size of a full-grown whitetail. With that potential, elk are more apt to destroy fences or crops, and because they've never been hunted in North Carolina, they may be more habituated to and less afraid of people than deer are.

One aspect that may make elk different from deer is that many locals see elk as the government's property—and therefore the government's responsibility—because they were reintroduced by the National Park Service so recently. Outside of national parks, the management of deer, elk, and all other wildlife generally falls to state wildlife agencies. Therein lies the crux of the issue: Even though wildlife are public resources controlled by the state, the survival of wild animals in the densely populated East depends upon cooperation of private landowners, who own the majority of the habitat. Perhaps nowhere is that reality more apparent than when it comes to elk reintroduced to the Smokies.

TURNING WILDLIFE INTO ASSETS

The practical problem of reintroducing a large ungulate species into the eastern United States is that, because the animals need lots of room to roam, they will inevitably need habitat on private lands. Western North Carolina property owners overwhelmingly supported having elk in the area. A 2014 survey showed that 73 percent of local landowners supported elk living on private lands in the region, while 88 percent were in favor of having them on public lands. Despite the overwhelming support for the elk, conservation success will depend on finding ways to work with the landowners who bear the costs of a growing herd. "The question is as this population grows, who's going to feed them?" Jimmy Cowen, a local farmer, asked at a public hearing held last fall by the North Carolina Wildlife and Resources Commission (NCWRC) to discuss elk issues in the area. "Why should it be up to the private landowners?"

In some parts of the West, environmental groups and government agencies have come up with solutions to mitigate conflicts over controversial species such as wolves and bison by working with private landowners rather than butting heads with them. Often, at a minimum, this simply means compensating landowners for damages caused by wildlife.

Nearly 30 years ago, the nonprofit Defenders of Wildlife raised funds to pay full value for any livestock killed by wolves that were returning to areas in northwestern Montana near Glacier National Park. State and federal agencies verified the losses, ranchers were compensated, and conflict over what had become an extremely heated issue died down relatively quickly. Instead of asking local landowners to bear the full costs of having wolves around, the group recognized ranchers' rights to graze in the area and sought to compensate them for their losses. Defenders of Wildlife sold posters featuring artwork of wolves for $30 each to help raise funds and make the program permanent. The organization later used the same strategy for ranchers near Yellowstone when the park reintroduced wolves in the 1990s, helping to lessen the local opposition to the species.

More recently, a handful of conservation groups gathered a modest amount of funding to help finance fencing for landowners who want to keep free-roaming Yellowstone bison off their private property. Similarly, the National Wildlife

Federation has worked with ranchers and the U.S. Forest Service to develop a program to pay landowners to give up their public land grazing permits in areas with high potential for conflicts between cattle and bison, grizzlies, and other wildlife in Montana, Wyoming, and Idaho. The strategy has freed up hundreds of thousands of acres of prime wildlife habitat while compensating ranchers for the value of their permits in the region.

Similar programs could be created to compensate farmers and other residents for damages caused by elk in the Smokies. The NCWRC already built a two-mile, $19,000 fence, funded by hunting-license revenues, on the dairy farm where seven elk were shot in an effort to prevent further conflicts. This sort of scheme should evolve from a one-off solution into a systematic compensation program for farmers and residents, but funding will be a real hurdle. "Some states are set up that they do pay damages," Justin McVey, district biologist for the NCWRC, told the *Smoky Mountain News* after the public hearing. "North Carolina is one that had not, and I don't foresee that changing. That's a big funding thing."

Such programs, however, need not rely on government agencies. In the case of Montana's wolves, Defenders of Wildlife didn't wait around for the state to solve every human-wildlife conflict or devise a compensation program. If private landowners in North Carolina are already bearing the costs of elk, and if hunters' fees have funded efforts to mitigate the animals' impacts, shouldn't conservation groups also chip in? It only makes sense for elk lovers to contribute, too, as some environmental groups have in the West.

In another example from Montana, the nonprofit American Prairie Reserve, which is entirely funded by private donations, has promoted conservation by contracting with private landowners who make efforts to conserve wildlife. (See page 44.) Scientists who work with the group install trail cameras on ranchland, and wildlife documented in photos earn rewards for landowners: $200 for a cougar and $300 for a black bear, for instance. The more ranchers do to help conserve wildlife, the higher their compensation. In the Smokies, similar incentive programs could motivate landowners to provide elk habitat and promote their conservation.

A handful of projects to develop elk habitat on public lands are already underway in western North Carolina. Whether private- or public-led, these efforts could help funnel wildlife away from farms, residences, and highways where they've become nuisances. The Conservation Fund, an environmental nonprofit, is conveying nearly 2,000 acres adjacent to the Smokies Park near Maggie Valley for the NCWRC to manage. The aim is to create ideal elk habitat on diverse landscapes interspersed with forests and meadows. Initiatives to use prescribed burning or thinning have also been underway in and around the park in recent years, supported partly by funding from the Rocky Mountain Elk Foundation. And logging proposals are also under consideration to create elk habitat on U.S. Forest Service land in the area.

Eventually, legal and regulated hunting could also give private landowners incentives to provide quality elk habitat. State biologists say the North Carolina herd is probably too small to be hunted anytime soon but that they could one day be hunted sustainably. If so, western states could offer some guidance. Colorado, for example, with its Ranching for Wildlife program, grants special transferable hunting tags to private landowners who engage in certain forms of wildlife stewardship and conservation. A similar model in North Carolina could motivate landowners to create excellent habitat for elk.

HOW TO LIVE WITH ELK

One evening last fall, park visitors lined up in their SUVs and pickup trucks on a road running through a Cataloochee meadow to catch a glimpse of the elk herd. A bull elk stood amongst 20 females and let out a series of bugles that echoed across the valley.

While these reintroduced elk clearly provide value for tourists, conservationists, and many locals, North Carolinians will never be able to avoid every conflict with them. If the animals are to thrive, both the state and environmental groups must find ways to work with private landowners to make the animals assets instead of liabilities—or at the very least, make elk less of a liability in and around the Smokies.

The innovative compensation programs that have helped mitigate human-wildlife conflicts out West provide clear lessons that can be applied to managing elk back East. Conservation groups, state agencies, and locals should take note—and continue to work with private landowners instead of against them—to ensure that elk bugling echoes throughout the Smokies for years to come.

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Contracting for Conservation

As public land battles simmer, a new private model emerges to pay ranchers to conserve wildlife

BY LAURA HUGGINS

© Alex Newby

Rancher Mike McCabe installed wildlife-friendly fencing and agreed to ranch with both predators and ungulates, which are monitored via motion-sensing camera traps.

Conservation in the American West is often portrayed as zero sum—one group's gain is another's loss. And in many cases, it is. In 2001, when President Bill Clinton designated the 378,000-acre Upper Missouri River Breaks National Monument in eastern Montana, placing much of it off limits to grazing and other forms of use, he also set off a firestorm of controversy among locals in the region. Now, more than 15 years later, many still resent the designation. Homemade signs that read "No Federal Land Grab" still linger in the area.

But creative conservation solutions are being developed that are more nuanced and mutually beneficial for the parties involved. Few are aware that just a short distance from the Missouri Breaks monument, a new model is emerging based on a simple idea: Rather than spend time and money lobbying the federal government for conservation, why not

buy properties from willing sellers and build an endowment and other revenue sources to manage it?

At the American Prairie Reserve, where I work as manager of economic initiatives, we are doing just that. We have raised $100 million from private supporters to purchase 25 properties, which are now open to the public for camping, hiking, and hunting. Ultimately, our goal is to stitch together 3.5 million acres of both private and public land in the region—an area more than twice the size of Yellowstone National Park. Once these fragmented public and private lands are connected, the reserve will provide a continuous land area collaboratively managed for wildlife and recreation, the largest of its kind in the lower 48 states.

In addition to purchasing land, we have reintroduced bison to the landscape, with our herds now numbering nearly 1,000 animals. We have also converted more than 100 miles of fencing to wildlife-friendly standards, constructed campgrounds, a science center, and safari-style yurts, and are currently developing a hut-to-hut system.

Now American Prairie Reserve has turned its attention to a more difficult problem: Wildlife don't pay attention to "no trespassing" signs. This fact creates problems for conservationists. As soon as an animal steps over the border of a protected area, there are often conflicts with private landowners. How can we ensure the wildlife we are protecting don't encounter the same problem?

American Prairie Reserve sought a new model—a system designed to create a permeable "soft boundary" around the reserve that benefits both people and wildlife. This means recognizing the potential spillover effects of our conservation efforts: elk eating grass, prairie dogs digging holes, predators posing risks to calves. We are finding ways to incentivize ranchers to conserve these animals, turning them from liabilities into assets. To do so, we've created a menu of options that ranchers can voluntarily choose from, such as restoring degraded streams or modifying fences. A value is attached to each conservation action. The more wildlife conservation a rancher signs up for—such as not tilling up new soil or agreeing not to poison prairie dogs—the more he or she gets paid after the ranches are reviewed by a third-party entity to verify the conservation practices.

We form year-to-year contracts to help us determine the appropriate values for each of these actions and learn from ranchers what works best. Risk of predators is proving to be the most challenging component. To address this, we recently added a bonus system, in which landowners earn a per-species payment for images of predators captured by remote, motion-sensing cameras installed on their ranches.

To fund this program, APR started a for-profit beef company. Montana Prairie Holdings sells Wild Sky grass-fed beef in outlets around the country and at wildskybeef.com. Wild Sky is the only brand in the nation directly supporting wildlife-friendly ranching. Profits from the sale of Wild Sky beef are used to pay ranchers who implement the conservation practices described above on their land. And, importantly, even though the company is only a few years old, we are already profitable.

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My colleagues and I have met with nearly 100 ranchers to discuss our Wild Sky program—and because conservation is typically viewed as a win-lose proposition, we are often met with skepticism. The initial "welcome" can be intimidating. But it doesn't take long before ranchers are inviting us into their homes for a cup of coffee or a slice of banana bread, and soon after, meaningful conversations take place. In some cases, ranchers who thought we were their enemy have become our strongest advocates.

Such win-win solutions are nothing new. Long before formal government arrived in the West, neighbors resolved disputes by getting to know each other—by sitting down and figuring out a solution that everyone could live with. These informal social norms later became the subject of extensive academic work pioneered, most notably, by the late Nobel laureate Elinor Ostrom.

From our conversations with ranchers, we learn a great deal about the ways of the West going back before the homesteading era. We are reminded that, unlike the dramatic black-and-white Wild West shows portrayed in the news, the American West still embodies the same entrepreneurial spirit of figuring things out and getting stuff done together.

Laura Huggins is CEO of Montana Prairie Holdings, manager of economic initiatives at American Prairie Reserve, and a PERC research fellow.

Why Property Rights Matter

For some environmental groups, oil and wildlife never mix—except when it comes to their own property

Earlier this year, President Donald Trump announced that his administration would seek to open oil and gas drilling in the Arctic National Wildlife Refuge. The plan, outlined in Trump's 2018 budget resolution, has reignited a long-standing debate over the oil-rich Alaskan wildlife refuge.

"Some places are so special that they should simply be off-limits," Nicole Whittington-Evans of the Wilderness Society said at the time, arguing that the refuge is "too wild to drill" and "has values far beyond whatever oil might lie beneath it." David Yarnold, president of the Audubon Society, said that drilling in ANWR "would cause irreversible damage to birds and one of the wildest places we have left on Earth."

Drilling proponents cite the area's immense energy potential. More than 10 billion barrels of oil could be tapped by developing just a small portion of the 19-million-acre refuge, according to the U.S. Geological Survey—enough to produce 1.45 million barrels per day, more than the United States imports daily from Saudi Arabia. The Trump administration claims that opening ANWR for leasing would reduce the federal deficit by $1.8 billion over the next decade.

How are these conflicting environmental and natural-resource values to be resolved? In the case of ANWR, the answer is politics. The refuge is federal land, so decisions about its management are political by their nature. Debates are often characterized as all-or-nothing decisions—either "save the Arctic" or "drill baby drill"—and when one side "wins," another side loses.

But what would happen if ANWR were privately owned, perhaps by an environmental group?

Take, for example, the Audubon Society, one of many environmental groups opposed to drilling in ANWR. "Oil and birds don't mix," says the group on its website. "Drilling is a dirty and dangerous business that has historically always resulted in spills and harmed the environment." Yet consider how the Audubon Society manages some of its own privately owned wildlife refuges. For nearly 50 years, starting in the 1950s, the group allowed oil and gas companies to drill dozens of wells on its 26,000-acre Paul J. Rainey Sanctuary, a bird sanctuary in southwestern Louisiana.

Why would Audubon allow drilling on its own sanctuaries but oppose it elsewhere? The answer, in short, is property rights. Private ownership creates incentives that often lead to more reasonable outcomes than in the political arena. Property rights motivated Audubon to consider the trade-offs associated with its management and the opportunity costs of leaving the oil and gas in the ground. Because the group owned the sanctuary, it sensibly weighed the potential benefits of drilling against its environmental costs.

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Audubon earned more than $25 million in royalties from energy development on the Rainey Sanctuary, and it used those funds to protect more land and invest in habitat improvements on the preserve. "The gas-development activities, closely controlled and monitored by Audubon, offer opportunities to diversify and improve habitat which Audubon otherwise couldn't afford to create," said one of the group's senior vice presidents in 1984.

The Audubon Society had every incentive to ensure the drilling was done responsibly. For instance, energy companies had to comply with strict limits on drilling during bird-nesting season. One journalist wrote that "when the cranes punched in, the hardhats would have to punch out." The group was especially careful to do so because, as one sanctuary manager put it, Audubon's members "would be very irate if we polluted our own environment, our own land, our own sanctuary."

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Arctic National Wildlife Refuge

The Rainey Sanctuary isn't the only example of Audubon calling for different actions on its private property than on public lands. The group authorized drilling on its Bernard Baker Sanctuary in Michigan as well. For years, an oil well located outside that sanctuary tapped oil and gas beneath its surface through slant drilling, earning the group mineral royalties while also protecting habitat.

On public lands such as ANWR, the story is much different. Audubon opposes virtually all oil and gas development on federal lands. The group would receive none of the benefits of saying "yes" to drilling there, so it has no reason to weigh its costs and benefits, even if those benefits could be substantial. One recent study estimated the value of the oil beneath ANWR at $374 billion. With that kind of potential, if the refuge were under private ownership, even the most anti-development environmental group would be forced to consider what additional conservation benefits could be gained by allowing at least some drilling.

After all, it's possible that a small amount of energy development in one area could help provide even more important environmental benefits elsewhere. As one Alaskan outdoor writer said in response to debates over ANWR, "It would seem of far more environmental concern that Alaska's ducks and geese have a place to winter in overcrowded, overdeveloped California than that California's ducks and geese have a place to breed each summer in uncrowded and undeveloped Alaska." With private ownership, environmental groups would more sensibly assess that trade-off, just as Audubon has, to achieve the most environmental value.

Oil and gas production ended on the Rainey Sanctuary in 1999, but Audubon has since considered reopening it to drilling. Other groups such as the Nature Conservancy have also allowed drilling on some of their private lands in Texas, raising millions of dollars to conserve endangered prairie chicken habitat. The conservancy's efforts, however, have drawn criticism from some environmental activists who pressured the organization to recently declare that they want to get out of the oil and gas business entirely. Nonetheless, with new horizontal-drilling techniques that allow oil and gas to be extracted from afar and with fewer surface impacts, there is now even greater potential for such win-win arrangements on private lands.

Property rights give owners strong incentives to balance conservation with resource development and resolve competing demands in a cooperative, mutually beneficial way. When environmental groups bear the costs of managing their own lands, their behavior is often very different from what they advocate on public lands. The experience of the Audubon Society's Rainey Sanctuary demonstrates a more sensible approach than can be found in most public land debates today.

As Richard Stroup of PERC once put it: "Audubon is smart to maintain wildlife habitat while capitalizing on revenue potential—now if only our federal land management agencies could figure this out."

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