

Some thoughts on the road ahead for public lands, by John D. Leshy

As the new Administration takes office, it is useful to step back and take a “big-picture” look at some of the public lands challenges it will face. The following two documents are my perspective on some of the more salient issues.

I. The first is drawn from, and to some extent reproduces, parts of a chapter I prepared, entitled “Department of the Interior--Natural Resources Serving Society,” which is being published in Change for America: A Progressive Blueprint for the 44th President (Center for American Progress Action Fund and New Democracy Project, 2008) (excerpts reprinted with permission from CAP Action Fund and NDP).

N.B. While I co-chaired the Interior Department Transition Team for the Obama-Biden Administration, the following ideas were developed in advance of and apart from that process, and in any event do not represent Administration policy.

Two big challenges

–Forge a sustainable energy policy and deal responsibly with climate de-stabilization.

–Protect America’s public land treasures for the future and engage the growing progressive forces in the western United States where most of these lands are found.

Climate de-stabilization poses formidable new challenges to the nation, and Interior will likely be instrumental in the new administration’s efforts to adopt a greenhouse-gas-sensitive national energy policy. Interior’s broad expertise and substantial information-gathering apparatus in the earth sciences—geology, hydrology, and biology—must play a key role. Interior’s lands should serve as a vast demonstration project for how to manage natural resources in the face of this daunting problem. Federal lands will likely be the locus of renewable resource development such as solar, wind, and geothermal and associated energy transmission infrastructure, as well as significant biological sources of carbon sequestration and suitable sites for geological carbon sequestration. Interior-managed lands and waters will also play an important role in climate-change adaptation strategies, including serving as sanctuaries for species imperiled by shifting habitats and other climatic changes.

Federal lands managed by Interior also contain many of the nation’s crown jewels. Besides the well-known national parks and historic sites, these lands include watersheds vital to the nation’s supply of clean fresh water, some of the nation’s best fishing and hunting opportunities, coastal wetlands, key wildlife habitat, and inspirational wild lands. Most of these areas are in the American West, which has long been the most rapidly growing region in the country and now has a higher percentage of its residents living in urban areas than any other region in the country. Its

burgeoning metropolitan areas are sprinkled across a landscape of splendid natural amenities, much of it managed by Interior. In recent decades the western regional economy has broken its historical dependence on producing commodities such as trees, minerals, and beef. While that transition was underway, irritation and conflict marked the relationship between westerners and the federal government. Interior—the most visible federal presence in the region—was in the cross-hairs.

Those tensions have subsided considerably. Westerners have deepened their appreciation of the vital and generally positive contributions Interior makes to the quality of life in the region. Western states have become more progressive, and even historic adversaries like ranchers and conservationists now find common ground on a number of issues. Climate and water disruption and the need to reorient energy policy make cooperation ever more important. The new administration has a huge opportunity, and responsibility, to formulate strategies and policies to constructively partner with this “New West.”

Federal lands will remain an important source of fossil fuels to bridge the transition to a new energy policy. These include submerged lands offshore, which sometimes pose fewer conflicts with other resources than onshore land. Overall, the administration will need to work closely with affected states and other interests to limit fossil fuel development to areas of high potential where serious conflicts with other important resources are manageable or avoidable. It should also tighten regulation to ensure that energy companies operating on federal lands are responsible for thorough cleanup and reclamation. And it should take the lead in crafting new policies regarding energy-related uses of federal lands, addressing such issues as how much to charge non-federal entities for permission to use sites on federal lands for solar, wind, and carbon sequestration projects.

Interior and the public have increasingly recognized that the Bureau of Land Management’s 260 million acres contain some superb scenic, historic, cultural, and recreational sites that provide inspiration, education, and outdoor scientific laboratories, not to mention tourism dollars for local economies. Since the 1970s, a little more than 10 percent of BLM lands have been protected as national conservation areas, monuments, and wilderness. The Clinton administration created a new *National Landscape Conservation System* within BLM for these specially designated lands. Some of the Clinton monument proclamations were initially controversial in more conservative parts of the West, but they and the NLCS quickly gained wide acceptance. The NLCS remains a work in progress. Many other BLM areas—ranging in size from a few acres to large landscapes—are worthy candidates for inclusion. The system should take its rightful place alongside the national park, national forest, and national wildlife refuge systems. Efforts should be made to fill out the NLCS, inviting nominations from governors, tribes, historic and cultural preservation groups, hunters, anglers, and other recreationists, conservationists, tourism representatives, and local business interests. Interior should work with Congress and all affected interests to decide what areas to include.

The rich variety of life on Earth is shrinking at an alarming rate, with profound economic,

ecological, sociological, ethical, and human health implications. Climate disruptions will probably accelerate this loss by altering habitats and changing the timing of seasonal events such as snowmelt and insect emergence. The new administration must deal with the problem both domestically and internationally. Interior's expertise ought to be brought to bear to ensure that efforts to address carbon emissions around the globe involve intelligent use of carbon offsets to protect biodiversity. Federal lands will likely be ever-more crucial reservoirs of biodiversity, but they are not always well located to play that role; gaps exist in their coverage of biodiversity "hot spots" and key migration corridors. The new administration should convene a group of experts to examine these issues systematically, and craft strategic guidance to federal land and water agencies on how best to preserve biodiversity against the challenge of climate de-stabilization. The new administration will also need to review Endangered Species Act policies. The Clinton administration put in place a number of administrative reforms to make the ESA work better, including broadening the focus beyond single species and enlisting the voluntary cooperation of state and private landowners.

The new administration should reinvigorate efforts to make the ESA more effective and user friendly, using the tools of habitat conservation planning and adaptive management and promoting stronger partnerships with state wildlife agencies and private landowners through the use of financial and other incentives. For instance, various proposals have been made to extend valuable tax credits to private landowners who enter into agreements with the government to protect and recover endangered species, one small part of which was included in the 2008-enacted farm bill.

Legitimate concerns remain whether, as currently written and funded, the ESA can stem the loss of biodiversity in a climate-disrupted world. Species particularly sensitive to climate destabilization are being brought under its protection, but some experts think the Act could be overwhelmed if its processes are heavily relied upon as a primary means of tackling greenhouse gas emissions. Numerous problems with the Act, including its focus on single species, its "emergency room" dynamic, its complex bureaucratic processes, and its lack of clarity with respect to habitat protection, have spawned repeated efforts in Congress to reform the Act over the past 15 years, all of them unsuccessful. The ESA focuses attention on the need to safeguard the planetary web of life upon which we all depend. The new administration must fashion ways of preserving it as a powerful symbol and an essential tool for protecting biodiversity.

New and clearer policies are needed regarding the use of federal lands for groundwater storage and supply projects; pipelines and other water conveyance facilities; and solar, wind, or other energy projects to help provide the large amount of energy needed to move water to where it is needed.

More broadly, the new administration should systematically review federal policies regarding whether and how much to charge for the use of federal lands and resources by miners, ranchers, recreationists, timber companies, utilities, and others. Federal policy on these fiscal matters is an incoherent hodge-podge, having evolved haphazardly over the years. It lacks a consistent

rationale for the kinds and levels of rents, royalties, and fees charged, and the methods of calculating them. Some exploiters of valuable federal resources such as hard-rock miners pay no rental or royalty at all. Federal agencies charge other users much less than state or private landowners charge in comparable settings. In recent years, federal agencies, spurred by legislation such as the Federal Lands Recreational Enhancement Act of 2004, have begun charging fees for camping and other recreational uses of federal lands, creating controversy and proposals for legislative reform. Adding to this confusion, revenues generated by such fees are used in widely different ways. Some go directly into the federal Treasury; others are earmarked for various purposes, such as the Land and Water Conservation Fund, but remain subject to congressional appropriation; and still others are put in true revolving funds where, for example, revenues from recreation fees are recycled to local land managers.

Clear, consistent rationales on these matters are essential for public confidence in the management of these publicly owned resources. The new administration should consider promptly convening a blue-ribbon task force to comprehensively examine federal land royalty, rental, and fee policies, comparing them as appropriate to policies followed by state and private landowners, and making recommendations for reform. This task force also could scrutinize fee-setting for such important emerging federal land uses as wind and solar generation projects, energy transmission facilities, groundwater storage and recharge projects, and carbon sequestration projects. Some potential fee reforms can be implemented administratively; the Mineral Leasing Act, for example, sets a minimum but not a maximum royalty rate for fossil fuels. Others, such as levying rents and royalties on hard-rock miners, require legislative action.

In recent years, Interior's royalty collection program, which in fiscal year 2008 collected more than \$23 billion (a sizeable proportion of which was sent to the states) from more than 2,000 companies producing from 30,000 leases on federal and Indian land, has been the target of substantial criticism from Interior's Inspector General and the Government Accountability Office. These agencies have charged that Interior's supervision is inadequate. Legislation may be necessary to restore the program's credibility and to ensure that the American people are receiving their fair share of the profits that private companies reap by exploiting enormously valuable public resources.

The Deep Water Royalty Relief Act of 1995 is of particular concern. It directed the department to waive royalties for companies producing oil and gas from deep water in the Gulf of Mexico in order to encourage development of deepwater extraction technology. Following its enactment, Interior began including a term in Outer Continental Shelf leases that limited such royalty waivers when the price of oil rose above certain levels, reasoning that higher oil prices eliminated the need for the incentive. Some OCS lessees persuaded a federal judge, in a decision now on appeal, that Interior lacked legal authority to cap royalty relief based on the price of oil. With oil prices at record levels and a large amount of oil and gas being produced in the deepwater Gulf, tens of billions of dollars are riding on the outcome of the court appeal.

Another law badly in need of reform, the Mining Law of 1872, governs precious metal mining on

several hundred million acres of federal land. It was crafted in the wake of the California Gold Rush, yet is remarkably still on the books. The mining industry views the law as giving it a “right to mine” that trumps all other uses and values of the federal lands. Miners remove minerals with few environmental controls, pay no rental or royalty fees, and sometimes leave the government to clean up gigantic messes at taxpayer expense. After many years of trying, a comprehensive reform bill passed the U.S. House in the fall of 2007 but died in the Senate. It may be pursued in the new Congress.

Many Interior Department decisions are channeled through a resource management planning process, by which federal land managers essentially “zone” federal lands under their jurisdiction for different kinds of uses and facilitate them through the environmental impact assessment process of the National Environmental Policy Act. Concern has grown in recent years that, rather than achieving better decisions, these processes have resulted in ritualistic paper-shuffling. The Interior Department should work with the Forest Service, the President’s Council on Environmental Quality, and other interests to craft and implement sensible reforms of the planning and environmental assessment processes. Making them work better is especially timely because new climate policies will likely require that federal land management agencies consider climate change mitigation and adaptation strategies in their decision making.

Interior should also work to reconfigure the Bureau of Land Management’s landholdings to meet emerging energy and economic needs. A considerable amount of BLM-managed land is held in awkwardly shaped or scattered tracts, shot through with in-holdings, or otherwise configured in ways that make management to serve national needs difficult. A tool with particular promise is the Federal Land Transaction Facilitation Act, enacted in July 2000. It authorizes BLM to sell scattered, difficult-to-manage tracts that have value for economic development and other useful purposes, and use the proceeds directly, without having to wait for appropriations from Congress, to buy in-holdings and other lands with higher conservation values. The new administration should work to reauthorize FLTFA, which expires in 2010, and keep the Act’s conservation orientation.

A longer-term priority is to reform federal wildfire policies. The number and destructiveness of forest and grassland fires has increased dramatically in recent years, especially in the arid West. The causes include a century-old policy of fire suppression, homebuilding in isolated locations, drought, and destructive invasions of pests such as the pine bark beetle and exotic species such as cheatgrass. Climate change will likely exacerbate this problem. The federal fire-fighting budget continues to skyrocket (more than half the Forest Service’s budget has been consumed by it in recent years), and the new administration will need to work with state and local governments, the insurance industry, and others to craft a more balanced approach to the challenge of wildfires. A range of tools need to be brought to bear, including more fire-resistant construction, “firewise” landscaping, fuel-load reductions like brush control and thinning, avoiding construction in certain fire-prone areas, and prescribed or controlled burns.

II. The following is a modestly edited version of a speech I delivered at the 2009 Annual Meeting of the Rocky Mountain Mineral Law Foundation.

Public Lands in the Obama Administration and Beyond

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[This is, reconstructed from detailed notes, my keynote address at the 55th Annual Rocky Mountain Mineral Law Foundation Institute, San Francisco, July 23, 2009. I've not included my introductory remarks or my jokes. Do not quote or copy without permission. I plan to publish a version of this in the upcoming 50th anniversary issue of the Natural Resources Journal, with modest footnotes acknowledging, where appropriate, sources for the ideas contained here.]

I want to take a broad and long look ahead at the future of the federal lands. We are in an era of change. The economic meltdown that began last fall raised many questions about the value of real estate, so it is not inappropriate to consider the value of the federal lands.

I want to make a case today that the changes afoot will lead to more fundamental alterations in public land policy than we can now imagine. In one sense this bold assertion may seem strange. After all, the "great recession" and many other pressing matters have pushed public lands issues far off the national radar screen.

Nevertheless, I think the nation's policy toward its federal lands is entering a pivotal period, and that if we make the right decisions, federal lands can be, as they have in the past, a crucial tool to meet unprecedented challenges. Doing so will, I believe, require major changes in policy, in law, in management, in the very location and configuration of these lands, and in the relation of the federal government to the states and to private landowners.

The overriding challenge ahead -- transcending all others --- stems from a destabilized climate. I will very briefly set out why it is a menace, and why we need to address simultaneously both the causes and the consequences of escalating emissions of greenhouse gases, or GHGs as the policy wonks call them. Then I will suggest how we can, and must, decisively enlist our federal lands to help control GHG emissions, and to manage them in more subtle and complex ways for climate adaptation.

First, a thumbnail sketch of federal lands. I hardly need to remind this audience that our national government owns

roughly one of every three acres of real estate in the country. In the western states, the proportion is often much higher.

In a nation where principles of capitalism, private property rights, states' rights, and local control of land use are deeply embedded, this is a truly remarkable fact. It is a vivid illustration of a fundamental irony in America -- that we have often asked our government to act vigorously, and it has responded, all the while we're exalting private property and the free enterprise system.

Our vast federal landholdings were largely an innovation of the Progressives, a powerful bipartisan movement that flowered from about 1890 to 1920. Progressives preached that government -- and by that they meant mostly the *national* government - should keep key natural resources in public ownership, and manage them to serve the broad public interest, using innovative public-private partnerships, guided by the teachings of science.

Indeed, their most prominent spokesperson, Theodore Roosevelt, put natural resources management at the very center of the Progressive Movement. How we manage these resources was, he said, "the fundamental problem" for, in his words, unless it was "solved," "it will avail us little to solve all others."

We enjoy the fruits of the Progressives' labors every single day, in ways we often take for granted. They launched the idea of permanently preserving large tracts of public land in America's world-renowned systems of national parks, forests, and wildlife refuges. They installed reforms so that public resources like fossil fuels and hydropower sites were no longer simply given to the private sector, but instead were leased to private interests for development under the watchful eye of government. To be sure, the Progressives had their flaws, but without their federal land policies our quality of life, especially here in the West, would be much different and, I would argue, much diminished. That payoff in improving people's lives is, I believe, the principal reason the Progressives' policies regarding federal lands have proved to be so enduring, stubbornly resisting repeated calls for large-scale divestiture.

Now, however, not only our vast public lands, but the nation and, indeed, the world, face major new challenges. Theodore Roosevelt's admonition that how we treat our natural endowment is the fundamental problem is now truer than ever. The biggest challenge stems from the fact that our nation's policies toward federal lands, and practically everything else, have been based on the *paradigm that climate in the future will generally be like the past*.

That paradigm is disintegrating. We face the prospect of a destabilized climate. Not only do as studies of tree rings and other fossil records of climate patterns over the last couple of millennia suggest we have enjoyed an abnormally

stable climate in recent decades, but there is now broad consensus that mankind's incessant emissions of GHGs are themselves destabilizing the climate. As Federico Cheever of DU law school has put it, since the dawn of the industrial age, civilization has been engaged in an ambitious, and incredibly successful, project to take as much carbon as we can out of the soil and geologic beds and inject it into the atmosphere.

Researchers recently reported that carbon dioxide levels in the atmosphere are now higher than at any point in more than two million years.¹ Many experts believe that, if GHG emissions are not seriously curtailed, the earth will by 2050 be hotter than it has ever been since human beings evolved a few hundred thousand years ago. Think about it: Our planet's climate could, within the life span of a considerable number of you, be outside the bounds of anything that human beings have ever experienced. By the end of this century, the earth could be hotter than it has been in 3 million years.

We are also beginning to grasp that this changing climate can change everything - sea levels, ocean currents, storm severity, precipitation patterns, runoff, agricultural and forest production, habitat for flora and fauna, the occurrence of upheavals like fire, drought and flooding, disease vectors, nutrient cycling, pollination, the migration patterns of humans, animals and plants, and so on. There will likely be a veritable cascade of multiple, interactive effects, the overall dimensions of which we cannot yet imagine.

Every few weeks, it seems, new studies provide clues about how complex these interactions can be. For example, one earlier this year suggested that dust storms may be occurring with more frequency, and they - and not just higher temperatures -- are substantially accelerating snowpack melting, leading to runoff weeks earlier than expected. Radically altered mountain snowmelt can disrupt the water supplies of millions upon millions of westerners.

To make matters worse, most new research suggests the effects could be much more severe than was thought likely just a few years ago. Indeed, many credible scientists think the earth has entered an era of relatively rapid environmental change that will result in conditions without precedent. "It's not just a problem for the future," Jane Lubchenco, distinguished scientist and new Administrator of NOAA, recently pointed out. "We're beginning to see the impact on our daily lives."

Needless to say, a destabilized climate poses a huge challenge. If we believe, as we must, that we have an obligation to leave a worthwhile legacy to succeeding generations, we must develop forceful responses to both the causes, and the consequences, of climate change.

Our options, as Presidential Science Advisor John Holdren has put it, are three: mitigation, adaptation, and suffering. To minimize the suffering, we need to mitigate and adapt.

Mitigation is policy-speak for limiting GHG emissions. There is a wide scientific consensus that we urgently need to do this if we are to avoid runaway, truly catastrophic climate change.

But we also need an adaptation strategy to deal with consequences as well as causes, because we've already committed, in effect, to some climate destabilization --- the GHGs we've injected in the atmosphere in recent decades will linger for a long time before they break down.

In short, in the words of a study by a UN-commissioned group of scientific experts, we must *try to "avoid the unmanageable and manage the unavoidable."*

Most Americans, myself included, are incurable optimists. President Obama's Chief of Staff Rahm Emanuel famously said shortly after the election that one should never let a serious crisis go to waste. A destabilized climate could be the mother of all crises. I therefore prefer to think that at this crossroads, we are faced with a series of exciting opportunities currently disguised as impossible situations.

While concern about the buildup of carbon in the atmosphere dates back several decades, appreciation of its implications for federal lands is quit recent. At the 46th Annual Institute nine years ago, when I addressed the broad topic of "public lands at the millennium," I did not say one word about climate change. I was in good company; Joe Sax gave a lecture on "Public Land Law in the 21st Century" the previous year, and likewise did not mention the subject.

Those innocent days are over. We now know that, because a destabilizing climate will change everything, it cannot help but change our federal lands policies. More specifically, there seems no doubt that our federal lands will play an important role in meeting the climate challenge.

This will hardly be the first time the nation's public lands will be called upon to help meet national challenges. Students of history, and I suspect there are many in this room, know they have often played important roles. Through homesteading, federal lands fueled the westward settlement. Federal lands helped endow and establish land-grant colleges. Federal lands were crucial in constructing transcontinental railroads that stitched the Nation together from sea to shining sea. They produced minerals to pay Civil War debts and feed the emerging industrial state. They

¹ B. Honisch et al., 324 Science, June 19, 2009.

produced wood to fuel the post World War II housing boom, uranium to fuel the atomic age, and oil to try to achieve energy independence in the wake of the oil embargo in 1973, and then again after 9/11. And federal lands have proven crucial in preserving our “crown jewels,” some of our most scenic and biologically rich natural places.

Before I sketch out some ways the federal lands can help meet the challenges ahead, a disclaimer: I will not be discussing what is traditionally a primary focus of this Institute – the role of federal lands in supplying fossil fuels like coal, oil, gas, and oil shale, as well as uranium and other metals to power our industrial economy. Many issues worthy of discussion at this and future Institutes are raised by these what might be called more traditional uses of the federal lands, and my not mentioning them is not intended to downgrade their importance, but simply to suggest that the issues related to green energy and adaptation I will discuss are, in contemplating the future of federal lands, much more game-changing.

First, on the mitigation side: Federal lands can make a major contribution to *avoiding the unmanageable* - curtailing GHG emissions. Large-scale efforts to develop renewable energy sources will inevitably use federal lands, perhaps in vast amounts, because they contain solar and wind and geothermal resources in some abundance. Many millions of federal acres have already been identified as having solar and wind energy potential, and such developments, especially solar thermal, tend to make more extensive and intensive use of more lands than coal mines, oil and gas fields, and fossil-fueled power plants.

Federal lands will also be used as sites for building a new national “smart grid” of electricity transmission, which is needed both to create a much more efficient, integrated national electricity network, and to service new renewable generating facilities, many of which will likely be sited beyond the reach of the current grid. Federal lands will also be sites for projects to geologically sequester carbon if “carbon capture and storage” technology develops. And federal lands will furnish opportunities to biologically sequester carbon through rejuvenating grasslands and forests, although there is considerable uncertainty about our ability to do and account for this in a useful way.

I will refer to all these collectively as “green energy” projects.

Green energy projects do not just loom somewhere over the horizon – this train is moving out of the station now. A few dozen sizeable renewable energy projects are already operating on federal lands. A new “gold rush” is developing, with several hundred applications pending with the BLM and the Forest Service to build more projects, helped along by the stimulus bill enacted into law in February, which made available more than \$ 6.5 billion for “green energy.”

Interior Secretary Ken Salazar uses the “moon shot” analogy to characterize the focused national effort required to move to a more carbon-friendly energy policy. He came into office vowing to make the Department of the Interior the “true Department of Energy” – sorry, Dr. Chu -- by rapidly expanding the use of federal lands for green energy. He promptly issued an order making it one of the Department’s “highest priorities,” and less than a month ago created “fast track” solar energy areas on BLM-managed lands, as well as special renewable-energy offices in key states to speed processing of applications. New energy bills now being developed in Congress also have various initiatives targeting federal lands.

In responding to this new gold rush, we could use a double dose of humility and history, considering how some well-intentioned policies of the past have left unhappy legacies. Nineteenth century federal land policy encouraged the draining of “swamplands” that we now know were ecologically invaluable wetlands. All-out efforts to promote mining have left debris and impaired water quality that will require billions of dollars to clean up. Our policy of doling out lands to railroads in a checkerboard pattern left some daunting economic, ecological and management problems we still grapple with today. Former Forest Service Chief Jack Ward Thomas, a salty sort, once grouched that “the SOB that invented checkerboard[ed land grant]s ought to be sitting in hell on coals roasting. For a very long time. ... Let’s face it: ecological systems don’t come in squares.”

Even Progressive-era conservation policy, enlightened though it was for its times, operated on the basis of what Joe Sax called, in his 1999 lecture, the “enclave theory of public land management” – the idea that specific lands were set aside for various interests, including conservation, without paying much attention to environmental values as a whole.

Our modern understanding of how ecosystems operate compels a larger view, and while federal policies are changing in this regard, change comes slow, because they can, once adopted, be notoriously “sticky” and resistant to change – witness the Mining Law of 1872.

Can this history of federal lands policymaking teach us anything useful today – or will it only let us recognize our mistakes after we make them again? How should we use federal lands for green energy projects?

One lesson of history is to guard against the tendency to hand out federal lands for green energy projects willy-nilly, without much consideration of the consequences for other values. Yet there is also reason for concern about the opposite problem -- namely, that needed development of green energy might be stymied by “not in my backyard” or

NIMBY opposition, which can easily slide into BANANA, “build absolutely nothing anywhere near anybody.” NIMBY-ism is often used pejoratively, but it reflects a legitimate and powerful concern with local quality of life and attachment to place. Today most every federal acre has friends with some political or litigating power – ranchers, hunters, anglers, hikers and others who do not hesitate to advocate for preserving a quality of life bound up in the open spaces federal lands provide. Many have developed deep attachments to these landscapes.

To the extent these advocates deploy familiar litigation tools like NEPA and the ESA and federal land planning and management laws to slow down or stop green energy developments on federal lands, they put green energy on a collision course with these bedrock conservation laws.

Resolving these conflicts will not be easy, but I will offer a suggestion a little later for reducing them.

Secretary Salazar’s recent initiative regarding solar energy on BLM land is a step in the right direction. The national government needs to work in close cooperation with state governments to be pro-active in the process for siting renewables and transmission lines, and not simply react to proposals from the private sector. Some good work has already been done in this regard by the Western Governors’ Association and others, to identify areas of high potential and lower conflict with other uses and values. It may be that such conflicts can best be avoided by concentrating rather than spreading such developments out across the public lands, and collecting into corridors transmission lines to service them wherever possible. This is already encouraged if not required by existing law. Minimizing conflicts is usually simply a matter of cost; the question is in each case how much cost is appropriate.

Also, the government ought to consider at least experimenting with auctioning off sites for green energy facilities, with competitive bidding. This has worked well for fossil fuels onshore and offshore. It ought to take steps to enforce a use-it-or-lose-it principle so that green energy applicants do not stockpile permitted sites for speculation. Some of these green energy facilities will likely be relatively exclusive and permanent uses of federal lands. Therefore the government might experiment with different tenure provisions; for example, auctioning off some sites in time-limited permits, and others in fee simple conditional, with a reverter back into public ownership once the use ends and the land is reclaimed.

While a case can be made for the government subsidizing some emerging green energy industries until the technologies mature, I’d argue strongly that subsidies not take the form of free or reduced-cost access to federal lands. The principle that every public land user should pay the public owners of these resources fair market value is a very important one to protect. Any subsidy should be in a form like generic tax credits that does not tilt the playing field toward the use of public and away from private land. Green industry should make market-based payments to the government for its use of federal lands, just as it would to private landowners.

An ambitious and aggressive agenda to use federal lands to help us “avoid the unmanageable” by limiting GHG emissions makes up only the first half of the federal lands agenda to help deal with the climate challenge. We must also formulate strategies for using federal lands to help us “*manage the unavoidable*” -- because the climate will likely destabilize no matter how fast the world brings GHGs under control.

Adaptation is, I suspect, going to be a harder nut to crack. Capping carbon is a daunting challenge to the political will, to be sure, but it responds well to the political impulse to want to build our way out of a dilemma. It is tangible. Its promise of new jobs can be readily grasped. It can be done for profit, and thus attracts private as well as public investment. Moreover, we generally know what must and can be done.

Climate adaptation is, by contrast, subtle, unglamorous, and emphatically difficult. Its benefits are more intangible and elusive because we don't yet know much of what we'll need to know to do it wisely. It will require a lot of investment in information-gathering and science, which can probably come only from public funds. It will engage different institutions, require different skills, and be driven by different pressures, from those building a green energy economy.

While we have some idea what might be ahead, we do not yet have the tools – fine-grained models -- to predict with confidence how the climate will change in particular locales. Some broad-scale trends are emerging, however. We are becoming more aware, in the arid West where most federal lands are found, of growing climate-related problems of fire, drought, and insect infestations. From 1970-2000 the western fire season lengthened by 78 days, and the burn duration of large fires quintupled. The current bark beetle outbreak in the west – which has killed close to 8 million acres of trees, and which many scientists think is climate-related -- is the largest in recorded history, and is effectively converting the forest from a carbon sink to a carbon source.

Dramatic events like wildfire, hurricanes, and floods make the nightly news. Less noticed, yet more permanent, is the ongoing silent erosion of diverse life on the planet. Civilizations can recover from sudden catastrophes in a meaningful time frame, but, famed Harvard naturalist E.O. Wilson has said, the one ongoing development that “will take millions of years to restore is the loss of genetic and species diversity,” and that, he says, “is the folly that our descendants are least likely to forgive.”

Climate destabilization will accelerate loss of biodiversity in ways that will likely eclipse conventional threats like bulldozers, chainsaws, and dams. It alters habitats and changes the timing of seasonal events such as snowmelt and insect emergence. It could dry out prairie potholes and arctic wetlands that sustain most of the world's migratory

birds. Such often silent, invisible, and irreversible impacts lead many scientists to believe that, by the middle of this century, one-third to one-half of the plants and animals now found on earth may be extinct.

Nature's loss is our own. Beyond the moral dimension of preserving as much of creation as we can, Joseph Wood Krutch made the case for self-interest in this regard: "it is not a sentimental but a grimly literal fact that, unless we share the planet with creatures other than ourselves, we shall not be able to live on it for long." The changes in the offing will likely undermine what economists call "ecosystem services;" the myriad of ways – from cushioning floods to cleansing water to pollinating crops -- the natural world supports and protects the quality of human life. The bark beetle outbreak, for example, is concentrated in the headwaters of the Colorado River, and it does not take much imagination to see how it can threaten the River's intensively-used supply by accelerating runoff and erosion and silting up downstream reservoirs.

Federal lands already contain some of our most diverse and intact ecosystems. They can play a key role in making sure our lands and natural resources have "resilience," as defined in the Waxman-Markey climate change bill that recently passed the House; namely, the "ability to resist or recover from [climatic] disturbance [so as to] preserve [their] diversity, productivity, and sustainability."

Here are some first thoughts about the kinds of adaptation steps that probably need to be taken over the coming years.

First, climate adaptation must become a central part of the statutory mission of each federal land and water management agency. At least on paper, this would require no great leap. After all, the 1916 Organic Act directed that National Parks be managed in such a way as to "leave them unimpaired for the enjoyment of future generations;" a 1960 statute directed the Forest Service, and a 1976 statute directed the Bureau of Land Management to achieve "sustained yield" and "maintenance in perpetuity" of renewable outputs of the lands under their care, "without impairment of the productivity of the land;" the 1964 Wilderness Act called on America to preserve the "natural conditions" and retain the "primeval character and influence" of designated wilderness; the 1976 National Forest Management Act spoke of providing for the "diversity of plant and animal communities" on the national forests.

Second, even with legal mandates to act, however, federal land agencies will face difficult tactical decisions like, what shall we do with Glacier or Joshua Tree National Parks if the glaciers melt and the Joshua Trees die off, as some think may happen within the lifetime of people in this room? What shall we do about Everglades restoration in the face of rising sea levels? This is not nearly as simple as merely managing land and resources to protect them

“unimpaired” retaining their “productivity.” We must move as fast as we can to gain the knowledge needed to make such decisions intelligently. This means gathering more information, conducting more research, developing better models, and so forth so the agencies have the tools to take on this task. Under the leadership of Deputy Interior Secretary Lynn Scarlett late in the Bush Administration, and Secretary Salazar, Interior has climate change task forces at work on these important first steps. Money will also have to be found to do all this, a matter to which I will return shortly.

Third, some adaptation strategies seem fairly obvious and rather conventional. For example, federal lands can be used as storage sites for surface and ground water, to buffer against prolonged droughts and loss of snowpack that are likely in our future. The idea of adaptive management – learning as we go and adjust – has already become a kind of mantra for managing many federal lands. This flexible, nimble approach will likely need to be put on steroids for the challenges ahead.

Fourth, even while we continue to expect from our federal lands many of the things they have traditionally provided – timber, minerals, opportunities for hunting, angling, other forms of recreation -- our federal lands will be called upon to anchor or form the core of a system of ‘biological reserves’ or “climate havens” – a carefully designed network of large, relatively undisturbed areas. This is not a new idea; it was advocated long before the climate challenge emerged, as humans spread across the landscape and good habitat shrank. Such a network might save a relatively large number of species, and could also serve as control plots for studying how nature reacts to the changes underway.

Fifth, it seems clear that federal land “reserves” will not by themselves be able to do the job that needs to be done. Other lands, federal and non-federal, will need to be enlisted to maximize the potential of biodiversity and ecosystem services. Maintaining a “connective tissue” of migratory corridors can give ecological communities a chance to advance or retreat across the landscape, within the constraints of evolutionary speed limits. If climate changes faster than species can move, we may have to contemplate “assisted migration” or “managed relocation,” where species are taken to a different part of the world with a more suitable climate to survive. There may be a fine line between unwanted and disruptive “invasive” species and these “translocated” species, but drawing that line may be just one of many philosophical conundrums we may have to confront in the future.

Sixth, just as some species will migrate in the face of climate change, our federal lands may have to migrate as well. Federal lands are not always in the best locations to meet the adaptation challenges ahead. For one thing, they are not always found where biodiversity is richest and most prevalent. Most of our great national parks, for example, were established more for scenery than for protecting biodiversity. Most federal lands now managed primarily for conservation are concentrated at higher altitudes, with thinner soils and fewer species. Many rich riparian ecosystems

are not on federal lands. And some that are, like coastal wetlands that anchor many national wildlife refuges, may find themselves rendered useless by rising sea levels. A successful adaptation program will probably need to “reconfigure” or “realign” the pattern of federal landholdings. In some places, for example, we will need to reconnect federal lands in the headwaters with downstream areas acquired into federal ownership with ecological functioning restored.

Seventh, to help drive, and fund, this biologically and adaptation-driven reconfiguration, we may need to divest ourselves of some federal lands, by exchanges or outright sales. This is not a call for another “sagebrush rebellion.” But just as Rachel Carson did not oppose all pesticides, only their indiscriminate excess, so it cannot be heresy to say that not every acre of the vast federal domain has to stay in public ownership. If divestiture – to green energy developers, to housing developers, or to others – makes sense from a biological and fiscal standpoint, and will help meet the climate challenge head-on, it will need to be considered.

For most Americans, federal lands seem to be one of those areas of life – like education, religion, decisions about marriage and having children – where we do not expect the market to fundamentally guide our decisions. The essential question is not quantitative – how many acres the public owns---it is qualitative: Where should these lands be, what attributes and characteristics should they have, and what values should they serve? To paraphrase President Obama’s remarks about government in general in his inaugural address, the question is not whether the government owns too much or too little land; the question is whether the government owns the right land, the land it needs, in order to meet the challenges of climate destabilization.

An overarching federal lands strategy requires intensive efforts on both the mitigation and adaptation sides of the climate equation. But the two initiatives need to be closely linked. That is, federal land policy should simultaneously, and in a coordinated fashion, connect green energy deployment with adaptation efforts. I think this is, for several reasons, absolutely crucial if we are to have hope of meeting the challenges ahead.

For one thing, we don’t want these efforts to work at cross purposes with one another – we don’t want green energy to thwart adaptation, and vice versa. While green energy is highly desirable, the green energy business is still, at bottom, an industry looking for the lowest cost way of doing business. “Just because it’s clean doesn’t mean it’s green,” is how one wildlife advocate puts it. Green energy projects cause impacts on the landscape and on wildlife that need to be offset or mitigated. Conserving other federal lands for adaptation can help mitigate some of these impacts.

Another reason to connect mitigation and adaptation is frankly political. As I suggested earlier, building a green energy economy has much more political “oomph” than adaptation. The need to adapt, while no less urgent, is much less widely appreciated and harder to do.

Equally important, the intelligent coordination of climate mitigation and adaptation on public lands will require public money, for research and information-gathering, for acquisition and for management. This, I believe, is where the linkage of green energy to adaptation is essentially. Simply put, the move to a green energy economy needs to be done in such a way as to help underwrite the costs of adaptation. One way to do this is to dedicate at least a portion of federal revenue derived from siting green energy projects on federal lands to adaptation measures.

Finally, packaging adaptation with green energy deployment can also help reduce NIMBY-based opposition to the latter. It won’t eliminate it, but providing conservation mitigation for the impact of green energy can blunt the effectiveness of NIMBY arguments, and could also make any package that might, for example, include shortcuts through environmental laws like NEPA more palatable. In short, green energy facilities packaged with biodiversity reserves or new federal conservation areas might be a winning political combination as well as good for the planet.

Happily, combining mitigation and adaptation has had some political traction. A recent report by a bipartisan panel of experts, the Outdoor Resources Review Group, recommended that any GHG reduction program include funding to adapt lands and waters to the ecological impact of climate change. The Waxman-Markey climate bill that passed the House last month dedicates a small portion of expected revenues from the “cap and trade” program it would create to fund adaptation measures. Even if enacted this would, I suspect, be only a down payment on what is likely needed along these lines in the years to come.

Now let me step back a little for an even broader view. Because climate is the quintessential phenomenon that does not respect political boundaries, it is only natural that the challenge of adapting to a destabilized climate will call those boundaries into some question. It’s a planet-scale problem and will require planet-scale response. More international cooperation will be required than ever before achieved in human history if this challenge is to be met. At a more micro-level just within the U.S., we will have to “scale up” our thinking beyond narrow and conventional boundaries. We will have to find ways to collaborate across the walls that separate federal land managing agencies from each other, and separate them from state and local jurisdictions, and we have to take a closer look at the line that divides public and private land.

In recent years all these boundaries have been blurred anyway. The slow decline of the “enclave” principle of federal land management means that land managing agencies do not have quite the distinct, dissimilar missions and cultures they once had. Management of practically all federal lands has for some time been evolving to serve the broader

needs of preserving some measure of biodiversity. Adapting to a destabilized climate will have to accelerate that evolution. The existing land and resource planning process that all federal agencies use will likely need reforming. But the managing for adaptation will not be easy; it is more like surfing, where the waves are constantly moving under your board, than snow skiing.

The line between federal and state responsibilities and management has likewise blurred somewhat over recent years, as the federal government and the states have found more common purpose in many areas of natural resource management. And lines between public and private lands have blurred, especially as more and more private lands are managed with a public overlay. Consider the proliferation of habitat conservation plans, which now cover many millions of acres of (usually private) land and burdens them with development restrictions, sometimes over very long terms (a century or more, terms that in hindsight reflect unwarranted optimism about our ability to forecast the future), in order to comply with the Endangered Species Act. Or consider the astonishingly rapid acceptance and proliferation of taxpayer-subsidized conservation easements, where rights to develop private land are separated from other attributes of ownership and held for conservation purposes, giving them a kind of public character.

To be sure, reconfiguring federal lands to meet the needs of green energy and adaptation sound daunting. But we have done something like it before, with considerable success. In reaction to America's early history of fast, furious and sometimes careless land disposal, the turn-of-the-20th-century Progressive Movement not only decided to keep hundreds of millions of acres of land permanently in federal ownership, but also launched the Nation's first significant program for acquiring large tracts of private land into national ownership. Under the 1911 Weeks Act, the national government bought up cutover watersheds in the east and south and midwest, to combat floods and build landscape resilience. Although the term was not then in use, these lands were acquired, in other words, to restore their "ecological services." These and related Progressive programs gave us the national forests now found in New England, the Midwest, and South, national parks like the Great Smoky Mountains, Shenandoah and Acadia, the national grasslands in the Great Plains, and dozens of national wildlife refuges across the country. Progressive-era acquisition programs have continued; indeed, in the last couple of decades the U.S. government has acquired many millions more acres for conservation purposes

Nor is it a new idea to use revenues from the use of federal land for green energy to help underwrite the costs of mitigation and conservation. That simply reflects a principle that Stewart Udall championed and Congress embraced in the Land & Water Conservation Act of 1965 — under which revenues derived from developing federal offshore oil and gas resources are devoted to public land acquisition, conservation and related programs.

One may very well ask whether, given the deep economic recession now underway, the political will can be mustered to address these challenges to federal lands. Because our current economic distress has often been described as the worst since the Great Depression of the 1930s, it is appropriate to examine the conservation record of Theodore

Roosevelt's distant cousin, Franklin. When FDR took office, the nation's rural areas had been in a severe depression for a decade, and drought had led to the famous Dust Bowl in the middle West. Indeed, major dust storms brought western soil to the steps of the Capitol in Washington D.C. in the late Spring of 1934, prompting Oklahoma Senator Gore to remark it was the "most tragic, the most impressive lobbyist, that [has] ever come to this Capital."

America called upon FDR to respond forcefully, and he did, on many fronts. He created the Soil Conservation Service and the Civilian Conservation Corps. He multiplied and accelerated reforestation, restoration, and federal land acquisition efforts. At the same time, he forcefully intervened to protect some national land treasures from inappropriate development. In short, economic meltdown and national crisis led to more federal land acquisition and conservation, not less. If one thinks of climate destabilization as our generation's Dust Bowl, albeit on a global scale, FDR's model of vigorous action, using federal lands as a key tool, is well worth emulating.

-----Conclusion-----

Like the threat of nuclear war that emerged several decades ago, climate change presents a crisis unlike any that has ever preceded it. The challenge to federal lands is enormous, a kind of microcosm of what America, indeed all humanity, now faces. As federal lands are enlisted in the crusade to meet the challenge, much about these lands – where they are, how they are managed – will change, just like our post-industrial society will change.

My hope, and expectation, is that we will, in facing down this challenge, find ways to overcome historic antagonisms that have divided development interests and conservation interests. We are truly all in this together.

In some fundamental way, TR and the other Progressives understood the powerful connection between federal lands and the larger society. They built on an idea of Ralph Waldo Emerson's; namely, that "the views of nature held by any people determine all its institutions."

They had a kind of basic faith in the power of federal lands, properly managed, to shape our character and our identity, to connect us as a people, and to make us and our society better.

Morris Udall, one of the most revered members of Congress in the last century, adept at working across party lines and, not incidentally, a giant of public land policy, once said: "Politics and issues come and go, but in the end we'll all be remembered for the way we treated other people." Profoundly wise words, but I will be cheeky enough to add an addendum -- and I don't think Mo would object - that we will also be remembered for the way we treat the federal lands.

The magnitude of the task suggests that we need a second coming of Theodore Roosevelt to meet it. Is Barack Obama ready to assume that mantle? It is interesting that, when he signed landmark public lands conservation legislation into law about three months ago, President Obama quoted TR, as follows:

“I recognize the right and duty of this generation to develop and use the natural resources of our land; but I do not recognize the right to waste them, *or to rob, by wasteful use, the generations that come after us.*”

Our current economic structure has been described as “cannibalizing the future to provision the present.” Planners are comfortable using a discount rate to weigh present against future investments. But on matters of climate policy, discounting the future seems to me essentially to be telling our children they are worth less than us. This cannot be.

Like TR and the Progressives, we must once again embrace large federal landholdings as a shared patrimony, a fragile and precious heritage which binds us to our ancestors, and which we in turn hold in trust for future generations. It is our heavy responsibility to manage these assets wisely, so that they continue to serve generations to follow, just as they can help us overcome the crisis we face today.

As I said earlier, I am, like most Americans, an optimist. There is a lot we can do. But there is much to do, and no time to waste. The choice before us, as President Obama has said, is “not between saving our environment and saving our economy; it’s a choice between prosperity [in its broadest sense] and decline.”