
CHAPTER 1

PUBLIC LAND LAW: AN INTRODUCTION

A. THE FIELD OF PUBLIC LAND LAW

The full extent to which the U.S. government owns or controls land and other real property is astounding. Americans are generally familiar with the flagship national parks, the “crown jewels” of the federal land holdings. Those who have gazed into the Grand Canyon, marveled at the natural wonders of Yellowstone, or found incomparable beauty in Yosemite Valley may have breathed a prayer of thanksgiving that some of our predecessors had the wisdom to protect those unique areas for future generations. But the national parks are merely the tip of the federal iceberg: they account for only a part of the lands managed by the National Park Service, which in turn are only about 12 percent of the nation’s total federal land. Many people may have visited national forests without realizing that they are in a management system separate from the national parks, the responsibility of a different agency (the U.S. Forest Service) in a different cabinet department (Agriculture rather than Interior).

Only in the West and in Alaska are the existence and activities of the Bureau of Land Management (BLM) common knowledge, but this little-publicized agency controls more federal land than any other, nearly one-tenth of the total national land surface. Most citizens also are at least vaguely aware that a variety of federal agencies own land for some purpose, from post offices to reservoirs, from military forts to wildlife refuges, and from atomic reactor sites to office buildings. In all, the United States owns the complete suite of (fee simple) property interests in about 633 million acres, or about 28 percent of all land in the country. The United States owns an additional 60 million acres of subsurface mineral rights underlying state and private lands. And, the federal government asserts sovereignty over the resources of the outer continental shelf, nearly 2 billion acres generally extending out from 3 miles offshore.

Public land law is at the core of the history of national economic development, but it encompasses far more than mundane legalities. Federal land policy impelled homesteaders to seek new lives, validated gold rush mining claims, brought about the range wars, and helped justify construction of massive water projects in the West. Even today the livelihoods of pipeline roughnecks, subsistence hunters, loggers, cattle barons, mineral prospectors, and other latter-day rugged individualists remain intertwined with public land law. Contemporary concern over the uses and abuses of the public lands and natural resources goes much deeper than interest in romantic exploits. Lord Macaulay long ago noted that the true test of American institutions would come when the free public domain was exhausted and an increased population competed for ownership of the land and its depleted resources. That time has long since arrived, and the

competition is intense. The controversies, large and small, that contribute to the growth and direction of federal land and resources law provide some of the most entertaining and informative studies in all of legal literature.

The scope of public natural resources law is often described with reference to the “public domain,” which sometimes refers collectively to all lands and mineral rights owned by the federal government. But, the term is also employed more narrowly to mean lands transferred to the United States from foreign countries in treaties, such as the one ending the Mexican American War. This narrower usage distinguishes the public domain from “acquired lands,” which the United States has purchased from states or private owners. This distinction has little current legal significance. One also encounters references to “federal lands” and “public lands.” These are also ambiguous terms unless specifically defined. The former often refers to all lands or interests in lands owned by the United States, and the latter is sometimes used to refer just to those lands managed by the Bureau of Land Management. Just as often, the two terms are synonymous. Congress has not been consistent on the matter. For instance, the Federal Land Policy and Management Act defined “public lands” as those managed by the BLM, [43 U.S.C. § 1702\(e\)](#). But in other statutes, Congress defined “public lands” to also include the national forests, *e.g.*, [16 U.S.C. § 1332](#). In its 1970 Report, the Public Land Law Review Commission employed “public lands” to describe all federally-owned areas, including national parks and wildlife refuges. We use these terms interchangeably here, unless we indicate a specialized meaning. Finally, we do not consider federal or public lands to include lands owned by the United States in trust for Indian tribes or individual Indians. While technical title is in the United States, these lands are subject to a wholly different body of law and are generally excluded from the statutes, statistics, and courses pertaining to federal public lands.

This book is organized around the concept that certain resources—even intangible ones such as preservation—are public, and that the law expresses and is guided by the interests of the public. Through its elected representatives, society professes to see virtue in many things; for example, it wishes to have both energy production and wilderness preservation. Decisions as to how individual tracts of public land will be managed must be determined through such competing impulses. As the country and its economy have changed radically over the years, the issues and forums of public land disputes have likewise changed. But the public lands are not clean slates. One cannot understand why more acres of federal lands are used for livestock grazing than any other single use except recreation without knowing the economic, geographic, and legal circumstances under which the interests of ranchers developed. Public natural resources law is distinctive in the way these interests endure, shift, and compete in particular places.

It took the United States a long time to fully embrace the notion that large tracts of federal lands should be retained in federal ownership and managed by federal agencies for the general public interest. For more than a century after the American Revolution, public land law existed basically to facilitate the disposal of federal lands and resources into state and private hands, through thousands of statutes.

These were, in turn, interpreted and applied in thousands of court cases, administrative rulings, and agency regulations.

Starting in the late nineteenth century, the nature of public land law changed as the United States began reserving tracts for permanent federal ownership. From a single-minded emphasis on disposal of federal property rights, public land law grew to mean those statutes, rules, practices, and common law doctrines that define who has a right to use a parcel of federal land or its tangible resources. Over the course of the following decades, public considerations began to overshadow the central place of private rights, private disputes, and private law as components of overall public land law. Today's natural resources lawyer must be conversant with such subjects as planning, environmental impact analysis, ecology, recreation management, geology, and public administration. Effective advocacy requires lawyers to be persuasive before courts, administrative tribunals, public agency managers, the media, legislatures, economic coalitions (such as chambers of commerce), and public interest groups.

The search for the proper balance among competing public interests in managing public resources presents huge challenges. A modern public land dispute may arise in many forms, such as:

- should cattle, or wild horses, or elk, be removed from an overgrazed tract of public land?
- what role should climate change mitigation and adaptation play in management of federal coal deposits?
- what considerations, especially ecological and economic, govern whether to sell timber from a national forest?
- should off-road vehicles be banned from certain areas?
- how should an agency balance wildlife protection with development of oil and gas or renewable energy resources on federal land?
- should designation of an area of federal land for wilderness or other conservation protection limit the operation of state water law?
- should a road to a potentially valuable gold deposit on federal land be located in an area used by grizzly bears for denning?

But, in every such case, the initial inquiries are the same: Where lies the public interest? Who decides where it lies in particular situations? What are the legal and practical consequences of the choice?

Preconceptions of the public interest are hazardous to mental health. To ardent wilderness advocates, wilderness preservation is one of the highest endeavors of organized society. But potential wilderness areas may have supplied the lumber that built wilderness advocates' houses, the materials with which their vehicles are built, and the fuel that allows them to travel. Few who complain of pollution from the local utility generating plant would readily give up air conditioning altogether. On the other hand, those who espouse production over all else have an equally narrow perspective. Fossil fuel use threatens to wreak havoc with the climate. There are points of diminishing returns: the oil burned or old growth timber cut now will not be available in ten

or twenty years to fuel even more expansion for us and for our descendants. Further, as society grows richer, it values more than ever things that cannot be readily measured in the marketplace. Many more people now prefer to watch birds than to hunt them. Legislation has gradually come to reflect these public preferences. More and more lands have been designated for conservation, recreation, and preservation.

Seemingly bilateral questions, such as whether a ski resort should be developed on public land, play out with many stakeholders besides the developer and the federal agency. Stakeholders assert their interests not only through property claims, but also through statutory standards, regulatory requirements, and political pressure. Resource management disputes generate seemingly strange alliances. For instance, when a large coal slurry pipeline was proposed to send Wyoming coal to Louisiana, common cause was joined by environmentalists, ranchers (fearing the shipment of scarce western water), and railroads (fearing the loss of lucrative shipping contracts). Traditional ranching is increasingly giving way to hobby ranching, where people of some means are seeking a lifestyle dependent on the amenities provided by nearby federal lands. Private landowners have risen up in litigation against new mines or logging operations, partly reflecting “not in my backyard” (NIMBY) attitudes. Allied to landowner attitudes is a new aggressiveness on the part of non-consumptive economic users of public lands. Resorts, guides, river outfitters, and backpacking equipment manufacturers, to name a few, have resisted many development activities to protect recreational resources. Their trade associations have joined those of more traditional commodity users to jockey for influence. According to some estimates, twice as much economic activity is generated by the outdoor recreation “industry” as by mineral development. President Obama’s second Secretary of the Interior, Sally Jewell, ran the commercial enterprise of Recreational Equipment, Inc. (REI).

Many of the largest changes have come about through institutional strategies and actions by environmental organizations. Among the most active and effective organizations are groups like the Sierra Club, whose names adorn many of the cases in this book. Other organizations, such as the Pacific Legal Foundation and the Mountain States Legal Foundation (where conservative Interior Secretaries James Watt and Gale Norton earned their spurs), are financed by industries and libertarian foundations to advocate free market principles and private property rights.

Some powerful economic interests have large stakes in the direction of public land policy. Companies extracting fossil fuels have paid billions of dollars for mineral rights on federal land. Public utilities rely upon federal fossil fuels, federal dams for hydroelectric power, and federal land for siting generation and transmission facilities. Timber companies still harvest hundreds of millions of board feet of timber from national forests annually, and many small communities are dependent on such harvesting. Large hospitality companies hold concessions to serve visitors in national parks.

Federal land management agencies generally mediate public natural resource conflicts. Congressional directives have often held out little concrete guidance, but bristle with procedural requirements and

layers of planning. Diverse stakeholders argue that their conception of the public interest should prevail and all sides are willing to resort to litigation or political processes if dissatisfied with agency decisions.

We believe that the student should know how legal rules are fashioned, as well as what they are. In fact, the law in this area is always in flux. Although the final determination usually resides in Congress, checks and balances proliferate here as they do in other areas of law. Each of the three branches of government has some power to alter or upset the result reached in another branch, and state law also often needs to be taken into account.

In the twenty-first century, traditional conflicts over resource development are being supplanted to some extent by controversies growing out of competition among different kinds of recreationists (e.g., off-road vehicle users versus hikers), and conflicts between recreationists and preservationists. Climate change is not only becoming more relevant to agency decision-making, but also making implementation of existing law more complicated, and even calling into question many of the statutory goals of natural resource programs. The enormously rich history of public land law and policy suggests that as the environment changes, so do the public's values. And, those values are, in turn, inscribed on the landscape through public natural resources law, which begins a new cycle of shaping American society.

Robert L. Fischman, What Is Natural Resources Law?

78 U. Colo. L. Rev. 721 (2007).

Natural resources law is a field with divided loyalties. It has one foot in statutory, administrative law and the other in common law property. Within the ambit of environmental concerns, management of natural resources looms large. It can justifiably claim an important role in any course of study in environmental law. Similarly, any advanced property curriculum ought to consider the myriad forms of rights and allocative schemes in natural resources law. Yet, many practitioners and professors identify themselves as specialists in the field of natural resources, rather than in a natural resources sub-specialty of environmental or property law. * * *

[There are] * * * four attributes that justify separate pedagogical treatment of natural resources law as an independent course in law schools. First, the *in-situ* character of extractive activities that dominate natural resources law raises special problems and generates place-based approaches to governance. Second, the deeper roots of natural resources law present particularly vexing interpretive issues for applying the old statutes, deeds, and doctrines to contemporary conflicts. Third, ecosystem management is central to natural resources law problems. Fourth, despite the now-paramount importance of administrative tools, natural resources law still displays a broader array of property interests that go beyond the variations studied in the first-year property class.

In his 1981 introduction to a symposium on trends in natural resources law, Professor David Getches described four rationales for offering a natural resources law course. First, the subject brings together doctrines from diverse fields, such as constitutional law,

administrative law, property, regulated industries, and federal courts. Second, it applies fundamental legal skills, such as statutory interpretation and analytical reasoning. Third, it embraces a wide range of social and ethical concerns. And, fourth, it requires students to understand the relevance of non-legal disciplines such as economics and geoscience.

While Getches' justifications for a natural resources law course remain compelling today, they fail to differentiate natural resources law from many other subjects, especially environmental law. * * *

EXTRACTION VS. PROCESSING AND DISPOSAL

Perhaps the most obvious difference between a natural resources law class and an environmental law class concerns the subjects of the disputes. Natural resources law focuses mostly on extraction and primary production of goods and services. It is about the stuff of consumption. In contrast, environmental law focuses on secondary processing, transportation, manufacturing, and disposal. It is more about the unwanted side effects of consumption. * * *

Two attributes are important in understanding why extraction generally highlights different issues from the processing/disposal concerns at the heart of the conventional environmental law class. First, natural resources are largely fodder for transformation, and their value is principally utilitarian in what they will serve in their next incarnation. * * * There is some interesting theory but little resource management law based on the type of intrinsic valuation we assign to humans in other areas of law. We may ask of an endangered fly, "what is it good for?" in natural resources policy, but we don't accept the same question as a basis for justifying the value of people ("what good are you?").

Natural resources law is dominated by this "resource-ist," utilitarian approach rather than by a naturalist intrinsic value approach. Indeed, the "natural" in "natural resources" law may be optional. * * * When the Republican Party took control of the U.S. House of Representatives in 1995, the first act of the newly installed chairman of the House Committee on Natural Resources was to remove the word "Natural" from the title of his committee, in an attempt to remove any taint of intrinsic valuation from the committee's business. For Committee Chair Don Young, "natural" connoted the "nonsense upon stilts" of natural law and the preservationist strain of conservation personified by John Muir. [Eds: When the Democrats recaptured the House in 2007, they reinstated "natural".]

The second significant attribute of the extractive character of natural resources disputes is that they generally involve problems *in situ*. Unlike factories, roads, or even landfills, there is little choice about where to locate a mine, a scenic trail, or a fishery. As mining companies are wont to say about minerals, natural resources are where we find them. In that respect, natural resources law gets at land use much more directly than does environmental law. Control of soil disturbance, management of habitat, and conservation of traditional patterns of land use are among the most difficult problems the law faces. Because private land use control is the last outpost of near-exclusive state/local

control, there are a host of special federalism issues and approaches that arise as a result.

Though federalism is a staple of environmental law, its manifestation in natural resources law offers a different, broader approach to the inducements that spur states to align their activities with federal goals. In environmental law, cooperative federalism is narrowly circumscribed around state permitting and standard setting overseen by the federal government to assure compliance with national minimum criteria. Natural resources law employs a wider array of cooperative tools, including place-based collaboration, state favoritism in federal process, and federal deference to state process.

INTERPRETIVE TECHNIQUES

Professor Dan Tarlock has observed that environmental law possesses a lush canopy but shallow roots. In contrast, old statutes deeply influence contemporary natural resources law. Important examples include the R.S. 2477 law of 1866 authorizing the disposition of rights-of-way, the 1885 Unlawful Inclosures Act limiting obstructions to public land access, and the 1872 general mining law. In Charles Wilkinson's phrase, these "lords of yesterday" present peculiar problems of statutory interpretation.

For instance, natural resources law emphasizes how courts interpret old statutes in light of new circumstances. Some decisions [eds.: these cases are discussed in Chapters 7 and 9 of this casebook], exemplified by *Union Oil v. Smith*, interpreting the 1872 General Mining Law, employ great flexibility in modifying seemingly strict statutory language to fit social policy or longstanding practice. * * * Other decisions, exemplified by the *Monongahela* ruling interpreting the 1897 organic act for the Forest Service, hold fast to strict textualism, despite its harsh consequences. The *Monongahela* decision suspended a substantial part of the Forest Service's longstanding logging program because it accommodated modern clear-cutting practices, such as marking boundaries of sale areas rather than each individual tree, at odds with the literal terms of the 1897 organic act. The juxtaposition of two interpretive approaches to statutes based on antiquated resource management methods is a much better fit for natural resources law than environmental law.

The problem of modernizing old statutes is seldom at the center of environmental law disputes. Therefore, it provides a justification for a separate natural resources course. In addition, the natural resources curriculum offers students a range of materials other than statutes and regulations that present their own special interpretive problems. Old patents, or deeds, present similar problems for determining how resources that were not valued at the time of the transfer should be treated today. * * *

Another interpretive tool, economic analysis, seeks to understand law in terms of incentives for behavior and efficiency of results. However, natural resources economics differs significantly from environmental economics in the way it treats changes in resource value over time, or "path-dependence." Path-dependence relates the way decisions made in earlier time periods shape the options for later time periods. Most environmental economics examines a snapshot of values

in a single time period, such as the costs and benefits of lowering an ambient air quality standard. While environmental economics discounts future costs/benefits, it does not typically evaluate how a decision made today will affect the range of opportunities in the future. Determining “optimal” pollution levels is not sensitive to information about the future. In contrast, natural resource economic analysis models the abundance of a resource as a function of abundance during earlier time periods. Deciding on a production schedule for minerals, fish, timber, or water requires an evaluation of the optimal time for extracting a particular quantity of resources. It requires information about future prices and available amounts of the resource. Particularly with water and biological resources that may grow over time, “optimal” extraction requires serious projection of future trends.

THE ASYMMETRIC CONVERGENCE TOWARD ECOSYSTEM MANAGEMENT

Over the past thirty-five years, both environmental law and natural resources law have struggled to broaden their scopes to encompass ecological concerns. This parallel effort has narrowed the gap between the fields as they converge, albeit at different rates, toward an ecosystem management perspective. Ecosystem management has legal as well as social and natural scientific dimensions. It is a framework both for understanding the biology of what makes ecosystems function in a healthy fashion and for crafting socio-economic incentives. Key elements of ecosystem management include the maintenance of ecological integrity, collaborative and cooperative decision-making, and adaptive management to continually adjust to the unexpected.

* * * [Compared to environmental law,] natural resources law has more deeply engaged with ecosystem management. Its experience suggests different approaches from those employed by environmental law. Natural resources law has a closer relationship with ecology than does pollution control law. Because it has been far more involved in managing living systems, natural resources law also has a much firmer grounding in the social dimension of ecosystem management.

Natural resources law has grappled with the science side of ecosystem management, particularly in administering public property. The best example of this is the Forest Service’s struggle to implement the diversity provision of * * * [its authorizing statute]. The litigation over the viability of northern spotted owl populations in the Pacific Northwest forests led the Forest Service to conduct several seminal iterations of landscape-level planning that helped lay the foundation for ecosystem management.

Finally, natural resources law’s obsession with comprehensive, land-use planning has pushed it further into experimentation with the adaptive management element of ecosystem management. It is principally the organic legislation for the federal public land systems that promotes natural resources planning. These organic acts offer a different model of lawmaking from the media-based statutes that shape most of (the ossified rules of) environmental law. Organic law provides a charter to orchestrate individual units into a system of lands/waters in order to achieve a coordinated goal. For instance, though each national wildlife refuge was established for a particular reason, organic

legislation seeks to align all refuges “to sustain and, where appropriate, restore and enhance, healthy populations” of animals and plants using “modern scientific resource programs.” One of the five hallmarks of organic legislation is comprehensive planning for each unit of a public land system. The planning process is particularly important because it translates broad requirements (e.g. system mission, uses and criteria) into site-specific measures and prescriptions through public participation. Students taking natural resources law, even if they study only one of the public land organic statutes, get a firm grounding in the issues of planning, including the pitfalls of comprehensive rationality and the need for perpetual readjustment. This is the heart of adaptive management. For instance, the planning process for the national wildlife refuges does not end when a plan is adopted. It continues into a phase of implementation and evaluation. Each step of plan implementation, under adaptive management, is an experiment requiring review and adjustment.

THE PROPERTY PALETTE

* * * [Despite the rise in importance of administrative law, the natural resources] field retained a dazzling array of property interests that go beyond the variations on the fee simple absolute that are the heart of a property law class. This is the property law foundation of natural resources law that continues to provide an important contrast with environmental law.

Natural resource law’s coverage of the property interests incident to mining under the 1872 General Mining Law neatly illustrates peculiar forms of property that delight and enlighten students. The formula for the state-created and federally recognized *pedis possessio* right to prospect is as close to a true sweat equity as anything in American property law. The *pedis possessio* limitation of being enforceable against a fellow prospector but not against the federal government also illustrates nicely the conventional legal view of property as not the thing itself but the ability to assert a claim against someone else. The unpatented mineral right perfected under the general mining law is a fifth-amendment-protected form of property notwithstanding the absence of a deed. It is the apogee of the Lockean vision of property in federal law, and provides concrete examples of both the strengths and weaknesses of this social vision. It also illustrates the importance of myth (both of Locke’s un-propertied, pre-colonial America, and of the American rugged individualist miner) in sustaining the rights of ownership.

John D. Leshy, Federal Lands in the Twenty-First Century

50 Natural Resources J. 111 (2010).

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.⁸ There is now broad consensus that mankind’s incessant emissions of GHGs [greenhouse gases, i.e. gases that contribute to global warming]

⁸ 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 the last several decades.

are destabilizing the climate. As one wag has put it, since the dawn of the industrial age, civilization has been engaged in an ambitious project to take as much carbon as possible out of the soil and geologic beds and inject it into the atmosphere. The incredible success of this enterprise is demonstrated by a recent scientific report that carbon dioxide levels in the atmosphere are now higher than at any point in more than two million years.

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 many adults now alive, be outside the bounds of anything that Homo sapiens have ever experienced. Indeed, some experts think that if GHG emissions continue to grow at current rates, the earth could, by the end of this century, 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. * * *

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 broad scientific consensus that we urgently need to do this if we are to avoid runaway, truly catastrophic climate change. We also need an adaptation strategy to deal with consequences as well as causes, because we have essentially committed to some climate destabilization—GHGs already injected into the atmosphere 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.” * * *

The Role of Federal Lands in Mitigating GHG Emissions

Federal lands can make a major contribution to curtailing GHG emissions. Large-scale efforts to develop renewable energy sources will inevitably use federal lands, perhaps in vast amounts, because they contain solar, 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 concentrating solar power plants, 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 play an important role in building a new national “smart grid” of electricity transmission. This grid 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. Furthermore, federal lands will be likely sites for projects to

geologically sequester carbon, if “carbon capture and storage” technology develops. Finally, federal lands will also furnish opportunities to biologically sequester carbon through rejuvenating forests and grasslands, although there is considerable uncertainty about our ability to do so effectively and to account for it in a useful way.

“Managing The Unavoidable”: The Role of Federal Lands in Adapting to a Destabilizing Climate

* * * Adaptation will be a harder nut to crack than mitigation. While capping carbon emissions is a daunting challenge to the political will, it at least satisfies the impulse of the polity 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, by contrast, is subtle, unglamorous, and emphatically more difficult. Its benefits are more intangible and elusive because we don’t yet know all we will need to know to do it wisely. It will require considerable investment in information-gathering and science, which almost certainly will depend heavily upon public funds. It will engage different institutions, require different skills, and be driven by different pressures, compared to those involved in building a green energy economy. * * *

In the arid West, where most federal lands are found, we are becoming more aware of growing climate-related problems of fire, drought, and insect infestations. From 1970 to 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. * * *

Climate destabilization will accelerate loss of biodiversity in ways that could ultimately 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 dries out prairie potholes and arctic wetlands that sustain most of the world’s migratory birds. Such irreversible impacts, when combined with the more conventional threats, lead some scientists to believe that, by the middle of this century, a sizeable proportion of the plants and animals now found on earth may become 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: “[I]t 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 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 and Adaptation Strategies: Some Recommendations

The broad objective of adaptation is to ensure that lands and associated natural resources have “resilience,” * * * the “ability to resist or recover from [climatic] disturbance [so as to] preserve [their] diversity, productivity, and sustainability.” What follows are some thoughts on adaptation in relation to federal lands.

First, federal lands ought to be on the front lines of the national adaptation effort. If the federal government were to try to use its regulatory power to make private land bear much of the burden of biodiversity protection, it would be controversial, fiercely resisted, and arguably less fair. Many of the benefits of biodiversity conservation are national, indeed global, in scope, while its immediate costs are more locally concentrated. The national political process—accustomed to adjusting the benefits and burdens of economic life in the face of changing conditions—is better suited to the task of distributing the burden of such costs widely.

Second, climate adaptation should be made a central part of the statutory mission of each federal land and water management agency. On paper, this would require no great leap. After all, Congress in 1916 directed that national parks be managed in such a way as to “leave them unimpaired for the enjoyment of future generations.” In addition, Congress directed the Forest Service in 1960 and the Bureau of Land Management in 1976 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 required the “natural conditions” of designated wilderness be preserved so as to retain the “primeval character and influence,” and the 1976 National Forest Management Act spoke of providing for the “diversity of plant and animal communities” on the national forests.

Third, strong statutory direction by itself will not do the job. Recent history reminds us that the executive branch must exercise vigorous leadership if progress is to be made. At the end of the Clinton Administration, Interior Secretary Babbitt directed agencies under his jurisdiction to start incorporating climate change planning in their management. The effort stalled when President George W. Bush was sworn in, and it took persistence by Deputy Secretary Lynn Scarlett to rejuvenate it seven years later.

Fourth, adaptive management—which has come to mean learning as we go and adjusting accordingly, and which has already become a kind of mantra for managing many federal lands—will likely need to be put on steroids for the challenges ahead. Managing for adaptation is somewhat analogous to surfing, where the waves are constantly moving under one’s board. The abundance of federal lands in Alaska will likely provide important testing grounds. Sometimes labeled ground zero for global warming in the United States, with temperatures rising twice as fast as elsewhere, Alaska is already experiencing melting permafrost, glacier retreat, insect outbreaks, wildfires, and other environmental challenges.

Fifth, even with statutory direction and strong executive leadership, federal land agencies will have to make some hard decisions. To take just one example, dust from livestock grazing, off-road vehicles and other surface disturbing activities in arid regions has been causally linked to accelerated snowpack melting and consequent water supply disruptions. Such adverse impacts will probably require closer scrutiny of these widespread uses of federal lands. There is also a question of what should be done, in the face of rising sea levels, with a multi-billion dollar commitment made a decade ago for restoring the Everglades in south Florida. Answering these questions is not nearly as simple as managing land and resources to protect them “unimpaired,” and retain their “productivity.” * * *

Mitigation and Adaptation Efforts Must be Linked

While an overarching federal lands strategy requires intensive efforts on both the mitigation and adaptation sides of the climate equation, it is, for several reasons, crucial that the two initiatives be closely linked. In other words, if we are to have hope of meeting the challenges ahead, federal land policy should simultaneously, and in a coordinated fashion, connect green energy deployment and other attempts at mitigation with adaptation efforts.

The most obvious reason to link them is so that they not work at cross purposes with one another—green energy should not thwart adaptation, and vice versa. “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 biodiversity that need to be offset or mitigated. Conserving other federal lands for adaptation can help mitigate some of these impacts. Determining an adequate level of offset can be difficult because climate change needs to be taken into account in determining the value of the land for mitigation. * * *

Equally important, intelligently coordinating climate mitigation and adaptation on public lands will require public money, for research and information-gathering, for acquisition and for managing for adaptation. This is perhaps where the linkage of green energy to adaptation is most important. 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 fossil fuel and green energy projects on federal lands onshore and offshore * * * to adaptation measures.

Finally, linking adaptation to green energy deployment can also help reduce NIMBY-based opposition to the latter. While providing conservation mitigation for the impact of green energy cannot eliminate NIMBY arguments, it can blunt their effectiveness. * * * 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.

Charles Wilkinson, *Fire on the Plateau: Conquest and Endurance in the American Southwest*

pp. 325–332 (1999).

Kaiparowits is a word used by the Ute and Paiute meaning “arm off.” The Indians gave the name to the one-armed John Wesley Powell

and in time the plateau was named for him. This massive upswelling, 1,200 square miles in all, began to take its current form during the rising and eroding of the Tertiary about 50 million years ago. Kaiparowits is shaped like a giant bell. Utah Highway 12, which passes through Escalante, runs approximately along the north, higher-elevation edge. The landform then flares out: the Cockscomb along the west edge trending southwest and the Straight Cliffs, looming above the Hole-in-the-Rock Trail of the old Mormon pioneers, angling to the southeast. Like the Straight Cliffs, the southern cliffs of Kaiparowits, 50 to 60 miles long, 1,000 to 2,000 feet above Lake Powell, fashion a distinctive part of the lifted horizon of the central Colorado Plateau.

Kaiparowits is, in a word, *wild*—“wilderness,” as Raymond Wheeler put it, “right down to its burning core.” This is the interior of the Colorado Plateau, itself the interior of the nation. The plateau is so remote and rough that few cattle or sheep have grazed it, leaving more pristine grasslands than anywhere else in the country. Kaiparowits is little visited, perhaps less touched by human beings than anywhere else in the continental United States.

In the red hills of Kaiparowits, the fire in the Colorado Plateau is due to coal, not hematite, the rusting process that reddens sandstone. On Kaiparowits, where 4 billion tons of recoverable coal from the Cretaceous hold more BTUs than all the energy in Saudi Arabia, the rock crust of the earth has in some places been scorched red by the naturally burning coal underneath. You can hike into places where coal seams rise all the way to the surface and smolder, sending up wisps of smoke. It was here, during the 1960s in the heyday of the Big Buildup, that a consortium of utilities proposed the biggest coal mine and biggest power plant of all, only to see the project collapse in the changed economic and environmental climate of the 1970s.

Then, in the late 1980s, came a new, scaled-back proposal. Andalex Resources, Inc., obtained BLM leases to extract 2.5 million tons of coal a year (compared to the 15 million tons previously planned). There would be no power plant on Kaiparowits or, for that matter, any open-pit mining. Rather, Andalex would employ long-wall mining 600 feet beneath the surface. The coal would be hauled out horizontally through portals and the earth above allowed to settle down into the mined-out areas.

The company designed the mine with obvious care to avoid environmental problems. The extraction would be done in Smoky Hollow, a badlands gully 50 to 150 feet deep. Two wilderness study areas are in the vicinity: Wahweap, the nearest boundary of which is 4 miles west of the mine, and Burning Hills, which comes as close as 2 miles to the east. The mine, however, would lie outside the wilderness study areas. The actual mine site itself, then, is nondescript country—no significant wildlife habitat, no special scenic values, no known archaeological sites—on the southern end of Kaiparowits Plateau.

The mine site itself may not be a problem, but there are others. Andalex plans to truck the coal out, making 150 daily roundtrips, 300 individual runs. The road in would be a bear. The probable route would be built in hazardous terrain across crumbly ridges and washes that can receive mighty flash floods. You can see evidence of the force of these floods in John Henry Canyon, which the road would have to cross:

on top of a boulder 8 feet above the creek bottom rests a 20-foot-long chunk of cottonwood, 8 feet diameter, weighing a good ton, deposited there by a rampaging gully washer. The access road would traverse the Waheap Wilderness Study Area for several miles, and the trucking operation would cause plenty of commotion in that silent, wild country.

The trucking would also cause plenty of disturbance in the local communities. Andalex plans to haul the coal more than 200 miles—the longest coal-trucking venture ever undertaken—to rail spurs near Cedar City, Utah, or Moapa, Nevada. Along the way the trucks would roll through the towns of Kanab, Hurricane, and Cedar City, 300 trips a day, a truck every five minutes, around the clock. And these will be Rocky Mountain double coal trucks, weighing 130,000 pounds loaded, 50 percent larger than western doubles (the standard 18-wheelers). The coal would then be transported to the West Coast, probably for shipment to Japan.

Kaiparowits itself would be at risk from more than the project as now designed. The currently proposed mining operation is only part of the lease area held by Andalex. In thirty years, Andalex could attempt to develop the rest of the lease area to the north, inside the Wahweap Wilderness Study Area. The expanded project, even more than the current Andalex proposal, would cut deeply into the remoteness that is Kaiparowits. Andalex, or a successor lessee, would have to await the results of a second environmental impact study (and a possible denial on environmental grounds). But when a mining company has put in the kind of infrastructure Andalex plans, the company enjoys a great amount of momentum when it wants to expand its lease area. There would be tremendous pressure to mine the wildlands. Mike Noel, of the Kanab BLM, comments: “In thirty years, let’s hope we’re smarter and that we’ve got energy sources other than fossil fuels.”

Let’s try to place ourselves thirty years in the future and imagine how the Andalex project would look from that vantage point. We have a benchmark of sorts. The original Kaiparowits project was being advocated about thirty years ago. That consortium would have built a coal mine—the largest coal mine in the world—in order to supply a power plant on Kaiparowits that would have produced 3,000 megawatts, the largest coal-fired power plant in the world. The companies, to serve the eight to ten thousand employees, would have constructed a town for twenty-five thousand people. There is almost no one around today who would stand up for that project. Kaiparowits Plateau would have been trashed and the air pollution in the Grand Canyon would have been multiplied several times over. And we didn’t *need* all that additional energy. With all the environmental and community disruption, how would the Andalex proposal look thirty years hence? * * *

In any event, it now appears that the Andalex mine will never be built. [In September, 1996, President Clinton, using his essentially unreviewable authority under the Antiquities Act of 1906, signed an executive order proclaiming the Grand Staircase-Escalante National Monument, 1.7 million acres in size. The monument, whose purposes are highly protective of the land, includes the Andalex mineral leases and prohibits the creation of mineral rights in the future, but protects

valid existing rights. In 1999, the government paid Andalex several million dollars to relinquish its leases.] * * *

Andalex has valid leases, but it has not secured rights-of-way, which must now cross monument lands, or other required approvals. Clearly, the monument's purposes are incompatible with the steady rumble of Rocky Mountain double coal trucks and a large coal mine, and it is doubtful that the BLM would grant the approvals. As a result, Andalex and the Interior Department are discussing a trade for federal coal leases in a location more suitable for mining. The monument does not carry formal wilderness designation—only Congress can do that—but, like much of Canyonlands National Park, most of the Grand Staircase-Escalante inevitably will be managed as if it were wilderness.

* * * I love the whole of the new monument. But Kaiparowits Plateau in particular inflames me because it so starkly represents all the values of the wild desert.

Few people come to Kaiparowits. The conveniences are so few, traditional beauty so scarce, normal recreational opportunities so limited. Precipitation measures only 10 to 12 inches a year. There are just two or three perennial streams, and they carry little water. One dirt road, passable for passenger cars, runs up to Escalante. Otherwise it is all jeep trails. The scattered piñon and juniper trees offer almost no cover from the sun. Crosscountry backpacking is for experts only. You have to scour the topographic maps, plan your trip with care (being sure to hit the springs), and stick to your plan. Even a short hike is a challenge. From a distance, Kaiparowits looks flat on top but in fact it is up-and-down, chopped-up, confusing. You can get lost, snake bit, or otherwise injured. There's no one to call.

There are reasons to come, though, in addition to the remoteness and the physical challenges. Kaiparowits is home to hanging gardens, Ancestral Puebloan sites, wildlife from lizards to mule deer, wildflowers found nowhere else, and the burning core that rises to the surface. Higher up, raptors thrive on the wind currents. And from Kaiparowits you are given startling vistas in all directions: vivid views more than 200 miles if the winds have cleared out the haze, panoramas as encompassing as those from the southern tip of Cedar Mesa, the east flank of Boulder Mountain, the high La Sals, or Dead Horse Point. If you climb the rocky promontories on top of Kaiparowits, you can see off to Boulder Mountain, the Henrys, Black Mesa, Navajo Mountain, the Kaibab Plateau, the Vermilion Cliffs, long stretching landscapes of sacred country.

The languid stillness of Kaiparowits turns your mind gently and slowly to wondering about time, to trying to comprehend the long, deep time all of this took, from Cretaceous, from back before Cretaceous, and to comprehend—since Lake Powell and the seventy-story stacks of Navajo Generating Station are now part of the vista—how it is that our culture has so much might and how it is that we choose to exert it so frantically, with so little regard of the time that you can see, actually see, from here. Perhaps somehow, if we take some moments now, here in this stark piñon-juniper rockland place, here in this farthest-away place, we can nurture some of the fibers of constancy and constraint that our people possess in addition to the might. The silence is stunning, the solitude deep and textured.

Kaiparowits makes you decide on the value of wilderness and remoteness. Kaiparowits is where the dreams for the Colorado Plateau collide. Coal, jobs, growth. Long vistas, places to get lost in, places to find yourself in.

The author asks how the Andalex proposal—if it had been implemented—would look thirty years hence. That question was asked in 1999, and this edition of the casebook was published fifteen years later. In your judgment, how would the completed Andalex project look from today's perspective? What would be the pros and cons? What would have been gained and what would have been lost? As best you can tell, how do you think our society will view it in 2029?

B. THE FEDERAL LANDS AND RESOURCES

Except for the area of the original thirteen colonies, Texas, and Hawaii, the U.S. government once owned nearly all of the land within its present borders. This real estate is probably the richest of its size on the planet in the variety and extent of its natural resources. The forests, farmlands, rivers, mineral wealth, and scenic wonders are of literally inestimable economic, social, and aesthetic value.

Most of the original national legacy passed out of federal ownership as the public lands were opened for settlement and development. Easy availability of land was the primary incentive for pioneers, then settlers, to move west and populate the Nation. Each wave of settlers chose the available lands that were then thought to be the most economically valuable. New cities grew around the ports and many of the strategic river junctions. The heart of public land policy was to promote the small family farm. After the best agricultural lands in the Midwest were settled, the homesteaders moved to the Willamette Valley in Oregon, the Central Valley in California, and other verdant lowlands. Prospectors and mining firms claimed the land over the fabulous gold, silver, iron, and copper deposits in areas such as the California Mother Lode country, the Comstock Lode in Nevada, the Mesabi Range in Minnesota, and Butte in Montana. The timber industry obtained prime timber lands throughout the country; the relatively low-lying lands in the Pacific Northwest remain especially valuable. Beginning early in the twentieth century, reclamation projects were built to irrigate otherwise arid homesteads in the Great Plains, the Great Basin between the Sierra Nevada and Rocky Mountains, and elsewhere.

Practically from the beginning of the Republic, Congresses and presidents withdrew a few public land parcels from the various programs for disposition into private hands and dedicated—or “reserved”—them for some national purpose. Reservation for purposes other than advancing military or Indian policies began haltingly with the establishment of Yellowstone National Park in 1872. The momentum for conservation has grown ever since, as retention gradually supplanted disposition to dominate national land policy. Early in the twentieth century, the United States began to acquire lands to protect forest headwaters and wildlife habitat. Those

acquisition programs created new federal reserves in the East and Midwest. Homesteading largely ended in 1934.

In the modern era, however, land selection by the State of Alaska and Alaska Natives removed nearly 150 million acres from federal ownership. Relatively minor sales or exchanges of lands especially suited for certain forms of non-federal ownership are still possible. In recent years, exchanges or other transfers of federal land have sometimes been packaged with wilderness designations or other conservation measures in particular places. Land acquisitions by the federal government have continued for such purposes as creating new national wildlife refuges or expanding parks. On balance, however, the broad outlines of the federal estate have been relatively stable for seven decades or so (Alaska excepted).

Although federal public lands are located in all states, the highest proportion is found in the eleven western states (Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming) and in Alaska, which is a category all its own (containing 38 percent of all federal lands). Because nearly all of these states have relatively small populations, they still have more non-federal land per capita than states in the East and Midwest. While federal lands are a smaller proportion of total land area in states outside the West, a number of non-western states have sizeable chunks of federal lands (especially Michigan, Arkansas, Florida, Minnesota, North Carolina, Texas, and Virginia). Federal land and resources law is increasingly national, as the principal cases in this casebook attest, being drawn from all regions of the country.

The federal government also owns major less-than-fee interests. In addition to such holdings as 3.5 million acres of acquired waterfowl easements, the United States retains subsurface mineral interests under almost 60 million acres of private and state land in the West. The federal government asserts sovereignty over the resources of the outer continental shelf (OCS), 1.7 billion acres extending from 3 miles offshore (3 marine leagues off the Florida and Texas coasts) seaward to the edge of the continental shelf. These submerged lands contain immensely valuable petroleum deposits, and the OCS is increasingly targeted for wind energy development. Federal law also constrains some development of resources on many private and state lands acquired through federal grants (such as the Land and Water Conservation Fund) or tax incentives (such as deductions for donations of perpetual conservation easements).

One of the most important characteristics of the public lands is their great diversity. Because of their great range—they are found from the northern tip of Alaska to the southern end of Florida—all kinds of climate conditions are found on them. Arctic cold, rain forest torrents, desert heat, mountain snows, and semitropical littoral conditions are all characteristic of public lands in one area or another.

Great differences in terrain are also typical. The tallest mountain in North America, Mount McKinley in Alaska, is on public lands, as is the tallest mountain in the 48 contiguous states, Mount Whitney in California. But the lowest point in the United States, Death Valley, is also on public lands, as are most of the highest peaks in the White Mountains of New Hampshire and the Appalachians of the southeastern states.

Not all of these lands are mountains and valleys, however. Vast areas of tundra and river deltas in Alaska are flat, marked only with an incredible number of small lakes. Other vast areas in the Great Basin area of Nevada and Oregon are not marked with lakes, but with desert shrubs. Still other areas of rolling timber-covered mountains extend for mile after mile, both in the Pacific Northwest and the Inland Empire of Idaho, eastern Washington, and western Montana, and in the Allegheny, Green, and Ouachita Mountains of Pennsylvania, Vermont, and Arkansas. And still other vast areas are rangelands used for grazing domestic livestock.

However, not all of these public lands can be characterized as vast wild or semi-developed expanses. In many instances, Federal ownership is scattered in relatively small tracts among largely privately owned lands. The condition of the land may still be undeveloped, but our consideration of how the land should be used is necessarily influenced by the scattered nature of the Federal ownership. In some cases, public lands are found almost in the midst of urban areas and here again we must view the use of the lands in relation to the surrounding lands.

The great diversity of these lands is a resource in itself. As needs of the Nation have changed, the public lands have been able to play a changing role in meeting these needs. Whether the demand is for minerals, crop production, timber, or recreation, and whether it is national or regional, the public lands are able to play a role in meeting them.

The federal lands contain a wide array of valuable resources. In some instances, use of a parcel for development of one resource can be entirely compatible with a different use: timber harvesting can benefit some wildlife and recreation resources by creating meadows beneficial for deer habitat; a wilderness area can provide watershed protection for downstream development; a reclamation project for irrigation purposes can also produce electrical energy and recreation. But sometimes management for one type of use is fundamentally inconsistent with

other uses. The designation of a tract of federal land as wilderness generally eliminates timber harvesting and mineral development. A solar project on federal desert land may be incompatible with most flora and fauna, and not suitable for any other use like recreation. Developing the mineral resources of another tract may be inconsistent with recreation, timber harvesting, or grazing. Logging may impair wildlife and destroy cultural resources. Avoiding or resolving such resource conflicts is the overriding problem of modern land law. This book identifies and treats somewhat distinctly seven major resources of the federal lands—water, hardrock minerals, energy, forest, range, wildlife, recreation, and preservation. Each deserves its own introduction.

WATER

Water tends to be in the middle of many tough resource use choices. Wallace Stegner, one of the most respected modern commentators on the American West, observed that the region's aridity and large concentration of public lands are the two most distinctive features of western society. Almost two-thirds of the run-off in the eleven western states, and all the great western rivers, originate on federal lands. These lands comprise most of the Continental Divide, the Sierra Nevada, the Cascade Range, and other mountainous areas in the West. Moreover, as noted above, most of the federal lands found east of the Mississippi were purchased into federal ownership in the first half of the twentieth century because of their value as watersheds. Although water is a renewable (as well as reusable, and storable) resource, there has never been enough in the right places at the right times to fulfill human desires, especially in arid regions. In the twentieth century, the United States, through at least eight separate agencies, developed water resources in an engineering effort unparalleled in history. These projects have provided irrigation water, municipal drinking supplies, electricity, and recreational opportunities, but they have also taken a heavy toll on wildlife and the amenities of free-flowing rivers. Problems of federal ownership and development of water—and particularly those concerning state-federal relationships—are examined in Chapter 6.

HARDROCK MINERALS

Minerals found on the public lands have played a signal role in the economic and social history of the Nation. The discovery of gold in California's Sierra Nevada mountains in 1848 prompted the true opening of the West, and later bonanzas would lead miners and then settlers to many other western states. Mining has long been subject to "boom and bust" cycles, but the federal lands are still thought to hold large deposits of inorganic minerals. Much of the nation's output of precious metals and other "hardrock" minerals (gold, silver, nickel, lead, copper, zinc, molybdenum, uranium, etc.) come from deposits found wholly or partially on federal lands. The value of cumulative federal production over the years is many billions of dollars. The legal regimes governing hardrock mineral extraction and the problems they create vis-à-vis other resources are taken up in Chapter 7.

ENERGY

The federal lands and subsurface mineral rights also hold organic treasures. The fossil fuels of coal, oil, and gas exist in large quantities

on federal land. Federally leased coal contributes more than a third of the 1 billion tons of coal produced in the United States, a dramatic rise in the past thirty years. Over 63,000 federal onshore oil and gas wells account for 11 percent of the nation's natural gas and 5 percent of its oil production. Off-shore federal resources compose about 30 percent of all oil and 10 percent of all gas production in the United States. Leasing of fossil fuels brings billions of dollars into the federal treasury; the Interior Department is the biggest revenue producer in the government after the Internal Revenue Service. The Federal Energy Regulatory Commission has issued nearly two thousand licenses for non-federal hydropower projects, many of which are found on federal land, or on rivers that originate on federal land. These licenses are time-limited, and many of them are now or soon will undergo re-licensing. Concerns about climate change, state mandates to develop renewable energy, and federal incentives have dramatically increased the use of renewable energy resources (hydropower, geothermal, wind, and solar) under federal control, which some have called a "new gold rush." The federal government manages many millions of acres of land with solar, wind, and geothermal potential. The federal energy resources lie at the center of debates over economic policy, habitat protection, environmental health, and climate change, which are all discussed in Chapter 8.

FOREST

The federal government owns about 18 percent of the nearly 500 million acres of commercial timber lands in the United States. Six-sevenths of federal commercial timber is in national forests. Before World War II, federal timber holdings managed by the Forest Service and the Bureau of Land Management were managed conservatively, producing only about 5 percent of the national total timber harvest. One result of that former conservatism is that the federal lands still hold a comparatively large amount of old-growth, virgin timber of great economic value, especially in the Pacific Northwest. About half of the national softwood timber inventory is located on national forests, roughly three times the amount owned by the forest industry, with small private owners and other public entities controlling the rest. Many of the lands containing timber, particularly the extraordinary stands of old-growth Douglas fir, redwood, and pine also contain unique scenic and aesthetic values. Recent droughts, fires, and insect infestations have created new concerns about federal forest management. The forest resource is explored in Chapter 9.

RANGE

More acres of federal lands are used for domestic livestock grazing than for any other single use except recreation. Today millions of domestic animals spend part of their lives on federal rangeland, sharing the forage with thousands of wild horses and burros and millions of antelope, deer, moose, and mountain sheep. The number of domestic animals grazing the federal range has declined substantially from a century ago, but ranchers still graze cattle and sheep on about 159 million acres of BLM lands and 85 million acres within the national forests. Federal land forage is, however, only a tiny fraction of the total grass consumed by livestock in the country.

Historically, the public domain was a "commons" where grazing was allowed with no federal regulation whatsoever, a situation that

took a great toll on the forage resource. In spite of federal regulation since the 1930s (and earlier, in the case of national forests), the public range is largely in “fair” or “poor” condition and overgrazing by modern standards is still widespread in some areas. Regulation to reconcile competing uses of the range and to increase the productivity of grazing lands is the dominant theme of Chapter 10.

WILDLIFE

The federal lands contain some of the most valuable wildlife habitat in the world. Maintenance of animal and plant populations in the wild is important to hunters, to industries that depend upon wildlife products or that support recreational pursuits, and to people who only watch wildlife. Everyone benefits from the essential services, such as pollination and pollution assimilation, that healthy ecosystems provide.

The native ranges of certain species, such as wild turkey, moose, elk, and mountain sheep, correspond closely to public land holdings. In many eastern states, big game species depend heavily on habitat found on federal lands. In some instances, the public lands offer the last refuge for species in danger. The 150-million-acre National Wildlife Refuge System’s primary mission is to maintain healthy populations of plants and animals. The national debate over drilling in the Arctic National Wildlife Refuge, one of some 560 units of the system, illustrates the passion that wildlife disputes can engender. Conflict over resource uses involving wildlife impacts cuts across all federal land systems; all of the systems include some kind of wildlife resource protection mandate in their charters. Management and protection of wildlife on federal lands is the subject of Chapter 11.

RECREATION

Minerals, timber, water, forage, and even wildlife are commonly considered the conventional resources on the public lands. Nothing better symbolizes the evolution of federal land policy in the last half-century than the emergence of recreation and preservation as co-equal and competing resources. By many economic measurements, the recreation resource swamps all of the commodity resources combined. In 2013 the Outdoor Industry Association claimed to generate annually \$646 billion in consumer spending and over 6 million direct jobs. American leisure time, affluence, and ease of transportation continue to spur increases in demand for recreational opportunities on the federal lands. Every major federal land system offers something of a recreational nature to somebody, from hiking, to power-boating, to resorts. One can tour a national park by car; raft rivers through federal lands; fish on practically all federal lands; and hunt, hike, mountain bike, and ride off-road vehicles on many of them. These opportunities have been considered “givens,” unchallenged rights available to all citizens. But, with all resources, the underlying productivity of the recreation resource can be threatened by human overuse. The legal questions arising from conflicts among different kinds of recreational uses, and between recreation and other resources, are addressed in Chapter 12.

PRESERVATION

Shortly after the Civil War ended, John Muir, faithful to Henry David Thoreau’s declaration that “in wildness is the preservation of the

world,” stepped on the wharf in San Francisco, and said, “take me anywhere that is wild.” Muir found what he was looking for in the public lands of the Sierra Nevada. Because of the work of Muir and others, Congress was moved to set aside numerous national parks in the late 19th and early 20th centuries. National parks were and are an important part of the preservation resource, but government officials came to recognize the need to preserve truly wild areas without roads, lodges, or restaurants. From obscure philosophical beginnings, the movement to preserve wild areas succeeded in persuading Congress to create a new system of federal lands, the dominant purpose of which is preservation. Wilderness is supported both as recreational resource without which, according to Idaho Senator Frank Church, “this country would become a cage” (107 Cong. Rec. 18,365 (1961)), and as a control to better understand the environmental impacts of areas subject to the kind of development (e.g. roads, logging, mining) prohibited in wilderness. More recently, federal marine protected areas have sought to extend preservation to parts of the oceans and Great Lakes.

The preservation resource also includes wild and scenic rivers, archeological, historical, and cultural artifacts, structures, and settings. The public lands are rich in sites that are part of the nation’s cultural as well as natural heritage. Increasingly, even wilderness is viewed through a cultural lens that examines the human influences on natural landscapes. The legal underpinnings of the preservation movement, and its implications for other federal land uses, are explored in the concluding Chapter 13.

These, then, are the primary resources of the public lands. For every proposed use there are phalanxes of disparate advocates and opponents. Some claim that if the United States were to “lock up” for preservation many of these resources, catastrophic social and economic consequences would follow. On the other hand, opening all federal lands for wholesale, unregulated development would irreparably wound a special part of the national spirit and many local economies. Because compromise pervades our political, legal, and administrative mechanisms, resource decisions mostly fall in the middle of the two extremes. It is within this diverse and emotional context that legislators, land management officials, and judges must operate in making and reviewing decisions affecting the national resources.

Professor Fischman maintains a web site that supplements and updates the material in this casebook: www.law.indiana.edu/publicland. The web site should be your first stop when seeking more information about any topic covered in the casebook.

C. MANAGEMENT OF FEDERAL LANDS

The federal government owns retained and acquired lands for many diverse purposes, but the focus of this volume is on the federal lands classified as national forests, BLM or public lands, national parks and monuments, national wildlife refuges, and wilderness and other protected areas. Public land management systems are usually classified according to what uses are allowed in them. The primary or dominant

public land uses are for mineral development, other forms of energy development, grazing, logging, recreation, wildlife (including the services of biodiversity), and preservation. The national forests and the BLM lands are commonly described as “multiple-use” lands in which all of the above uses are permitted, although in practice some uses tend to predominate on some lands. Furthermore, although national park system lands and national wildlife refuges tend to have dominant uses (recreation, preservation, and wildlife), other uses may be permitted on some of these lands. All of this is by way of saying that federal land classification tends to be more the product of historical contingency than rational deliberation, and so does the distribution of federal lands among managing agencies.

This section briefly describes the four principal federal land management agencies. It also discusses preservation lands—such as wilderness areas and wild and scenic rivers—some of which are managed by each of those four agencies. It introduces major federal legal entities, other than courts, which contribute to public land law development. Finally, the section concludes with a discussion of the special status and history of federal lands in Alaska.

1. THE NATIONAL FOREST SYSTEM

This system had its origins in withdrawals of federal land as “forest reserves” beginning in 1891, the creation of Gifford Pinchot’s Forest Service in the Department of Agriculture, and the transfer of management of the reserves to Agriculture in 1905. The National Forest System was also the prime beneficiary of the first major program to reacquire into federal ownership, primarily for conservation purposes, lands from private owners. Between 1912 and World War II, the Forest Service purchased several million acres of agriculturally depressed or abandoned land east of the Mississippi under the so-called Weeks Act. It also acquired what came to be known as the National Grasslands by purchase from bankrupt dirt farmers in the western Great Plains during the drought-ridden years of The Great Depression. These 24 million acres of acquisitions plus the forest reservations from the public domain have given the Forest Service landholdings in nearly every state.

The forest reserves that became the national forests were established “to improve and protect the forest * * * [and] for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber.” 16 U.S.C. § 475. Over time, the purposes were enlarged in practice, and eventually ratified by Congress in the Multiple-Use, Sustained-Yield Act of 1960, 16 U.S.C. §§ 528–531. For decades, the management of the forests was primarily custodial; before World War II they supplied less than 5 percent of the annual timber harvests. It was not until 1940 that the annual harvest from the national forests exceeded 2 billion board feet. With the post-war housing boom and the relative depletion of privately-owned commercial forests, pressure on the national forests to produce more saw timber doubled that figure by 1951, doubled it again by 1959, until it reached 12 billion board feet in 1966. Environmental restrictions and other factors have reduced the average annual cut today to a fraction of what it was. The management of the timber resource on the national forests

is now controlled in large part by the National Forest Management Act of 1976 (NFMA), [16 U.S.C. § 1601](#) et seq., discussed in detail in Chapter 9.

2. THE BLM PUBLIC LANDS

The unreserved, public domain lands were administered by the Department of the Interior's Grazing Service until 1946, when it was merged with the General Land Office to form the Bureau of Land Management. These were the "lands nobody wanted," left over when the era of resource disposal came to an end. The BLM is responsible for the management of nearly 250 million acres of mostly arid and semi-arid land, nearly all of it in the eleven western states and Alaska.

BLM stewardship still wrestles with damage wrought before the agency existed. Like the Forest Service, the BLM evolved a multiple-use philosophy internally over the years, but with emphasis on grazing and mining instead of logging (leading some critics to call it the "Bureau of Livestock and Mining"). BLM's "organic" management act is the Federal Land Policy and Management Act of 1976 (FLPMA), [43 U.S.C. §§ 1701–1784](#). Although late to the game of managing federal lands for preservation purposes, BLM has come to administer a "National Landscape Conservation System" (NLCS), which encompasses a hodgepodge of units including wilderness areas, national monuments, and other conservation designations. Congress provided a statutory framework for the NLCS in 2009. [16 U.S.C. § 7202](#). In addition to administering its system of surface lands, the BLM is also responsible for managing all 700 million acres of subsurface mineral rights owned by the United States, 57 million acres of which underlie private or state lands. BLM has traditionally been given challenging management tasks with little funding compared to other federal agencies. The BLM's transition from a custodial agency dominated by ranching and mining interests to a modern, conservation-oriented land management agency is one of the more interesting stories of public land policy and is dealt with especially in Chapters 7 (hardrock mining), 8 (energy) and 10 (grazing).

3. THE NATIONAL WILDLIFE REFUGE SYSTEM

The National Wildlife Refuge System's origins date to President Theodore Roosevelt's reservation of Pelican Island, Florida, for the benefit of wildlife in 1903. The President and the Congress reserved federal lands and purchased nonfederal lands piecemeal over the years under various authorities. In 1966, as part of a legislative package for protecting endangered species, Congress established the Refuge System. Thirty-one years later, Congress gave the system a modern organic statute setting forth a clear mission of maintaining a healthy network of habitats for plants and animals. National Wildlife Refuge Administration Act, as amended by the National Wildlife Refuge System Improvement Act of 1997, [16 U.S.C. §§ 668dd–ee](#). The U.S. Fish and Wildlife Service (FWS) in the Department of the Interior administers the System. The System comprises about 150 million acres in federal fee ownership (77 million of which are in Alaska), and another 4 million acres with lesser interests, such as waterfowl easements. Currently, the agency operates approximately 560 national

wildlife refuges and thousands of waterfowl production areas. Almost 50 million visitors recreate each year in refuges.

The National Wildlife Refuge System is the only category of federal lands administered primarily for the conservation of wildlife, although states have wildlife areas and wildlife management is a concern on practically all federal lands. Additions to the System are funded through special segregated tax revenues derived from such sources as sale of duck stamps, but the refuges have suffered from under-funding, political neglect, and popular overuse. Although wildlife conservation is the main criterion in refuge management under the relevant statutes, almost every other common use is allowed to some extent on some refuges. Typical legal issues growing out of FWS management are dealt with in Chapter 11.

4. THE NATIONAL PARK SYSTEM

Among the uses allowed and encouraged on the foregoing three systems are forms of recreation such as hiking, bird watching, camping, and hunting; to that extent they can be considered “recreational lands.” The various categories of lands within the National Park System are, however, devoted primarily to recreation and preservation. The System now encompasses nearly 84 million acres (including 4 million acres of private land) found in 400 separate units located in almost every state. An orientation toward preservation has characterized the Park Service since its inception in 1916, but its mission has been broadened substantially by assignment of responsibility for recreation areas (including large landholdings around federal reservoirs like Lake Mead and Lake Powell), urban parks, cultural areas, and historic preservation.

As recreation has continued to grow as an important facet of public land policy, Congress has created several new land categories, many under NPS jurisdiction. It also led to the NPS-administered Land and Water Conservation Fund, which helps states acquire parklands—with federal restrictions encumbering the title. Chapter 12 addresses a variety of issues arising from the use of recreational resources.

5. THE PRESERVATION LANDS AND OTHER SPECIAL CATEGORIES

As early as the 1920s, the Forest Service began administratively setting aside some national forest land from road-building and other developments, and eventually the other federal land managing agencies followed its lead. Eventually, in 1964, Congress gave this movement a statutory underpinning by enacting the Wilderness Act, [16 U.S.C. § 1131–1136](#), under which lands are devoted primarily to preservation. Some nine million acres, in roadless areas of over 5,000 acres “untrammeled by man,” were set aside initially. The National Wilderness Preservation System grew steadily until the turn of the twenty-first century, and now encompasses nearly 110 million acres (60 percent in Alaska). Wilderness is an “overlay” designation; individual wilderness areas are managed by the agency under whose jurisdiction the area fell before designation.

The Wild and Scenic Rivers Act of 1968 operates much the same way. It created a system of river segments that, once designated, were to be kept free-flowing, and the corridors along them managed primarily to serve the protective purposes of the system. Segments are subdivided into three categories of rivers—wild, scenic, and recreational—and managed accordingly. Currently the system has more than 200 units along more than 12,000 river miles in 39 states and Puerto Rico, a little more than one-quarter of one percent of the nation's rivers.

Another federal lands category is that of national monuments, usually created by Presidential proclamation under authority of the 1906 Antiquities Act, [16 U.S.C. § 431–433](#). This statute authorizes the President to reserve federal lands to protect “historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest.” Although only the “smallest area compatible with the proper care and management of” the object(s) protected is to be so reserved, large areas such as Grand Canyon, Death Valley, and Glacier Bay National Parks were first protected by Presidential proclamation under this statute. President Clinton revived the statute from nearly two decades of disuse and employed it to protect more acres of federal land than any chief executive other than Jimmy Carter, who designated more than 56 million acres of national monuments in Alaska in 1978. Many of President Clinton's monuments were designated on BLM land, and BLM remains the manager. President Obama has so far designated nearly a dozen national monuments, most of them small historic sites, but one encompassing 240,000 acres of BLM-managed land in New Mexico. Congress has sometimes legislated new national monuments and has usually confirmed Presidential monuments. For example, Congress confirmed nearly all the acreage in President Carter's monuments in the Alaska National Interest Lands Conservation Act of 1980.

In the last few decades, Congress has more and more designated tracts of federal land as “national conservation areas” or “national recreation areas” (the latter expanding upon the designations given earlier to such areas as Lake Mead). While neither is generally as strictly preservationist as wilderness, both are considerably less resource-exploitive than traditional multiple-use designations. These and other related legal developments have led commentators to label (as a trend rather than a general truth) the era since 1964 as the “Age of Preservation.”

Marine protected areas, such as the National Oceanic and Atmospheric Administration's marine sanctuaries, which received congressional authorization in 1972, begin to address the enormous challenge of protecting ocean life and resources. In 2000 President Clinton established a system of marine protected areas that now includes over 350 sites. The largest single conservation area under U.S. jurisdiction, encompassing 140,000 square miles and a string of islands northwest of the state of Hawaii, is Papahānaumokuākea Marine National Monument, designated by President Bush in 2006.

6. THE LEGAL OFFICES

An agency with special pertinence to public land law is the Office of the Solicitor in the Department of the Interior. The Solicitor is general counsel to the Secretary. The Solicitor's Office houses all the lawyers who give legal advice to the Department's disparate land management agencies. Lawyers in the Solicitor's Office write opinions, draft regulations, and render legal advice to the land management agencies. The Solicitor's Office does not, however, represent the Department in court; that task is left to the Department of Justice. Although the General Counsel in the Department of Agriculture serves a similar function for the Forest Service, the concentration of resource issues in Interior and the wealth of Solicitor's Opinions (collected in Interior Decisions) mean that the Interior Solicitor's Office is a primary source of law on the public lands.*

Another important entity for lawyers involved in public land law is the Interior Board of Land Appeals (IBLA), the major organ of the Interior Department's Office of Hearings and Appeals. Since 1970, several kinds of decisions of land management agencies (especially BLM) may be appealed to the IBLA, which possesses broad authority delegated by the Secretary to decide such appeals. Many of the roughly 300 appeals filed each year with the IBLA involve mineral resources (including royalty disputes), but the agency's jurisdiction also encompasses a wide variety of subjects including grazing, special use permits, wilderness review, and wild horses and burros. The IBLA usually sits in panels of two judges. Judges are appointed by the Secretary, and IBLA jurisdiction and processes are set out in [43 C.F.R. Part 4](#). The Forest Service also has quite an elaborate internal administrative appeal process, but it is not lodged in a separate division. Rather, the appellate chain leads from the Supervisors of individual forests through the Regional Foresters to the Chief of the Forest Service, and ultimately to the Secretary of Agriculture.

7. THE UNITED STATES CONGRESS

Since the nation's founding, Congress has played a critical role in public land law and policy making. Through much of the nineteenth century, the importance of the federal lands—as a source of revenue, for military purposes, and as an element in the nation's "Manifest Destiny" to spread from sea to sea—ensured close legislative scrutiny. Influential congressional representatives were active on public lands issues, not only in the halls of Congress, but in the courts (representing private citizens in public lands disputes) and (ethical standards being somewhat more lax than they are today) as private investors and speculators.

Following completion of the task of admitting the first 48 states in 1912, the priority of public lands issues on the congressional agenda was somewhat reduced. The closing of this frontier coincided with the emergence of the United States as a world power, and other competing responsibilities captured congressional attention. Throughout the past hundred years, in fact, public natural resource issues have often been

* Coauthor John Leshy was Solicitor of the Interior Department from 1993 to 2001.

viewed on Capitol Hill as something of a sideshow, with representatives from the remainder of the nation tending to defer to members from the western states.

The committee structure in Congress plays a crucial role in all legislation, and public land policy is no exception. Under various names and with varied jurisdictions, there have been committees in both houses of Congress with primary responsibility over public land legislation. For most of the nation's existence (from 1805 to 1951 in the House, and from 1816 to 1948 in the Senate) these were called committees on Public Lands or Public Lands & Surveys. Separate committees on mines and mining existed in each house from 1865 until 1947. Thereafter, the Public Lands and Mining Committees in each house were collapsed (in 1948 in the Senate, and in 1951 in the House) into committees on Interior and Insular Affairs. The House Interior Committee became the House Natural Resources Committee in 1992. Its counterpart in the Senate became the Committee on Energy and Natural Resources in 1977. These committees are usually referred to as "resource committees" for convenience.

Jurisdictional allocation is untidy in the resource committees. For instance, jurisdiction over Forest Service legislation generally is divided between the agriculture and resource committees in both houses. Of course, the appropriations committees of both houses can have great say in public land policy, both through their power over the purse-strings and through the technique of attaching substantive legislative "riders" to appropriations bills. Significant legislative struggles in recent years—over such issues as whether to prohibit land patenting under the Mining Law, whether to increase grazing or hardrock mining fees on public lands, whether to drill for oil in the Arctic National Wildlife Refuge, and how much road-building and timber harvesting should take place in the national forests—have played out primarily in the appropriations process.

Some public land legislation is generic, applicable to all lands in a particular management system (such as the Federal Land Policy and Management Act or the National Forest Management Act). But other legislation, such as a statute creating a national park, is specific to a particular state. In recent years, something of a trend has emerged to package certain kinds of legislation (such as designating lands of a particular agency as wilderness, or designating a cluster of wild and scenic rivers) on a state-wide basis. Congress traditionally will not enact public land legislation that primarily affects a single state without the support (or at least the acquiescence) of most, if not all, of the state's congressional delegation. The 1980 Alaska legislation recounted immediately below was a rare exception; the Alaska congressional delegation stoutly resisted it but in the end was defeated by a broad national coalition spearheaded by environmental groups.

8. THE SPECIAL CASE OF ALASKA

The public land law eras that played themselves out over the course of over two centuries in the Lower 48 States were recreated, compressed, and intensified in Alaska. The high-stakes events in the largest public lands state—"The Last Pork Chop," as one writer dubbed it—can only be briefly summarized here.

The word Alaska means “Great Land,” but the territory was long known as “Seward’s Folly” after the Secretary of State who engineered its purchase from Russia in 1867. Because of Alaska’s daunting remoteness and clime, the new sovereign did little with it for many decades. Alaska became a federal judicial district in 1884 and a territory in 1912. Alaskans, like other territorial residents before them, chafed under rule from Washington, D.C. but their cries of “colonialism” were perhaps even stronger. When statehood came to Alaska in 1959, its 375 million acres (well over twice the size of Texas) remained almost completely in federal ownership because only a relatively negligible amount of land was suitable for homesteading or other disposition under the existing public land laws. Meanwhile, over the years since Alaska was purchased, Congress had given almost no attention to Alaska Natives. No treaties had been negotiated and almost no reservations had been established by statute or executive order.

Alaskans drove the most successful statehood bargain of all. Under the Alaska Enabling Act, the new state government won the right to select 104 million acres of federal land. State officials promptly ordered surveys to determine the choicest parcels. At about the same time, rumors of extensive oil and gas deposits were bruited about as mineral companies conducted exploration programs. In the mid-1960s, Alaska Natives began to protest in earnest, taking the position that their aboriginal title had never been disturbed and that any administrative transfers of title to the state or the mining industry would violate Native property rights. Interior Secretary Stewart Udall listened and, in 1966, acted. In a bold stroke, he suspended the issuance of almost all land patents and mineral leases. The pressure heightened in 1968 when the discovery of massive oil deposits on state-selected lands at Prudhoe Bay on Alaska’s north slope was confirmed. Udall then withdrew all unreserved lands in Alaska from all forms of entry (Public Land Order 4582, the 1968 “Superfreeze”) until Congress had resolved the Native claims.

It took three more years before the Alaska Native Claims Settlement Act of 1971 (ANCSA), [43 U.S.C. § 1601–1624](#), became law. Paving the way for the Alaska Pipeline, ANCSA extinguished all Native title, granted Alaska Natives the right to select 44 million acres of federal land in the state, provided Natives nearly \$1 billion in federal funds, and allowed state selections to resume. The 1971 Act also reflected the emerging power of the modern environmental movement. ANCSA’s so-called “d(2)” provision, [43 U.S.C. § 1616\(d\)\(2\)](#), authorized the Secretary of the Interior to withdraw up to 80 million acres of land that might merit inclusion in four “national interest” systems (national parks, forests, wildlife refuges, and wild rivers). Thus, after ANCSA, four major potential sets of landowners—the state, Alaska Native corporations, the mineral companies, and the United States—were involved in overlapping and conflicting selection processes involving hundreds of millions of acres. The d(2) “national interest” withdrawals were frustrating to Alaskans who wanted no impediments to mineral development.

By the terms of ANCSA, the d(2) withdrawals expired on December 16, 1978. Although Congress had labored hard, it failed to complete work on conservation legislation that would have protected the lands

permanently. Faced with the prospect of these lands being opened back up to exploitation, President Jimmy Carter and Secretary of the Interior Cecil Andrus executed massive, overlapping withdrawals and Antiquities Act reservations that effectively extended the d(2) withdrawals and staved off mineral development and state selections of these federal lands. Congress finally finished the legislation in a lame-duck session after the 1980 elections and on December 2, 1980, President Carter signed the Alaska National Interest Lands Conservation Act (ANILCA) into law. This major and complex legislation (it encompasses 181 pages in statutes-at-large) is found at [16 U.S.C. § 3101–3233](#) and in scattered sections of titles 16 and 43.

Superseding (but confirming the effectiveness of) the Carter withdrawals, ANILCA allocated more than 103 million acres, mostly former BLM lands, to the federal conservation systems. In one fell swoop Congress doubled the size of the National Park System, tripled the size of the National Wildlife Refuge System, and quadrupled the size of the National Wilderness Preservation System. It added 13 waterways to the National Wild and Scenic Rivers System. Congress made two special designations for BLM lands—the 1.2 million acre Steese Conservation Area and the 1 million acre White Mountains National Recreation Area.

The following chart illustrates the changes in the land areas administered by the federal agencies over the last third of a century, most of it attributable to ANILCA and state and Native selection of BLM lands in Alaska.

Federal Agency Land Holdings (by millions of acres)

Agency	1978	2010
Bureau of Land Management	481	248
Forest Service	189	193
Fish and Wildlife Service	31	89
National Park Service	27	80
All other agencies	48	23
TOTAL PUBLIC LANDS	776	633

ANILCA also includes many provisions dealing with Alaska public lands generally, not just lands added to the preservation systems. It implements a preference for rural residents to engage in subsistence hunting and fishing, including traditional uses of snowmobiles and motorboats, on federal lands in Alaska. It allows many existing uses in the new wilderness areas, including cabins and access by airplanes and motorboats, to continue. Detailed provisions govern mineral development on ANILCA lands and timber harvesting in Alaska's national forests.

D. PRINCIPLES OF RESOURCE ALLOCATION AND MANAGEMENT

Scarcity is the origin of economic value because no one would pay for something abundantly available. Scarcity is also the origin of conflicts because users compete for limited resources. Scarcity may also encourage depletion. Most of the legal materials in this casebook aim to resolve conflicts peaceably and in ways that moderate depletion.

1. SOLVING THE TRAGEDY OF THE COMMONS

Garrett Hardin's groundbreaking article, "Tragedy of the Commons," explained how depletion can be the fate of resources owned in common. Hardin invited readers to "[p]icture a pasture open to all". 162 *SCIENCE* 1243, 1244 (1968). With unlimited access, cattle herders will seek to put as many cattle on the pasture as possible in order to maximize their own profits, their utility. In deciding whether to add one additional, privately owned animal to graze on the commons, a herder will consider the marginal utility, which has both positive and negative components. The entire value of the additional animal's growth by grazing is captured by the herder. On the negative side, the additional animal will contribute to overgrazing and depletion of the range. But those ill effects are shared by all the herders using the commons, so this cost is just a fraction of the entire harm.

Moreover, a rancher's decision to refrain from adding another grazing animal does nothing to prevent her neighbors from adding an animal. A conservation decision deprives the rancher of the private profits of an additional head, but does nothing to stop accumulating environmental harm. Consequently, each cattle herder will choose to add additional cattle, and this cycle will continue until the limits of the pasture are reached. At some point, the pasture will no longer be able to support any cattle, and thus no cattle herders can benefit from the pasture.

This tragic model can be extrapolated to many other situations. Hardin noted that the national "parks themselves are limited in extent—there is only one Yosemite Valley—whereas population seems to grow without limit." *Id.* at 1245. Every additional visitor to a park can be compared to another steer using the range.

Hardin suggested that either regulatory control or conversion of common resources to private ownership (i.e. "privatization") could solve this tragedy. The materials in this casebook examine legal regimes that do both. Regulatory controls require a governmental entity to develop a system of allocation, which may include negotiation of usage limits with users, and to monitor users in order to enforce or revise the allocation. These can be costly, unpopular, and time-consuming tasks. Hardin's "mutual coercion, mutually agreed upon" is the basis for much of the legislation, administrative rulemaking, and judicial determinations covered in this casebook. This material amply illustrates the controversies produced by these forms of government control.

Privatization may relieve the government of some of these headaches. Private owners have incentives to maintain a livelihood while preserving the value of their assets over the long term, so they

may avoid depletion. In Hardin's example, the negative component of utility that results from using additional resources on private lands would no longer be shared, so it would be entirely borne by the owner and better balance the positive benefits of grazing an additional animal. In other words, a private owner cannot externalize most costs and must fully account for them. Thus in Hardin's cattle herder example, if ten cattle herders used the pasture, each cattle herder could be given one-tenth of the pasture, perhaps with adjustments for land quality. Since each cattle herder can only use her own pastureland, she will use the pasture only to the point that it will stop effectively feeding her cattle.

Proponents of privatization have gone so far as to recommend that the national parks be sold off to promote better resource management. Richard L. Stroup and John A. Baden argued that "obstacles to efficient management would disappear" because the game of politics between competing users and interest groups would be over. *NATURAL RESOURCES: BUREAUCRATIC MYTHS AND ENVIRONMENTAL MANAGEMENT* 118–19, 123–27 (1983). They asserted that private landowners would listen to competing users in order to fully grasp opportunity costs. Thus, a landowner could trade until a more efficient outcome is reached. Stroup and Baden's "market system holds every private owner accountable to the rest of society by having to outbid everyone else." They argued that recreational users and those simply seeking a view would still gain access to the parks, for a fee determined by the owner. But, does that satisfy all of the aims of society for natural resource use?

The political scientist Elinor Ostrom maintained that the options for managing "common pool resources" are not limited to either public regulation or private ownership. She argued that Hardin overlooked existing, well-monitored common ownership regimes. Ostrom showed that a common ownership system can be efficient, productive, and long lasting—if it maintains certain characteristics. Ostrom identified eight such characteristics: (1) clearly defined boundaries (that help to ensure only those with rights to the resource can gain access); (2) rules tailored to local conditions; (3) ability for users to participate in developing the rules; (4) accountable and capable monitors to ensure users follow the rules; (5) graduated sanctions for disobeying rules; (6) low-cost conflict resolution for users and officials; (7) external government recognition of the common ownership system; and (8) nested enterprises wherein the components of the common ownership system are organized in multiple levels of power and jurisdiction. Elinor Ostrom, *GOVERNING THE COMMONS* (1990).

Ostrom observed that systems that embraced these qualities tend to sustain productive uses over the long term. For example, Ostrom studied the Kerabari irrigation system in Nepal, where the local farmers manage their water access and distribution together, in a committee. The committee allocates water based on crop patterns, and households using the water send workers to maintain the irrigation system, based on the size of their farms. The boundaries for the system are clearly delineated, and the rules of access, as determined by the committee, allow for participation from the farmers and are based on the specific, local needs of the farmers. Ostrom found that the farmers who cooperated in this system had crop yields "well above average." Nevertheless, accomplishing a well-functioning common ownership

scheme can be costly and difficult. Ostrom noted that common ownership schemes present a significant collective action problem of negotiating agreement among many individuals, some of whom may more clearly benefit from open access to resources. Elinor Ostrom & Roy Gardner, *Coping with Asymmetries in the Commons: Self-Governing Irrigation Systems Can Work*, 7 J. ECON. PERSPECTIVES 93, 108–09 (1993). How does Hardin’s concept of “mutual coercion, mutually agreed upon” differ from Ostrom’s common ownership schemes?

While efficient resource management is a prime objective in many contexts, some goods and services associated with natural resources cannot easily be valued by conventional commercial or market means. Aldo Leopold was an early ranger in the U.S. Forest Service, an avid hunter and angler, the father of wildlife management science, co-founder of The Wilderness Society, and an inspiration to many. Leopold pointed out that aesthetic values are often overlooked because they may lack direct translation to economic values in land. Nevertheless, such values may be important to society. More concretely, biologists have defined concepts, such as biodiversity and resilience, that contribute to healthy, functioning ecosystems. Yet particular landowners may not value these factors. Leopold argued that landowners often disregard these and other attributes not valued by the market. Thus, he warned, the current economic system is insufficient to prevent depletion of scarce resources.

To sum up: a system of conservation based solely on economic self-interest is hopelessly lopsided. It tends to ignore, and thus eventually to eliminate, many elements in the land community that lack commercial value, but that are (so far as we know) essential to its healthy functioning. It assumes, falsely, I think, that the economic parts of the biotic clock will function without the uneconomic parts. It tends to relegate to government many functions eventually too large, too complex, or too widely dispersed to be performed by government.

Aldo Leopold, *The Land Ethic*, A SAND COUNTY ALMANAC (1949, 1977).

Instead, Leopold promoted a “land ethic” for determining the right mix and intensity of resource use. The land ethic embraces natural resources as a part of the ethical community to which humans owe duties. Leopold viewed humans as mere members—not conquerors—in this community. Under the land ethic, humans consider their dependence on and connection to land. Management is based on not only what is economically efficient, but also what protects and benefits the land. Leopold wrote that “a thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.” *Id.*

Roderick Nash, an influential historian of the American environmental movement, placed Leopold’s land ethic in the tradition of American liberalism. “The American past contains a highly visible liberation movement with interesting similarities to contemporary environmentalism. If the abolition of slavery marked the limits of American liberalism in the mid-nineteenth century, perhaps biocentrism and environmental ethics are at the cutting edge of liberal thought” today. Roderick Nash, *THE RIGHTS OF NATURE* 200 (1989).

How apt is the liberation analogy for a movement concerned less with the sanctity of individual parts of an ecosystem than with the healthy functioning of the whole? As you read this casebook, consider how the civil rights movement informed legal strategies of litigants. Also consider whether courts and other institutions view disputes in purely economic terms, or as rights. To the extent that the law now considers a wider range of concerns, does that represent progress toward the “land ethic”?

C.S. Lewis wrote that “what we call Man’s power over Nature turns out to be a power exercised by some men over other men with Nature as its instrument.” *THE ABOLITION OF MAN* (1947). It is worth remembering as you proceed through this book that the law we discuss is not the law of nature, but the law governing human interactions with each other over resource conflicts.

2. ECOSYSTEM MANAGEMENT

Whoever controls resources, whether the government or a private entity, needs to account for a dizzying array of potential outcomes, some of which are predictable, but most of which are subject to great uncertainty. The next excerpt describes ecosystem management, an ambiguous term that categorizes many of the new approaches to resource management considered in the chapters that follow. As you read, consider the value judgments inherent in the components of ecosystem management considered by legal institutions. Also, consider how climate change complicates all of the following approaches to managing public resources.

Robert B. Keiter, *Ecology and the Public Domain*

KEEPING FAITH WITH NATURE: ECOSYSTEMS, DEMOCRACY, AND AMERICA’S PUBLIC LANDS 71–79 (2003).

On Definitions, Principles, And Law

* * * With an extinction crisis looming, biodiversity conservation and ecosystem restoration are major ecosystem management concerns. But the human presence on the landscape cannot be ignored, which means that economic, social, and political concerns must be factored into any ecological management policy. To address these interrelated concerns, ecosystem management has embraced sustainability as a paramount policy goal. Sustainability is defined broadly: it includes both ecological and economic sustainability as measured by the needs of both current and future generations. To achieve these sustainability objectives, planning and management decisions must be framed in ecologically relevant geographical and temporal terms, unconstrained by conventional boundary lines, jurisdictional jealousies, or short-term political, economic, or social considerations. Management on this enlarged scale requires collaborative, cross-jurisdictional planning protocols as well as adaptive management approaches. In combination, these propositions represent a dramatic departure from traditional natural resource management institutions and policies, and introduce controversial new complexities into the public land policy equation.

Numerous general definitions of ecosystem management have been proffered, but none has yet been universally accepted or endorsed. * * *

* * * According to the Interagency Ecosystem Management Task Force, the ecosystem approach was “a method for sustaining or restoring natural systems and their functions and values. It is goal driven, and it is based on a collaboratively developed vision of desired future conditions that integrates ecological economic and social factors. It is applied within a geographic framework defined primarily by ecological boundaries.” * * * [Professor Keiter then surveys the different ecosystem management definitions of the public land agencies and concludes that while they] generally agreed on the goal of maintaining sustainable ecosystem, they did not all place the same emphasis on related economic concerns—a clear reflection of the divergent statutory mandates governing each agency.

Because these proffered definitions are so general, the ecosystem management concept has also been defined in terms of governing principles. First, to ensure healthy natural resource systems and to address pressing species extinction concerns, a primary goal (objective) of ecosystem management is to maintain and restore biodiversity and sustainable ecosystems. Second, because people are a part of nature and human values inform any natural resource policy, ecosystem management goals must be socially defined—ordinarily through broad public participation—to incorporate ecological, economic, and social concerns into workable sustainability strategies. Third, because species and ecological processes transcend jurisdictional boundaries, ecosystem management requires coordination among federal agencies and collaboration with state, local, and tribal governments as well as opportunities for public involvement in planning and decision processes. Fourth, given the dynamic, nonequilibrium nature of ecosystems and the unpredictability of related disturbance processes, ecosystem management requires management on broad spatial and temporal scales in order to accommodate ecological change and to address multiple rather than single resources. Fifth, given the important role science plays in understanding natural systems, ecosystem management is based on integrated, interdisciplinary, and current scientific information that can be used to address risk and uncertainty. Sixth, because ecosystem management and accompanying science are still experimental, ecosystem management requires an adaptive management approach that includes establishing baseline conditions, monitoring, reevaluation, and adjustment to reflect changes in scientific knowledge as well as evolving human concerns.

In each instance, these governing ecosystem management principles represent a stark departure from traditional resource management policies. Whereas ecosystem management places a premium on biodiversity conservation and ecological integrity, traditional resource management has generally relied on the technical expertise of agency officials to establish priorities and strategies. Whereas ecosystem management disregards administrative boundaries and promotes institutional coordination, traditional resource management has been highly deferential to jurisdictional boundaries and agency officials have jealously guarded their own managerial prerogatives. Whereas ecosystem management acknowledges that resource systems are dynamic and nonequilibrium in character, traditional management has taken a more static and deterministic view of the landscape. Whereas ecosystem management views natural

resources in a holistic, interrelated, and systematic context, the traditional management approach has focused on individual resources and short-range time frames. Whereas ecosystem management employs an adaptive approach to establishing resource policies and priorities, traditional management has usually established firm production targets and resisted subsequent modifications in order to promote predictability. While not exhaustive, this comparison between the two policies demonstrates how an ecological perspective alters the narrow and rigid management approaches that have dominated natural resource policy.

The concept of ecosystem management offers land managers an opportunity to break down the humanity-nature or utilitarian-preservation dichotomy that has characterized natural resource policy for the past century. Even the words *ecosystem management* imply a merging of the natural and human: *ecosystem* suggests a natural setting shaped primarily by ecological processes, while *management* contemplates a human presence and involvement in shaping the natural world. Utilitarianism or multiple-use management, with its strong commitment to efficiency and scientific planning, has gradually acknowledged that human interests in natural resources cannot be defined solely in economic terms but must also include biological, aesthetic, and other considerations. The preservationist movement, despite its long-standing commitment to aesthetics, has been influenced profoundly by recent scientific developments; it is now using the ecological sciences to protect biodiversity, natural processes, and linkage corridors in a dynamic landscape setting. Both philosophical schools have generally accepted the cogent scientific and philosophical arguments supporting the need to safeguard all species—not just charismatic megafauna—against extinction. And managers from the public land agencies—whether multiple-use or preservationist in orientation—are all well aware that resource decisions inevitably trigger repercussions beyond their immediate boundaries, which can also affect their own management options and strategies. In short, ecosystem management concepts are being embraced by both the utilitarian and preservation schools of conservation thought. Whether this new ecological perspective can finally fuse these two divergent philosophies together will depend on related political developments and how these new principles are applied on the ground.

Criticisms And Challenges

The emerging doctrine of ecosystem management cuts profoundly against many of the long-standing assumptions undergirding natural resource law and policy. Property rights and most natural resource laws are based upon the notion of fixed boundaries, which have rarely been defined in ecological terms. The very concept of legal ownership implies certainty and stability, but the nature of ecosystems is instability and disequilibrium, requiring flexible management strategies based on adaptive experimentation. The existing legal order is generally designed to ensure prompt and tangible financial returns, while ecological management gives priority to biodiversity conservation and often requires managerial forbearance. Critics have seized upon these and other problems in an effort to discredit new ecosystem management concepts.

One key point of contention is whether ecosystem management has any substantive content or whether it is merely a process. Noting that many ecosystem management definitions give priority to biodiversity conservation and ecosystem integrity goals, critics assert that ecosystem management is really just a poorly disguised effort to elevate environmental protection goals above commodity production on the public domain. They reject this transparent shift in management priorities, arguing that it violates existing legal standards governing public lands, has not been endorsed by the general public, and ignores important countervailing economic and social considerations. Other analysts, taking a more circumspect view, suggest that neither ecosystem protection nor biodiversity conservation can properly be regarded as a process that enables natural resource managers to identify specific production, protection, and restoration goals. These goals, however, are not inherent in ecosystem management but reflect “desired social benefits” that should be “defined by society, not scientists.” Under this approach, biodiversity conservation and ecological preservation may (or may not) be a desired social benefit that emerges from ecosystem management processes.

A second major point of contention focuses on the inherent difficulty in defining and using ecosystem boundaries for management purposes. Because the ecosystem concept originally was conceived as a theoretical construct for research purposes to establish experimental boundaries, critics contend that ecosystems are ill-suited for land management purposes. They note that the ecosystem concept is inherently malleable and can be defined on multiple scales and in diverse settings. If ecosystem management is applied on a large scale (which is what most proponents envisage), then critics fear that regulatory chaos will ensue. On the public lands, managers confronting transboundary issues will face an unsolvable dilemma in determining whose legal mandate should prevail in the event of a conflict over resource priorities. Private landowners, on the other hand, will face the prospect of an expanding federal regulatory presence that could limit their land use and development options. Others, also concerned about potential boundary problems, believe ecosystem management requires clearly defined, place-based boundaries, which will enable managers to address concrete resource problems.

A third potential problem is the inherent vagueness and uncertainty of the ecosystem management concept and related terms. Ecosystem management definitions that do not establish definitive priorities among environmental protection and related socioeconomic concerns provide managers with little clear guidance on how the policy should be implemented on the ground. In the event of a conflict between ecological and economic objectives, should the manager authorize a timber sale or mining project on undeveloped land, or does ecosystem management dictate a negative decision in this instance? From an economist’s perspective, the vague ecosystem management concept provides no evident basis for making a cost-benefit analysis or for determining appropriate trade-offs. Even if the protection of ecosystem integrity or biodiversity conservation is the highest priority, critics ask how these concepts are to be defined and measured. They similarly question whether the amorphous concept of sustainability provides any clearer guidance. Relatedly, they observe that uncertainty pervades

ecological science, and that scientists frequently disagree among themselves over basic concepts and the proper interpretation of experimental results. They note that the inherent instability and unpredictability of ecological processes make it difficult to define a clear management target or goal. Given these definitional problems, critics believe, it is virtually impossible to set meaningful ecosystem management standards, which means there is no basis for measuring management performance or for holding managers accountable. From a commercial perspective, these definition problems can create intolerable uncertainty, deter financial planning, and increase transaction costs. From the government's perspective, an expanded planning regime could prove exceedingly costly and bureaucratically unwieldy.

Fourth, critics have questioned whether ecosystem management can be reconciled with basic democratic principles. Several critics have charged that an ecosystem management policy based on protecting ecosystem integrity is so technical that it essentially vests scientists with ultimate management authority and effectively excludes affected parties and the general public from any meaningful role in management decisions. From this perspective, ecosystem management recalls an earlier and thoroughly discredited era when claims of scientific expertise were allowed to dictate natural resource policy without regard to competing social value preferences. One particularly harsh critic, noting that a widely cited ecosystem management proponent has advocated "avoid[ing] the democratic trap of giving equal weight to all interest groups [because] many would destroy biodiversity for economic gain," asks who would be entitled to serve as nature's proxy in determining appropriate management objectives. An unduly vague ecosystem management policy that lacks clearly articulated and enforceable standards would also violate fundamental democratic principles of government accountability. Moreover, because ecosystem management contemplates interagency coordination to achieve shared ecological objectives, any ambiguity in the basic policy could undermine coordination efforts and leave participants without any clear sense of direction or accomplishment. Coordination merely for coordination's sake is the antithesis of an efficient and accountable bureaucracy.

Fifth, noting that several ecosystem management models contemplate local collaborative processes to set the resource policy agenda, environmental critics fear these processes will inevitably promote commodity production over countervailing ecological goals. If ecosystem management is merely a process to establish natural resource priorities, they fear, industry and its allies in resource-dependent communities will dominate that process, as they have in the past. They note that the environmental constituency tends to be concentrated in urban areas and is thus logistically unable to participate effectively in locally based collaborative processes where the critical decisions would be made. They also are concerned that locally based collaborative processes will tend to ignore or discount important scientific evidence documenting ecological conditions in order to promote local economic interest. Eschewing local partnership arrangements, they would rather place their faith in national regulatory standards, which are designed to protect environmental values and are enforceable in courts. In fact, * * * environmental critics are concerned that ecosystem management is simply a subterfuge to

return maximum discretion to the land manager or to local partnerships. Unless ecosystem management policy contains legally enforceable standards promoting clearly defined ecological preservation goals, they reject it as merely another effort to decrease environmental protection of the public lands.

Finally, critics have asserted that there simply is no legal basis for ecosystem management on public lands, which makes it an entirely illegitimate policy. Not only does existing law contain no explicit ecosystem management provisions, but Congress has failed to adopt proposed ecosystem management legislation when presented with the opportunity to do so. Granted, one might stitch together legal authority supporting ecological management policies from the diverse environmental and other statutes governing public lands, but critics believe these laws do not displace the governing organic mandates, which clearly mandate commodity production and other tangible outputs as primary policy goals. * * * Thus, convinced that ecosystem management lacks a strong legal or political foundation, critics argue that any administrative policies promoting ecological objectives must first meet existing multiple-use and other statutory standards governing the public domain.

Nonetheless, ecosystem management has plainly taken hold on the public domain, and it is proving resilient enough to surmount these criticisms and problems. Indeed, within the federal bureaucracy, the halls of Congress, and elsewhere, an overt struggle is under way between the proponents and opponents of ecosystem management to shape the concept to fit their particular agendas and predispositions. While acknowledging that both definitional and technical problems must still be resolved, public land agencies are nevertheless engaged in myriad ecosystem-based experiments, employing new scientific insights and cooperative decision making models to reshape natural resource policy on the ground. Related ecological reforms are also evident in several recent legislative and administrative initiatives. Whether the term of art is ecosystem management, an ecosystem approach, integrated resource management, or collaborative stewardship, there is general agreement on the underlying rationale and direction for new ecological approaches to public land management. How these experimental endeavors fare and whether any universal lessons emerge from them will help further shape ecosystem management strategies and determine whether they represent a viable long-term natural resource policy.

NOTES AND QUESTIONS

1. One of American property law's great successes is the clarity with which boundaries are defined. Ecosystem management challenges that fundamental goal of property law. Does ecosystem management represent a final step away from the property roots of natural resources law? What would shifting boundaries mean for the investment and liberty interests that rely on stable expectations?

2. Does ecosystem management help define the public interest for balancing competing demands on federal lands? If ecosystem management is "goal-driven," who determines the goal and how? Is it whatever comes out of a neutral, fair process?

3. What role should science play in ecosystem management? Generally, the ecological sciences are not able to provide a detailed list of prescriptions for restoring or maintaining sustainable ecosystems. Sustainable ecosystems may not even be possible in areas adapted to periodic disturbances, such as disease outbreaks and fire. Should scientists make the policy calls related to public land management?

Free-market skeptics of regulation and other opponents of regulation in natural resource management, drawing on popular critiques of “junk science,” demand that environmental management decisions be “affirmatively supported by data that . . . [satisfies] the stringent burden of proof applied in research science.” Peter Huber, *GALILEO’S REVENGE* 263 (1991). What kind of certainty or level of scientific peer review ought we demand of public land managers in reviewing their decisions? Should the burden of precaution be borne by those who have an economic stake in commercial use of public resources? Professor Doremus offers an alternative approach that she claims:

grapples openly with the limits of scientific data, and the values that necessarily inform interpretation and application of limited data. * * * Over the long run, learning over time is likely to be essential to actually achieving the goals of conservation. Resource management decisions are frequently iterative. The information supporting them should become stronger, and the political discretion permitted the decision maker correspondingly narrower, over time. Learning has too often been impeded by the unwillingness of environmentalists to concede the limits of the currently available scientific information. Letting go of spurious claims of scientific certainty would allow them to press far more strongly for increasing the information available to support management decisions, through targeted research funding, baseline data collection efforts, and regulatory incentives for information production.

Holly Doremus, *Science Plays Defense*, 32 *ECOLOGY L.Q.* 249, 305 (2005). Her remedies include more frank acknowledgment of the limits of science, and more money and effort directed to scientific research. What proportion of their austere budgets should resource management agencies dedicate to the research component of adaptive management? Does ecosystem management fit her bill, or is it an example of environmentalists using the cloak of science to disguise their policy preferences?

4. Ecosystem management is an approach to public land and resource disputes rooted in the natural and social sciences. Professor Sax identifies the moral and aesthetic elements of conservation values:

[M]ost conflict over national park policy does not really turn on whether we ought to have nature reserves (for that is widely agreed), but on the uses that people will make of those places—which is neither a subject of general agreement nor capable of resolution by reference to ecological principles. The preservationists are really moralists at heart, and people are very much at the center of their concerns. They encourage people to immerse themselves in natural settings and to behave there in certain ways, because they believe such behavior is redeeming.
* * *

If they cannot persuade a majority that the country needs national parks of the kind they propose, much as it needs public schools and libraries, then the role they have long sought to play in the governmental process cannot be sustained. The claim is bold, and it has often been concealed in a pastiche of argument for scientific protection of nature, minority rights, and sentimental rhetoric.

Joseph L. Sax, MOUNTAINS WITHOUT HANDRAILS: REFLECTIONS ON THE NATIONAL PARKS 103–09 (1980).

Professor Sax tries to isolate and make explicit the political claim of park preservationists, and separate it from scientific arguments. Does that help or hinder their claims? How does the preservation agenda differ from ecosystem management?

3. THE SOCIO-ECONOMICS OF PUBLIC-LAND COMMUNITIES IN THE WEST

The federal government owns more than half of the land in the American West, and management of this land ignites serious attention and debate, from local interests as well as distant ones. The rhetoric surrounding these debates—as well as the justifications supporting all sides—is changing as the economies of western cities and states transform away from dependence on extractive industries.

When federal agencies set aside public land for conservation, the local response is often negative, even hostile. Much of the concern is driven by a commonly held view that the West still depends on public lands for timber, minerals, oil and gas resources. From this point of view, public lands and resource development is the lifeblood of rural communities, and curtailing resource extraction hurts the well-being of rural people.* * * However, today these industries provide few jobs. They have not been a significant source of new jobs or personal income in the last three decades.

Ray Rasker et al., Prosperity in the 21st Century West: The Role of Protected Public Lands (Sonoran Institute 2004).

The economy of the West has been shifting to more service-oriented jobs. People move near big reserves of public land to take advantage of amenities, such as recreational opportunities. These “amenity migrants” either bring jobs with them (such as investing) or develop jobs for themselves once they arrive. Many migrants rely on telecommunication to tie themselves to manufacturing in an urban center while they ply their trade (e.g., engineering) in a rural western area. Others take advantage of the increasing interest in the rural West and develop real estate or finance service businesses. They have created economies and communities often called the “New West,” where employment and incomes grow at a greater rate than elsewhere.

But this shift in employment has not been due entirely to migration and “newcomers.” Richelle Winkler et al., *Social Landscapes of the Inter-Mountain West: A Comparison of ‘Old West’ and ‘New West’ Communities*, 72 RURAL SOCIOLOGY 478 (2007). Farms have increased in size and thereby decreased the amount of labor required per acre or

per amount of livestock. Likewise, forestry has turned to robotics for some of its harvesting and milling. Across the board, extractive industries have turned to larger-scale production, requiring fewer workers to maintain output. In fact, Rasker and others found an inverse relationship between dependence on extractive industries and economic growth. Their 2013 study showed that per capita income, growth in per capita income, and growth in per capita investment income are all positively correlated with protected public lands in rural counties of the West. Rural residents enjoyed an average of \$436 more in per capita income on average for each additional 10,000 acres of protected public lands. Rasker, Gude, & Delorey, *The Effect of Protected Federal Lands on Economic Prosperity in the Non-Metropolitan West*, 43 J. REGIONAL ANALYSIS AND POLICY 110 (2013).

Still, reliance on extractive industries has increased in other areas, likely due to rising oil and gas prices. The presence of natural amenities may be an important but not sufficient condition for economic growth in the rural West. Also, when affluent newcomers bring rising costs of living, resentment may emerge. Social norms may also be challenged. For instance, amenity migrants “are less likely to invest in increased irrigation efficiency on their property than longtime ranching residents, yet are more likely to reallocate water to in-stream uses, restore native ecosystems, and construct fish ponds.” Paul Robbins et al., *Writing the New West: A Critical Review*, 74 RURAL SOCIOLOGY 356, 365 (2009).

The New West thus has a critically influential role on the western United States, but traditional, resource-dependent ways of life are still widespread. Should public land policy be a follower or a leader of demographic changes in local communities? In the New West, “[t]he question may not be ‘which is better for ecosystems, cows or condos,’ but instead, ‘what variety of specific agrarian, urban and exurban forms are proliferating under conditions of uneven rural development and how might they be controlled or directed in the interest of specific ecological structure and function?’” Robbins et al. at 370. As you read the casebook, consider whether and how the law addresses this question.

Should public land management be closely tied to decisions that maximize local economic benefits?