Natural Resources Law Center
University of Colorado School of Law

DISCUSSION PAPER:
THE CHANGING ECONOMICS
OF THE PUBLIC LANDS

Western Lands Report No. 2

Lawrence J. MacDonnell

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Western Lands Report Series

PREFACE

The Natural Resources Law Center was established at the University of Colorado School of Law in 1982. Its primary goal is to promote the wise use of natural resources through improved understanding of natural resource issues. The Center pursues this goal through three program areas: research, public education, and visitors.

In January of 1993, the Natural Resources Law Center convened a workshop of approximately 30 public lands experts to discuss priority issues in western lands and resources and to develop an agenda for the Center's new Western Lands Program. In preparation for this workshop, Center staff prepared five discussion papers, each dealing with a broad theme critical to the future of public lands policy. This discussion paper reflects the valuable comments received from workshop participants.

The following individuals attended the Western Lands Workshop in Boulder: Michael Anderson, Sarah Bates, Richard Behan, Ralph Benson, Melinda Bruce, Jo Clark, Robert Davis, Dennis Donald, Sally Fairfax, Maggie Fox, David Getches, Frank Gregg, Martha Hahn, Gary Holthaus, Ken Hubbard, Robert Keiter, Ed Lewis, Dan Luecke, Lawrence MacDonnell, Daniel Magraw, Guy Martin, Jim Martin, Jerry Muys, Robert Nelson, Jim Noteboom, Randal O'Toole, Teresa Rice, Hal Salwasser, Debbie Sease, Karin Sheldon, John Wilkes, and Charles Wilkinson. Their enthusiastic participation and assistance with the preparation of these papers is greatly appreciated.

These are discussion papers, intended to inform and to stimulate thinking about policies for the western public lands. We welcome and encourage your comments and participation in an ongoing dialogue intended to facilitate improvement in these policies that are so important to the West and the United States.

INTRODUCTION

Proposals in the Clinton Administration's first budget to increase charges for resources extracted from the public lands touched a sensitive nerve among many westerners and their political representatives. While these proposals were withdrawn from the budget plan they remain very much on the agenda of the Administration as well as with influential members of Congress. It seems safe to say that users of the federal public lands will be paying more for these uses.

The federal budget deficit helps to justify these proposals. Even without a deficit, however, they would still be under consideration. Public land laws and policies are in one of their periodic cycles of transformation; many of the assumptions supporting existing policies are under challenge and are not likely to survive. This discussion paper asserts that basic assumptions about the economic values of the federal public lands driving much of public land policy are increasingly out of phase with contemporary national interests in these lands and, to a lesser degree, with the interests of a growing part of the West. Fundamentally different conceptions of the role and purpose of the public lands are generating serious discussion. There is a real chance in the next ten years to see major change in public land policy.

Economic considerations have been the primary determinant of the policies governing the use and management of the public lands. Rarely explicit in the laws governing the public lands, these considerations are reflected in the manner that different uses are authorized and supported. Early policies reflected a national goal of promoting rapid settlement of the newly acquired lands in the expanding western part of the United States. Essentially free disposition and use of the public lands and their resources provided the primary incentive for this settlement. This view of the public lands as a means by which to promote economic development remains strongly embedded in many public lands policies.

Increasingly, other views of the public lands have gained support, and policies reflecting these views have been established. The creation of Yellowstone National Park in 1872 signaled recognition of the importance of preserving special areas. In the late nineteenth century, concern about destructive resource exploitation prompted conservationist policies aimed at a more managed approach to resource development.

The national forests are a primary outcome of this policy. Resource development remains a primary purpose of these forest lands, but the extent and manner of that development are to reflect interests other than simply the immediate pecuniary interests of the developer.

Since the creation of Yellowstone, other public lands unique for such things as scenic, historical, archaeological, and wildlife uses have been given special management status to emphasize or protect these values. Initially such designations had the primary effect of making these lands unavailable for disposition to private use. Today they are primarily significant because of the limitations that are placed on other, potentially competing uses of these lands.

In 1976, Congress officially acknowledged its intention to retain the public lands in public ownership. In so doing, Congress implicitly decided that the array of benefits available from the public lands would best be achieved through such public ownership. This was not a determination that the economic benefits of these lands and resources could best be realized through public management. Rather it can be understood to reflect a view that the dominant benefits of these lands are ones that cannot be gained primarily by private development. It suggested an evolving but as yet ill-defined view that public lands are to be managed for what might be termed public benefits (often nonmarket in nature) rather than private economic gains.

On its face, this policy direction appears to be a rejection of utilizing the public lands for economic development objectives. Alternatively, it can be seen as expressing a broader view of the economic values of the public lands. This discussion paper considers the changing economic role of the public lands as reflected in the policies and uses of these lands over time. It traces these changes in relation to the traditional dominant uses of the lands: mineral development, grazing, and timber. It argues that the dominant uses of the public lands increasingly will emphasize objectives such as ecosystem management, biodiversity protection, and recreation. Extractive uses will continue, especially in areas with a strong tradition of such uses, but with greatly reduced subsidies, with increased conditions for protecting other values and at a more sustainable

level. It concludes that these results are directed both by changing economic and social conditions in the West and in the country as a whole.

TRADITIONAL ECONOMIC USES

Mineral Development

The California gold rush triggered an unprecedented wave of emigration to newly-acquired lands in the West. Itself the cause of most of this initial emigration, mineral development ultimately supported few of these new westerners. It provided a source of wealth and a demand for services, however, that made possible the initial commercial and agricultural settlement of the West.

For nearly 20 years following the discovery of gold in 1848 there was no public land mineral policy. Mineral development on the public lands occurred according to the rules established by the miners themselves for particular mining districts. Congress, when it finally acted in 1866, adopted in large part the customs developed by the miners. The Mining Law of 1872, still in force today, states that all valuable mineral deposits in the public lands are "free and open to exploration and purchase" for the modest sum of either $2.50 or $5.00 per acre.[1] Access to the public lands for mineral exploration is made available without charge. Staking a claim on lands valuable for minerals establishes a property interest carrying certain rights to use the surface and to develop the minerals. No royalty payment to the U.S. for mineral development is required. Full fee simple interest in the property may be obtained by means of a patent.

In many respects this law is the epitome of nineteenth century resource development policies. It presumes that mineral development will always be the highest and best use of the land area involved; indeed, it suggests a preeminent importance for mineral development itself. The private initiative necessary to encourage mineral development is provided by creating well defined private rights to search for and develop

[1]The General Mining Law of 1872 is found at 30 U.S.C.A. §§ 22 - 42.

mines on the public lands. The fruits of successful exploration and development accrue to the miner alone.

The 1920 Mineral Leasing Act[2] reflects the conservationist influence of that time. With respect to the energy and fertilizer materials covered, this law asserted a public role in controlling access; it provided exploration and development rights only for a limited term in the absence of actual production; and it required rental payments for the land and royalty payments for mineral production.

The Federal Coal Leasing Amendments Act of 1976[3] placed coal development into the emerging practice of public land use planning. It encouraged mining of coal found "suitable" for development in relation to other values and uses of the lands. It substantially increased minimum payments to the U.S. for coal production. And it emphasized "diligence" in the development of leased coal.

The public lands are important for mineral development in the U.S. There are between one and two million recorded mining claims for hardrock minerals on the public lands.[4] The following map (figure 1) shows the distribution of these claims in the western states. The General Accounting Office estimates that the value of hardrock mineral production from federal lands in 1990 was at least $1.2 billion, with over 80 percent coming from a single state--Nevada. While 54 percent of the land in the 12 western states is federal public land, only about 14 percent of the hardrock mineral production in these states comes from these lands. One reason is that much of this mineral production comes from the 3.2 million acres of land that have previously passed to private ownership though the patenting provisions of the Mining Law.

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[2]The Mineral Leasing Act of 1920 is found at 30 U.S.C.A. §§ 181 - 287.

[3]30 U.S.C.A. § 201 et seq.

[4]General Accounting Office, "Value of Hardrock Minerals Extracted from and Remaining on Federal Lands," August 1992, p. 2.

Figure 1

Figure 1: Mining Claims of Record on Federal Lands in 12 Western States, as of September 30, 1990

Source: GAO/RCED-92-192 Mineral Resources - Interior Data

In 1988, about 81 million acres of federal lands were under lease for oil and gas.[5] Over 90 percent of this leased acreage was in the 14 contiguous western states and Alaska. In 1990, federal onshore and Indian leases provided 161 million barrels of oil, representing about 6 percent of total domestic oil production.[6] Gas production from federal onshore and Indian leases in 1990 amounted to about 1.3 million Mcf, about 7 percent of total U.S. gas production. Federal coal has become a more significant part of domestic coal production in recent years. In 1990 federal and Indian leases accounted for 27 percent of total U.S. coal production.

Hardrock mineral production on federal land generates no direct revenues to the U.S. Treasury. Leasable minerals, on the other hand, provide significant revenues in the form of bonuses, rentals, and royalties. In recent years, total mineral revenue collections from public domain, acquired, and Indian lands have totalled about $4 billion per year. States receive 50 percent of the royalties from production on federal lands within their borders.

Grazing

Like mining, grazing uses of the public lands proceeded without limitation by the federal government for many years. This essentially unregulated use of lands led to a classic "tragedy of the commons " situation, resulting in widespread damage to the productivity of grazed lands. In 1897 the Secretary of the Interior asserted authority to control grazing uses in the newly created forest reserves. In 1900 the General Land Office established a permit system for grazing in these reserves. In 1905 the forest reserves were transferred to the Department of Agriculture which set up a Bureau of Forestry under Gifford Pinchot. In 1906 Pinchot enacted a grazing fee requirement for these lands.

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[5]General Accounting Office, "Federal Land Management: The Extent of Oil and Gas Activities on BLM and Forest Service Lands," 1990.

[6]Minerals Management Service, "Mineral Revenues 1990."

By 1910, 15 million animal unit months (AUMs) were permitted in the national forests. This amount increased to over 20 million AUMs during World War I. Concerns about the impacts of overgrazing caused the Forest Service to begin reducing AUMs in many forests. In the 1920s the Forest Service initiated a policy of issuing permits for a term of ten years. As shown in the following figure (figure 2), AUMs in the national forests gradually declined until the 1960s when usage began to level off and stabilize.

Grazing on the remaining public domain continued without public regulation until passage of the Taylor Grazing Act in 1934.[7] This law established grazing districts on the public domain lands and provided for access to lands within these districts primarily on the basis of historical usage of the area. The act required a permit for grazing uses of these lands. "Reasonable fees" were to be charged for this use. The Interior Department established the Grazing Service to administer this program and created Advisory Boards for every district to help with program implementation. Congress gave statutory authority to these Advisory Boards in 1939.

As shown in figure two, the amount of grazing permitted in the grazing districts rose very rapidly at first. By the 1940s and 1950s grazing usage more or less leveled off. In the late 1950s the BLM began reducing the number of AUMs until about 1980 when AUMs once again began to increase somewhat.

Forests and rangelands in the U.S. provide forage for more than 70 million cattle, 8 million sheep, 55,000 wild horses and burros, 20 million deer, 400,000 elk and 600,000 antelope.[8] Private rangelands provide about 86 percent of the total AUMs of all livestock. Private irrigated pastures provide about 2 percent of the AUMs and crop "residues" account for another 5 percent. Public lands account for only 7 percent of the AUMs on a national basis. On a local or regional basis, public lands can be critical. Operations on many private ranches in the West are dependent on access to public lands

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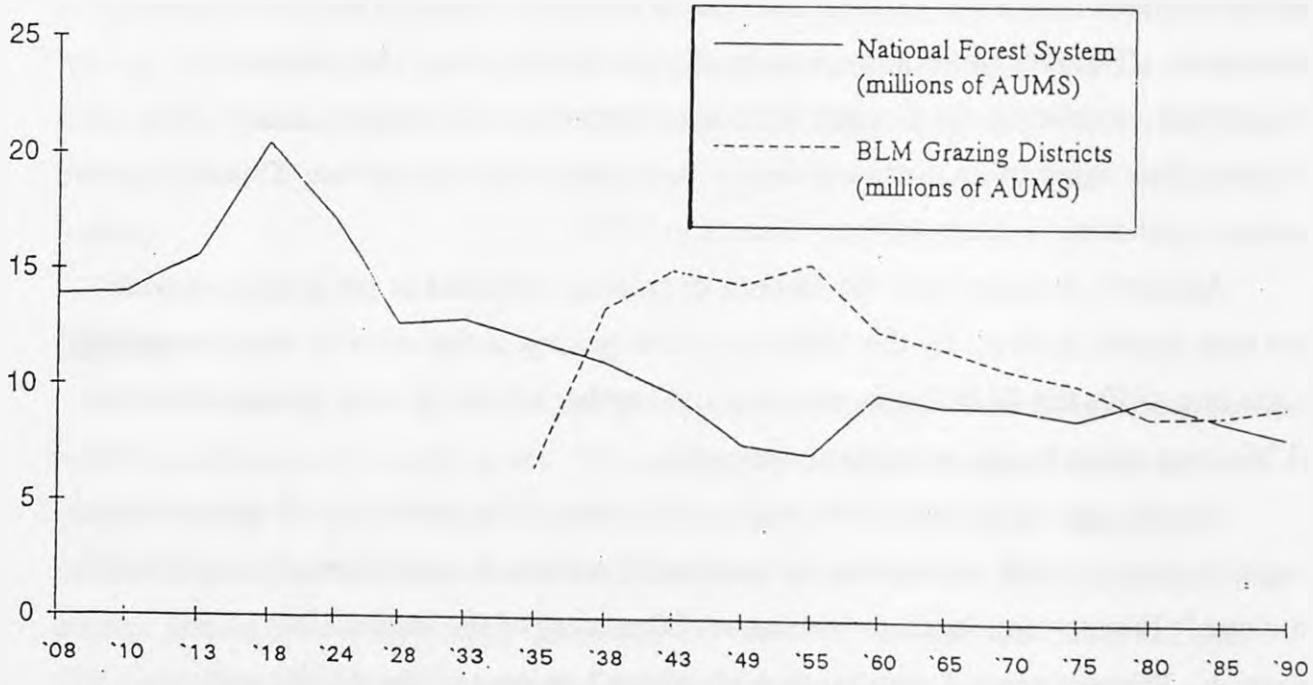
[7]43 U.S.C.A. § 315.

[8]Kenneth D. Frederick & Roger A. Sedjo, eds. America's Renewable Resources, Resources for the Future, 1991.

Figure 2

Domestic Livestock on Public Lands, 1908 - 1990



Sources: BLM; USFS; Clawson (1967 and 1983)

for grazing and would not be economic without this access. Moreover, about 40 percent of the nation's rangeland is in federal ownership. And public lands supply about 17 percent of the livestock forage in the 11 western states.

About 163 million acres of BLM-managed lands are under grazing permits in 16 western states. There are 20,000 "operators" holding permits running 4 million head of livestock. These permits authorize 10.5 million AUMs on these lands. A 1992 GAO study revealed that 10 percent of the BLM permittees control about 75 percent of all BLM rangeland.[9]

Grazing allotments cover about 1.2 million acres of national forest lands. There are a total of 10,387 allotments in 36 states. Most are in the western states. These allotments authorize 8.6 million AUMs on the roughly 50 million acres of lands determined to be suitable for grazing.

Timber

In 1891 Congress first authorized the President to set aside areas of the public lands as forest reserves, thus making these lands unavailable for entry and settlement under one of the land sale statutes. The 1897 Organic Act set out the purposes of watershed protection and timber management for these reserves. As mentioned, in 1905 these reserves were transferred to the Department of Agriculture for management.

Relatively little timber production occurred on the public lands until the 1940s (see figure 3). The timber cut in the early 1940s amounted to about 2 billion board feet per year. By the mid 1960s, however, timber production had increased to 12 billion board feet. Increased timber production together with growing interest in using the forests for other uses caused Congress to enact the Multiple Use-Sustained Yield Act in 1960.[10] This law directed the Forest Service to manage the national forests for outdoor

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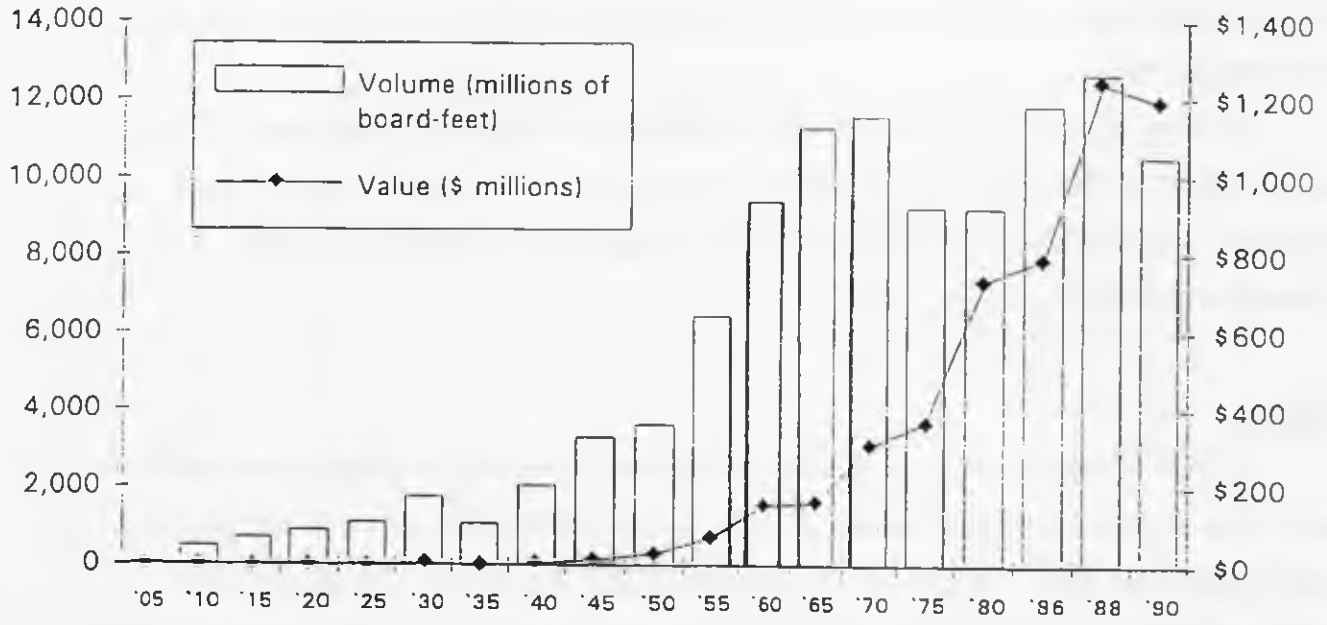
[9]General Accounting Office, "Profile of the Bureau of Land Management's Grazing Allotments and Permits," 1991, p 12.

[10]16 U.S.C.A. §§ 528-31.

Figure 3

Timber Value and Volume of Timber Cut on
National Forest Lands, 1905 - 1990



Sources: Clawson (1967 and 1983); USFS 1988 and 1990 reports

recreation, range, timber, watershed, and wildlife and fish purposes following the principles of multiple use and sustained yield.[11]

In 1974 Congress enacted the Forest and Rangeland Renewable Resources Planning Act.[12] The RPA directs the Forest Service to engage in a broad-based evaluation of the benefits of the national forests and rangelands every five years. Also every five years the Forest Service must set out the long-range objectives of its activities. Annually the Forest Service is to evaluate its activities in relation to its objectives.

In 1976 Congress passed the National Forest Management Act.[13] This law requires forest management plans and sets out specific standards for timber management. Clear cutting was a prominent issue in the debates surrounding passage of this Act.

In 1990, about 10.5 billion board feet of timber were harvested from the national forests. More than half of this timber came from the Pacific Northwest and Southwest regions.[14] Table 1 shows the distribution of timber production by Forest Service regions. National forests provide about 12 percent of the total wood volume harvested annually in the U.S.[15] Receipts from the sale of timber from national forests total about $1 billion per year, a quarter of which goes to the county in which the timber is located.

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[11]Multiple use is discussed at length in Bates, "Discussion Paper: The Changing Management Philosophies of the Public Lands," Western Lands Report No. 3, Natural Resources Law Center, University of Colorado School of Law, 1993.

[12]16 U.S.C.A. §§ 1600-1610.

[13]16 U.S.C.A. §§ 1600-1614. The National Forest Management Act amended the RPA.

[14]Report of the Forest Service, Fiscal Year 1990 (Feb. 1992). p. 42.

[15]*Id.* at 40.

Table 1.

Region	Timber Offered	Timber Sold	Timber Harvested	Timber Volume Under Contract
		(in millions of board feet)		
Northern	786	694	1,016	1,839
Rocky Mountain	370	368	386	908
Southwestern	329	305	433	434
Intermountain	406	415	416	639
Pacific Southwest	1,644	1,501	1,725	2,240
Pacific Northwest	5,084	3,997	3,879	8,029
Southern	1,363	1,208	1,422	1,354
Eastern	775	732	752	1,712
Alaska	338	30	472	269
Total	11,059	9,250	10,482	17,434

REVISITING THE ECONOMIC VALUES OF THE PUBLIC LANDS

Public land policy is in a period of fundamental reconsideration. Congressional directives concerning the public lands still emphasize the extractive uses of mining, grazing, and timber production. Increasingly, these directives are being leavened with mandates to consider and manage for other uses. Congress took an important step in this direction in 1960 when it ratified a "multiple use" policy for the public lands. The National Environmental Policy Act of 1969 has had a powerful effect on federal land management agencies by opening up their decision-making processes to unprecedented public scrutiny and requiring explicit consideration of the environmental impacts of federal actions. The land use planning statutes enacted in the 1970s required attention to protection of environmental and ecosystem values. The Wilderness Act of 1964

placed major limitations on extractive activities within designated wilderness areas. The list goes on.

These developments are not accidental. They represent a major shift in policy direction concerning the purposes and uses of the public lands. They reflect emerging values and interests in the U.S. favoring protection of undeveloped or less developed public lands for their recreational use, for biodiversity protection, for ecological integrity, for preservation itself.

In most cases these uses are not valued in the market. Prices are not easily attached to things like an ecologically healthy watershed or preservation of old growth timber habitat for the spotted owl. The value of seeing a male elk bugling in Rocky Mountain National Park, finding remnants of pre-historic Anasazi habitation on a hike through the canyons of southeast Utah on BLM land, fishing in the free-flowing rivers of national forests in Montana, contemplating the meaning of the Civil War at Gettysburg is not readily measured.

Increasingly, however, economists are learning how to attach a dollar value to these kinds of things. They are finding ways to represent these values in economic terms so that it becomes possible to consider choices about competing uses using more comparable measures. Not surprisingly, recreation and preservation values are turning out to have an economic significance that is increasing in importance and that, in many cases, exceeds the economic value of more traditional consumptive uses of the lands.

In its most recent assessment of the national forests directed by the RPA, the Forest Service estimated 1990 values for minerals, timber, recreation, wilderness, wildlife and fish, and range. As shown in table 2, recreation exceeds all other categories. This same report contains an index of "demands" for resources projected out to the year 2040. This is shown in figure 4. Recreation use demand is projected to increase at a considerably faster rate than other uses.

A survey by researchers from the University of Idaho in 1990 questioned residents of counties adjacent to federal land wilderness areas. The results are revealing: 53 percent reported that the presence of the wilderness area is an important reason to live

Table 2.

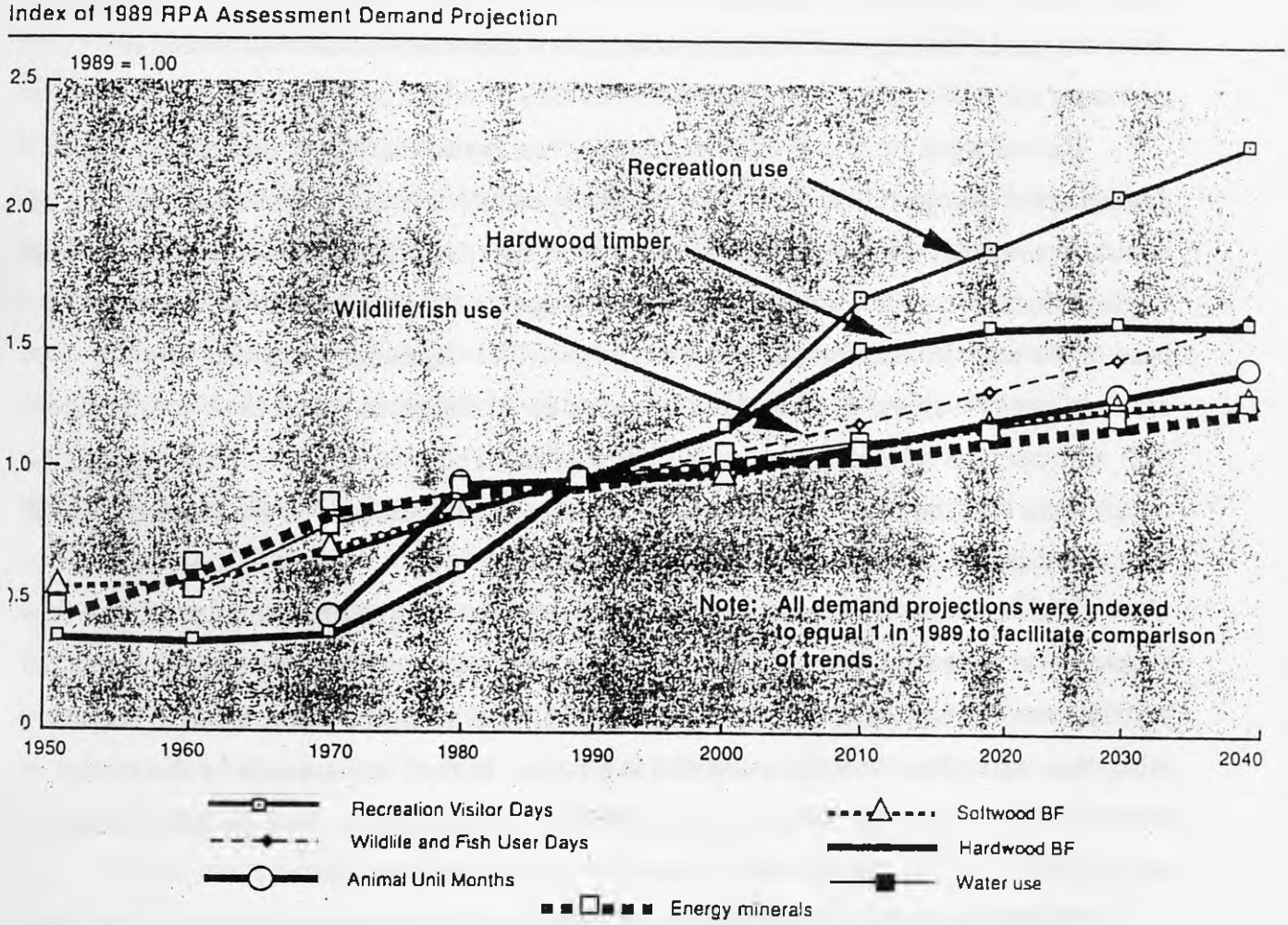
Report of the Forest Service

Summary statement of values and obligations--fiscal year 1990

Item	Units 1/	Quantity	Average value per unit	Total valu
				Million doll
Value:				
Minerals				
Common variety		-	-	70.0
Locatable				780.0
Leasable				
Oil	M BBL	18,000	30.00	540.0
Gas	MMCF	210,000	1.87	392.7
Coal	M tons	75,000	30.00	2,250.0
Others				
Timber	MBF	10,482	113.30 3/	1,187.6
Recreation	M RVD	263,051 ,4/	25.90 4/	5,415.5
Wilderness and primitive areas	M RVD	11,959	34.18	408.8
Wildlife and fish				
Recreation	M WFUD	42,000	50.15	2,106.3
Commercial	M pounds	169,000	1.04	175.8
Range 5/	M AUM	9,579	6.89	66.0
Water 6/				
Increased water yield	M acre feet	-	-	
Total value				13,392.7
Expenditures:				
National Forest System				3,089.7
Forest Research				163.1
State and Private Forestry				123.3
Human Resource Programs				85.5
Working Capital Fund				114.5
Total expenditures				3,576.1
Net value, total				9,816.6
Net value, National Forest System only				10,303.0

1/ M BBL = thousand barrels; MMCF = million cubic feet; M tons = thousand tons; MBF = thousand board feet; M RVD = thousand recreation visitor days; M pounds = thousand pounds; M AUM = thousand animal unit months; M WFUD = thousand wildlife fish user days; AF = acre feet.
2/ Information provided by Washington Office Minerals staff.
3/ Actual value at time of sale.
4/ Includes wilderness, wildlife, and fish. Total value calculation for M RVD's has Recreation M WFUD's and Wilderness M RVD's excluded.
5/ Based on permitted to graze animal unit months of forage. Value is a Forest Service-wide weighted average based on maximum ability to pay. Ability to pay reflects income derived by the user from use of the resource.
6/ No values available for 1990; values will be available for 1991.

Figure 4


Index of 1989 RPA Assessment Demand Projection
1989 = 1.00
2.5
2.0
1.5
1.0
.5
0
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
Recreation use
Hardwood timber
Wildlife/fish use
Note: All demand projections were indexed to equal 1 in 1989 to facilitate comparison of trends.
Recreation Visitor Days
Wildlife and Fish User Days
Animal Unit Months
Energy minerals
Softwood BF
Hardwood BF
Water use

in the area; 81 percent felt the adjacent wilderness area was important to their county; and 65 percent opposed any energy or mineral development in these areas.[16] Moreover, counties that contain or are adjacent to federal land wilderness areas have been among the fastest growing in the U.S. The researchers concluded: "Our results suggest that amenities and quality-of-life factors are increasingly important to people's decisions about moving, so the immigration into wilderness counties will probably continue."

Recent work by The Wilderness Society has focused attention on economic and demographic changes in the West that suggest a new conception of the economic role of natural resources. "The Wealth of Nature: New Economic Realities in the Yellowstone Region," focuses on the Greater Yellowstone Region and notes a shift in the economic base of the area from extractive industries to activities dependent on preserving the area's "amenity" values. It finds that protection of ecological values is both consistent with and essential to the economic well being of the Yellowstone area. Nevertheless, the report finds that the federal lands, which comprise the largest part of the region, are still being managed for predominantly extractive values.

The 20 county Yellowstone region has a vibrant and growing economy. Employment in the area increased 68 percent in the 1969 to 1989 study period while personal income increased by 99 percent. Virtually all of the new jobs arose in sectors other than agriculture and the extractive industries. In fact, employment in these two sectors declined from one of every three workers in the region in 1969 to one in every six in 1989.

Wilderness Society researchers found that the Forest Service spent two-thirds of its 1989 budget for forests in this area on activities related to commodity production. Only about 15 percent of the national forest budgets went for recreation and conservation-related activities. Forest Service analysis showed a loss of $7.3 million from timber sales in these forests in 1989.

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[16]Gundars Rudzitas & Harley Johansen, "Migration into Western Wilderness Counties: Causes and Consequences," Western Wildlands. Spring 1989, pp. 19-23.

The spotted owl controversy in the Pacific Northwest often has been portrayed as a jobs-versus-the-environment choice. The timber industry in this area has been in decline for many years. Removal of spotted owl habitat areas, primarily found on the public lands, from timber production threatened the region with additional unemployment problems. One interesting finding to come out of the heated and emotional debate was that proposed timber production likely to be curtailed to protect owl habitat would extend the timber-based economy of the region for about ten years, at best.

This dilemma led The Wilderness Society to consider ways in which two areas in the Northwest--Linn County, Oregon and Grays Harbor County, Washington--traditionally heavily dependent on timber development, could broaden and diversify their economies.[17] Eight recommendations emerged from the project that emphasize a cooperative, locally-based approach building on local assets including quality of life.

THE ISSUE OF SUBSIDIES

Many activities occur on the public lands either without payment to the U.S. or with a payment considerably below the market value of the use. Often the U.S.--through its land management agencies--spends far more to enable the activity than it receives in payment.[18] These are subsidized uses. Much of the effort to change public land policy in recent years has taken the form of attacks on subsidies enjoyed by extractive uses of the public lands.

Public lands subsidy policies, like governmental subsidies generally, are rarely explicit. Economists have done the public a great service by identifying the existence and extent of governmental subsidies built into things like water development projects. It is not the existence of subsidies that is itself the problem, of course. Rather it is the

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[17]The Wilderness Society, "From Dreams to Realities: Diversifying Rural Economies in the Pacific Northwest," (1992).

[18]*See, e.g.*, the very revealing report by Robert H. Nelson, "An Analysis of 1978 Revenues and Costs of Public Land Management by the Interior Department in 13 Western States," U.S. Department of the Interior, Office of Policy Analysis, December 1979.

more fundamental question of whether a particular subsidy perhaps warranted at one point in time is still justified today. Assuming that at least some of the purpose of the subsidy remains valid today, it then becomes important to revisit the extent of the subsidy, the manner in which the subsidy is provided, and whether there are ways to alter the subsidy to help achieve other pressing contemporary needs.

This section briefly discusses just two of these subsidies that have gained greatly increased attention in recent years: below cost timber sales and grazing fees.

Below-Cost Timber Sales

Studies in the 1970s first brought to light the fact that some Forest Service timber sales were costing the U.S. more money than they were generating in revenues. In the aggregate, timber is sold from the national forests at a profit to the U.S. Individual sales, however, may lose money. This is especially true if the full federal costs associated with the sales, including those related to harvesting and reforestation, are included. Subsequent analysis has shown that timber harvesting in certain national forests nearly always occurs at a net loss to the U.S. Treasury.

A pioneering 1977 study by William Hyde focused on the San Juan National Forest in Colorado.[19] The 1976 timber management plan had proposed to harvest timber from 109,000 acres of roadless lands in this forest. Hyde's analysis determined that these sales would need to bring in at least $38.70 per thousand board feet to cover their full costs. Yet the average high bid in 1976 had been only $2.65 per thousand board feet.

A 1980 study by the Natural Resources Defense Council, Giving Away the National Forests, concluded that 73 of 118 national forests spent more money on timber sales and related activities than they collected during the five-year period of examination (1974-1978). This analysis included the costs incurred by the Forest Service related to road building for access to the timber. A subsequent refinement of this study

[19]William Hyde, "Timber Economics in the Rockies: Efficiency and Management Options," Land Economics Vol. 57, No. 4, pp 630-637.

determined that even if road costs were not included, 63 national forests lost money on timber sales during this period.

Much of the controversy surrounding below-cost timber sales has centered on rather sterile issues of cost accounting. What costs should be allocated to timber sales? Should road-related costs be included since the roads also serve other uses? How much of the planning process relates to timber sales? What accounting method should be used to evaluate the net benefits of timber sales? Randal O'Toole provides a good summary and discussion of these issues in Reforming the Forest Service. A major outcome of this debate is the "Timber Sale Program Information Reporting System" -- intended by the Forest Service to set up a uniform approach to evaluating timber activities in each of its forests.

The Conservation Foundation, in its report "Below-Cost Timber Sales in the Broad Context of National Forest Management," interprets below-cost sales as a symbol of the dominance of timber in the management ethic of the Forest Service. A meaningful evaluation of below-cost sales, the report argues, must occur in relation to a large number of related issues including wilderness, roadless access, biodiversity management, and recreation uses. In short, this is not a technical question but a political and social one. What are the purposes for which national forests should be managed? What role does timber harvesting play in meeting these purposes? Under what conditions should timber management be employed?

In April 1993, the Forest Service announced a significant reduction in its annual timber harvest goals, with most of that reduction planned to come from national forests where revenues have not been recovering costs. This action goes a long way towards addressing the below-cost issue and sends a clear signal that timber production is no longer a dominant purpose for most national forests, at least under the present Administration.

Grazing Fees

Grazing fees charged for the use of public lands are considerably lower than fees for the use of comparable private grazing lands. Originally, there were no fees at all. In 1906 Gifford Pinchet succeeded in initiating charges for grazing uses in the national forests. There were no grazing fees for use of public domain lands until 1934. Fees in both the forests and public domain lands were very low until the 1970s. In the political bargain to get the Taylor Grazing Act in 1934, grazing fees were limited to cover administrative costs which were promised to be no more than $150,000 per year. When administrative costs exceeded this amount in 1946 Congress reacted by reducing the agency's budget in half, thus forcing a reduction in staff to 50 persons (to oversee 142 million areas of land).

The Public Rangeland Improvement Act of 1978 (PRIA) established a formula for setting grazing fees on BLM and Forest Service lands:

$$\text{Annual Grazing Fee} = \$1.23 \times \frac{\text{Forage Value Index} + \text{Beef Cattle Price Index} - \text{Prices Paid Index}}{100}$$

The base price of $1.23 in the formula came from an analysis of the "fair market value" of grazing in the 1966 Western Livestock Grazing Survey. The Forage Value Index is computed annually from data supplied by the Economic Research Service concerning private grazing land lease rates. The Beef Cattle Price Index is an index of USDA annually reported prices of beef cattle over 500 pounds. The Prices Paid Index reflects changes in the prices of a selection of production items commonly needed by producers of livestock.

As with below-cost timber sales there has been a lot of technical debate about this formula.[20] PRIA required the Secretaries of Agriculture and Interior to report to Congress on options for grazing fees by the end of 1985, at which time the PRIA formula

[20] *See, e.g.*, General Accounting Office, "Current Formula Keeps Grazing Fees Low," June 1991.

expired. A report was submitted in 1987 and an update provided in 1992.[21] Congress has not acted to set new fees and the PRIA formula has stayed in effect through Presidential Executive Order.

The agency costs of public lands grazing management substantially exceed the revenues gained from existing grazing fees. The 1992 Update shows an average cost per AUM to the BLM of $3.21 and to the Forest Service of $3.24 in 1990. By comparison the average grazing fee per AUM in this same year was $1.89.[22] Direct costs to the Forest Service totaled about $30 million in this same year while revenues were about $9 million.

Grazing fees are going to increase. The amount of that increase is less interesting than the policy context in which the decision will be made. For those advocating "cow free in '93," the higher the fees the better. Current beneficiaries of public lands grazing rights are, of course, arguing vociferously for fees as low as possible. They point to the marginal nature of the farming and ranching economies in many areas dependent on public lands grazing. Even modest increases in fees, they argue, could prove a fatal blow to these areas. The fair market value advocates point out that comparable private land grazing leases presently bring well over $8 per AUM. Moreover, while the federal grazing fee dropped 15 percent between 1980 and 1990, private land leasing rates increased 17 percent.[23]

The Interior Department under the Bush Administration proposed that grazing fees be increased to something like fair market value but with mechanisms to reduce these charges according to the institution of "good land management practices." A permittee could reduce the assessed fee by 25 percent simply by adopting an acceptable land management plan. Credits up to 75 percent of the fee would be possible depending

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[21]"Grazing Fee Review and Evaluation: A Report from the Secretary of Agriculture and the Secretary of the Interior,"; "Grazing Fee Review and Evaluation Update of the 1986 Final Report."

[22]1992 Update, p. 5.

[23]GAO, "Current Formula Keeps Grazing Fees Low," June 1991, p. 11.

on the achievement of particular goals relating to such things as vegetation, wetlands, and riparian areas.

This approach recognizes that grazing fees should be considered in the context of broader public land management goals. It suggests fair market value as the basic standard for grazing uses but recognizes the need for incentives to alter and improve historical grazing practices. There are serious questions about implementation and enforcement, however, and Secretary of the Interior Bruce Babbitt is now engaged in a broad-ranging public dialogue about changes in the public lands grazing program

THE "NEW" USES

The public lands have taken on new roles in recent years, and more long-standing roles have taken on greater importance. Congress has acknowledged "multiple uses" of the public lands and has incorporated requirements in new laws directing specific attention to some of these increasingly important or newly-recognized values. The process has been one of "layering" rather than integration: additional uses are recognized but little attention or guidance is given concerning how to incorporate these uses into already well established land management practices. Greatly increased emphasis has been placed on a detailed planning process to identify possible uses and on conditioning uses (particularly extractive uses) to mitigate their more damaging aspects. Recently, the concept of ecosystem management has emerged as a possible new integrating paradigm.[24]

This section looks at two types of uses of the public lands now widely acknowledged to be of increasing importance: recreation and biological diversity.

Recreation

The public lands provide an important source of recreational activity in the U.S. As shown in table 3, federal lands supported 634 million visitor days in 1990. Figure 5

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[24]For a discussion of ecosystem management, *see* Bates, "Discussion Paper: Managing for Ecosystems on the Public Lands," Western Lands Report No. 4, Natural Resources Law Center, University of Colorado School of Law, 1993.

shows recreation use trends in lands managed by the Forest Service, the Park Service and the BLM. Overall recreation use of these lands shows a marked increase between 1950 and 1990. The national forests account for most of this recreation activity, followed by Corps of Engineers projects and then national parks.

Walsh and Loomis have developed the most comprehensive analysis to date of the demand for recreation on federal lands.[25] The results of their work are shown in the following table (table 4). They calculate the value of recreation on the federal lands in 1982 to be worth $8.8 billion.

[25]Richard Walsh and John Loomis, "The Contribution of Recreation to National Economic Development," prepared for the President's Commission on Americans Outdoors, 1986.

Table 3.

Recreation on Federal Public Lands

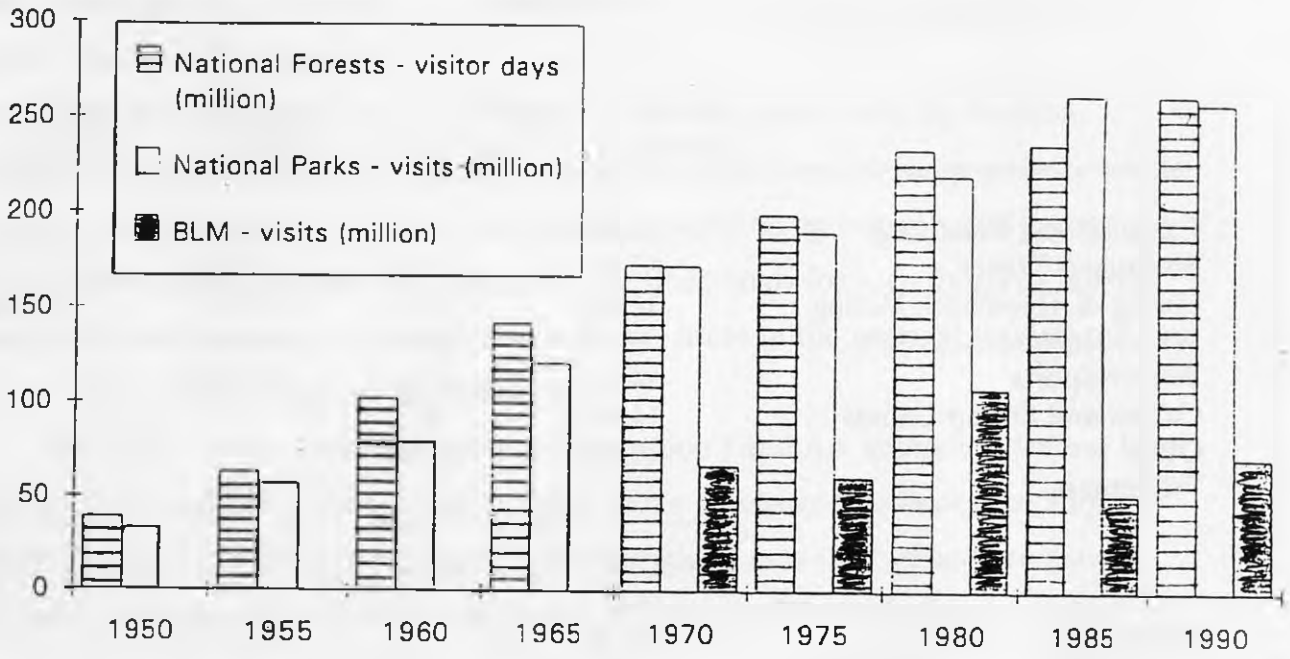
Agency	Recreation Use in 1990 (million visitor-days)	Receipts from Recreation fees in 1990 ($ million)	Receipts from Concession fees in 1989 ($ million)	Concession Revenues in 1989 ($ million)
Forest Service	263.0	$13.7	$17.69	$834.2
Army Corps of Engineers	189.9	$15.8	$1.89	$102.2
Bureau of Land Management	43.2	$1.6	$0.84	$33.8
National Park Service	110.2	$54.8	$11.53	$531.5
Fish & Wildlife Service	4.4	$1.8	$0.18	$4.5
TOTAL	634.1	$88.4	$31.79	$1515.2

Source: National Park Service; U.S. GAO

A "visitor-day" is a measurement of recreation use of an area, based on a standard unit of twelve hours of visitation. As demonstrated by the various data in Figure 8, historical recreation use figures have been based on a variety of measurement units: visits, visitor-hours, and visitor-days. Agencies have switched between different units for different purposes (they may benefit more from claiming "524 million visitor hours in 1990" than "71 million visitors"). The National Park Service, which prints an annual summary of recreation use on all public lands, is now advocating a standard measure based on visitor-days.

Figure 5

Recreation on Public Lands, 1950 - 1990



Source: Agencies' annual reports

Table 4.

Demand for Recreation Federal Lands, 1982

	Visitor Days (12 hours) (Millions)		Economic Value (Dollars)	
	Forest Service	Bur. of Land Mgt	Price per Day	Total Value (Millions)
Camping and Picnicking	66.10	7.00	14.20	1,381
Motorized Travel	67.40	5.00	6.70	645
Hiking & Horseback Riding	16.40	1.00	20.76	480
Water Related Activities	9.60	1.80	20.27	307
Winter Sports	14.10	0.20	13.98	266
Cabins and Group Camps	14.90	n/r		
Other	10.50	3.30		
Wilderness	11.20		29.99	447
Subtotals	210.20	18.30		3,526
National Park Service	106.30		21.92	3,099
Corps of Engineers	146.90		4.99	975
Bureau of Reclamation	45.00		20.67	1,237
Tenn. Valley Authority	6.60		4.99	44
Total or Average	680.40		$9.82	$8,886

Note: Values per day are inflated by 1.33 to equal 12 hour day.

Unlike the extractive uses described earlier in this paper, recreation uses of the public lands occur with little statutory direction. Only the national parks are specifically set aside to be managed for public visitation. Recreation was not explicitly recognized as a purpose of public lands management until the Multiple Use-Sustained Yield Act of 1960. Congress first authorized recreational uses of Corps of Engineers projects in 1944 and for Bureau of Reclamation projects in 1965.[26]

Special recreational services are provided on the public lands by the land management agencies in the form of such things as visitor centers, camp grounds, picnic grounds, and boat launch facilities. In addition, concession agreements and special use permits allow individuals and companies to use public lands for such things as hotels, stores, and other services in the national parks, ski areas in the national forests, and outfitter and guide services in the public lands.

Section 4 of the Land and Water Conservation Land Act authorizes federal land management agencies to charge fees at areas where specialized outdoor recreation facilities, equipment, or services are provided at federal expense.[27] The Emergency Wetlands Resources Act of 1986 authorizes the Fish and Wildlife Service to collect entrance fees at refuges.[28] Two types of recreation fees are collected on the public lands: user fees for use of specialized sites, facilities, or services furnished at federal expense; and entrance fees for access to units of the National Park System and for certain national wildlife refuges. User fees in 1990 totalled about $51 million while total entrance fees collected for the year were about $35 million.

The report of the President's Commission on Americans Outdoors, issued in 1986, highlighted the special opportunities provided by the federal lands for recreational uses. These lands represent the largest blocks of land available for recreation use and are

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[26]Flood Control Act of 1944, 16 U.S.C. § 460 d. Federal Water Project Recreation Act, 16 U.S.C.A. § 460*l*-12

[27]16 U.S.C.A. § 4601-6a.

[28]16 U.S.C.A. § 3911(a).

especially important in the West. The Commission recommended, among other things, clearer recreation mandates for several federal agencies; greater emphasis on recreation in agency budgets, staffing, planning, and management; better coordination among federal programs and with state and local programs; and a reconstituted Land and Water Conservation Fund to acquire additional recreation lands and waters.

The Clinton Administration budget proposal includes new and increased recreation fees for the public lands including Corps of Engineers facilities. These are charges for the use of discrete areas, generally with "improvements" of some kind to facilitate recreational uses. In addition, consideration is being given to mechanisms for generating revenues from other recreational users of the public lands such as hikers, hunters, and anglers.

O'Toole has argued persuasively that the Forest Service (and other agencies) respond positively to incentives. Thus, if recreational users paid for more of the value of their uses, and if most or all of these revenues returned to the agencies, they would be far more inclined to emphasize recreational values in their activities. Many oppose charging for recreational uses of public lands, except in cases where revenues are being generated from these uses. But these uses have growing value and impose real costs. At a minimum, user fees ought to be designed to recover the full costs of a high-quality recreational management system on the public lands.

Biological Diversity

Recent attention to the importance of protecting and enhancing biological diversity has raised awareness of the unique opportunities presented by the federal lands. A Keystone Policy Dialogue concerning "Biological Diversity on Federal Lands" pointed out that federal lands contain more than half of all wildland, deserts, alpine areas, and shrubland in the U.S. According to the group's report:

> The diversity of habitats and species on federal lands places federal land management agencies in a key role for the future of such elements of biological diversity as genetic variation in commercially valued tree and fish species, threatened or endangered species, old-growth forests, alpine and

tundra ecosystems and contiguous habitats for migratory birds and mammals.[29]

While there are federal agency programs presently in existence that provide biological diversity benefits, the group recognized the need for major improvements and developments in policy and management.

Secretary Babbitt has proposed the creation of a Biological Survey within the Department of the Interior. A primary purpose of this new agency will be to focus on the habitat needs of plant and animal species, particularly for those whose health and viability are at some risk. Automatically included will be those species listed as threatened or endangered under the Endangered Species Act, but the purpose of the Survey is to look at ecosystems more generally and to try to head off the kinds of problems that lead to species extinction. Presumably this entity will provide some of the scientific and technical support necessary for implementing ecosystem management of the public lands.

INTEGRATING THE NEW AND THE OLD

Traditional economic uses of the public lands remain important and are especially important to adjacent communities and regional areas. We discuss the issues of adjacent communities at length in a companion paper.[30] Here it is necessary only to acknowledge that public lands must continue to serve the interests of adjacent communities; in many areas, that will properly mean continued emphasis on extractive uses of these lands.

The "wise use movement," like the Sagebrush Rebellion before it, reflects the unsettled feelings of many westerners in the face of economic and social changes that are driving changes in public land policy. The decline in the more traditional extraction-based activities that have historically supported many western communities, especially

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[29]"Final Consensus Report of the Keystone Policy Dialogue on Biological Diversity on Federal Lands," April 1991, p. 10.

[30]*See* Bates, "Discussion Paper: Western Lands Communities," Western Lands Report No. 5, Natural Resources Law Center, University of Colorado School of Law, 1993.

those in rural areas, is forcing a search for new means to sustain these communities. At the same time the prerogatives enjoyed by some who use the public lands for such things as mining and grazing are under direct challenge. These users are understandably upset about the loss of at least some of these benefits.[31]

Robert Nelson identifies three quite different approaches to public land management that are evident in the policies and practices of recent years: the scientific management model, the public participation model, and the market mechanism model.[32] The scientific management model is evident in the plethora of planning statutes enacted by Congress in the 1970s emphasizing technically (rather than politically) based decision making. In the progressive tradition decisions are made by knowledgeable and objective "experts." The public participation or economic democracy model emphasizes decentralized management with decisions made in processes involving active public review and consultation. The role of government is to broker among competing interest groups. The market mechanism model searches for a structure of incentives that will induce public land users to accomplish governmentally- determined goals and objectives.

Nelson is a thoughtful proponent of the market approach. He worked directly on development of the new federal coal leasing program in the 1970s and helped to steer that program away from a highly centralized, planning approach toward one with modest market incentive features.[33] He has proposed a number of changes in national forest management to incorporate market approaches ranging from what he calls "incremental" changes (charging market prices for services provided and limiting Forest Service activities to those justified on an economic basis) to "major departures" (explicitly

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[31]*See, e.g.* Tom Kenworthy, "Ranchers, loggers fear Clinton will raise rent," Boulder Daily Camera, Dec. 23, 1992, p. 6C.

[32]Robert H. Nelson, "Use of Market Methods at the Interior Department," Paper delivered at Conference on Market Based Environmental Approaches in the Nonfuel Minerals Industry: Theory and Application, Washington, D.C., March 9, 1990.

[33]For an excellent account of the evolution of this program *see* Robert H. Nelson, The Making of Federal Coal Policy, Duke University Press, 1983.

managing each national forest on a decentralized basis to maximize net service benefits over the long run) to "radical change" (requiring each national forest to show a profit).[34] In his view there are sound reasons for considering "divestiture" of some public lands to state control or private ownership.

Randal O'Toole has advocated many similar ideas in his crusade to reform the Forest Service.[35] Included among his "modest" reform approaches are things like allowing private individuals or groups to buy conservation easements on the public land limiting the development or use of the land; creating a biodiversity trust fund out of a percentage of public land user fees that could be used to support ecosystem restoration, purchase conservation easements, or buy lands with important habitat value; and creating wilderness trust funds for each of the states supported by permit fees for wilderness users and used to purchase conservation easements or to add additional land.[36]

Range ecologist, Karl Hess, supports a market-oriented approach to reformation of the public land grazing system.[37] The allotment system would remain but permits would be made freely transferrable and grazing uses would not be required. Fees adequate to recover the full administrative costs associated with the allotment would be charged. All user fees including grazing would be set at market prices. Land management agencies would be funded entirely out of allotment and user fees.

Decision makers have discovered the power and flexibility of market-based approaches for accomplishing a variety of policy objectives. Voluntary approaches are politically desirable, and incentives can be effective inducements for action. Applying these approaches to the public lands presents a number of challenges, however, because of the complex mix of public and private rights that apply to these lands. A related problem is the disparity in interests between traditional users of the public lands,

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[34]Robert H. Nelson, "The Future of Federal Forest Management: Options for the Use of Market Methods," *in* Federal Lands Policy, Phillip O. Foss, ed., Greenwood Press, 1987, pp 164-173.

[35]His most complete statement is found in Reforming the Forest Service, Island Press, 1990

[36]Randal O'Toole, "A Modest Proposal for Clinton-Gore," Forest Watch, Vol. 13, No. 5, Nov/Dec. 1992.

[37]Karl Hess, Jr., "Freeing the Range." Forest Watch, Vol. 13, No. 8, March 1993, pp. 23-26.

generally located in the rural West, and the interests of the urban majority who generally live at some distance from these lands. In a *High Country News* article, journalist Ed Quillen talked about the Chicago West, the one based on development of land and resources, and the Los Angeles West, the one based on recreation and preservation.[38] While these polar opposites often are portrayed as the choices facing the West, neither is acceptable by itself and both have a place in today's West.

Charles Wilkinson has articulated a more diverse view of the West premised on an ethic of place. In his collection of essays entitled, *The Eagle Bird*, he explains:

> An ethic of place respects equally the people of a region and the land, animals, vegetation, water and air. It recognizes that westerners revere their physical surroundings and that they need and deserve a stable, productive economy that is accessible to those with modest incomes. An ethic of place ought to be a shared community value and ought to manifest itself in a dogged determination to treat the environment and its people as equals, to recognize both as sacred, and to ensure that all members of the community not just search for but insist upon solutions that fulfill the ethic.[39]

In *Crossing the Next Meridian*, his remarkable study of "the lords of yesterday" (laws governing development and use of natural resources), Wilkinson concludes that "western resources generally ought to be developed, but that development ought to be balanced and prudent, with precautions taken to ensure sustainability, to protect health, to recognize environmental values, to fulfill community values, and to provide a fair return to the public."[40] The task ahead, he notes, is to translate this vision into a workable reality.

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[38]Ed Quillen, "Who will Coordinate and Inspire the West?" High Country News. Vol. 25, No. 9, May 3, 1993.

[39]Charles F. Wilkinson, The Eagle Bird: Mapping a New West. Pantheon Books, 1992, p. 138.

[40]Charles F. Wilkinson, Crossing the Next Meridian: Land, Water, and the Future of the West. Island Press, 1992, p. 17.

CONCLUSION

There is a growing consensus that existing policies respecting the public lands are out of date and out of phase with contemporary interests in the use and protection of those lands and fail to provide satisfactory means for integrating or balancing competing interests. The need for major reform is evident; but the manner in which that reform occurs is critical. Recognition of new values does not necessarily mean rejection of old values. The economy of the western states is increasingly diverse, but the development of natural resources in its multiple forms remains a central factor in many areas. Recreation and tourism alone cannot support the West.

Extractive uses on the public lands are likely to diminish in relative importance. More areas of these lands will be placed off limits to such uses, and additional conditions will be required of those activities that do take place. Ways must be found to integrate the old with the new, to respect the traditional communities of the West while providing for valuable "new" uses, to promote the "public" benefits of the public lands without taking away important private uses. A central focus of the Center's Western Lands Program will be to search for approaches that will move us in this direction.