



HEADWATERS
ECONOMICS

People and Public Lands

*Understanding the economic impact of
America's public lands and waters.*





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Democracy, Collective Values, and Public Land

Of all the outrages manifest in the armed takeover of the Malheur National Wildlife Refuge in 2016, perhaps the most insidious was the demand, made by the militants and repeated endlessly by credulous Action News reporters, that the land in question be returned to the people. Of course, this nonsensical diktat begged the question of exactly how something already belonging to the people (indeed all the people, from Hawaii to Kansas to Puerto Rico) can yet be returned to them by agitated men with automatic weapons.

There are many glories inherent to our federal public lands, but perhaps the most profound is this: they comprise a magnificent assemblage worth trillions of dollars in ecological goods and services and immeasurably more in aesthetic, spiritual, cultural, historic, and psychological benefits and they belong equally to each and every one of us from the homeless person to the dishwasher to the home health aide to the hedge fund manager. In a nation with such a profound and growing inequality so deeply baked into the social fabric, our public lands are one of the few remaining manifestations of the exuberant democratic spirit that Tocqueville observed to be indigenous to America, and that Lincoln so cherished, and New Dealers pushed forward with policies and programs. It is nothing short of a miracle that in this country, where private capital approaches something of a civic religion, nearly a third of this rich land is collectively owned by all Americans for the greater good. The dreams and struggles of countless ordinary people as well as the sheer dumb luck of having a handful of visionary public servants (like Mather, Albright, Wright, Leopold, Marshall, and Ickes) in the right place at the right time are what have secured this legacy.

Of course, in real life, things do not always work out for the public interest quite as well as one might hope. One only needs to look to the very uneven record of a century-plus of federal land management, replete with destructive clearcutting, overgrazing, virulent predator control, over-enthusiastic dam-building, and the polluting industrial sprawl of fracking and oil production to see what a bumpy ride it has been. And yet, that same ride has also taken us to other destinations – a 109-million-acre system of protected wilderness, a road-building moratorium in most U.S. Forest Service roadless areas, a framework for protecting endangered species and employing an ecosystem management approach, and a huge reduction in old-growth logging. That's the way democracy works; it requires constant vigilance and engenders endless controversy and struggle. Two steps forward and one step back and, at other times, perhaps even the reverse. But at least in this scenario, those who collectively own the land still have some degree of recourse at the end of the day and can still muster some sort of accountability, be it political, legal or electoral.



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Privatization and Transfer (Temple University Press, 2018), from which all figures and statistics cited in this essay are taken.

The national forests, parks, wildlife refuges, and desert range that make up our federal public lands are a trust managed on our behalf (though, as stated previously, with decidedly mixed results) by four federal agencies: the National Park Service, the U.S. Forest Service (USFS), the U.S. Fish and Wildlife Service, and the Bureau of Land Management (BLM). The job of federal land managers can be an acutely difficult and sensitive task as they must balance two seemingly contradictory roles—that of scientifically-informed professional alongside that of facilitator, referee, and honest broker amidst a cacophony of discordant claims. This task becomes even more complex for those agencies (USFS and BLM) operating under multiple-use mandates which grant them considerable leeway in interpreting and applying the law and balancing what are sometimes wildly incompatible demands. While those multiple use laws (such as National Forest Management Act and the Federal Lands Policy and Management Act) authorize many uses that are not at all benign, they also reflect the democratic and reformist impulses of their authors back in the 1970s in that they guarantee a wide range of opportunities for public policymaking input as well as administrative appeal mechanisms and access to the court system.

Collectively, these features are what have allowed organized groups and individuals to effectively represent the public interest in the often bitter and intense competition for influence over federal land management. Prior to this, the voices of powerful resource extraction industries were often the dominant and sometimes only voices heard. This is not to say that federal land managers are merely empty vessels that respond to the loudest interest group voices. They must, in fact, simultaneously weigh and balance the disparate demands placed upon them by organized groups, politicians, and administrative appointees along with their legislative mandates, and their professional, scientific expertise. And because decision-making on federal lands is often quite decentralized down to the individual ranger district or grazing unit, federal managers are hearing from and engaging with many, many hyper-local voices (precisely the opposite of the critics' notion of a remote and distant D.C. bureaucracy). However, they must simultaneously be true to their *national* mandate and their ultimate constituency, the whole of the

American people. This is an extraordinarily delicate and difficult task and one bound to engender much dissatisfaction all around.

It is in the legal realm, free as it is from corporate donations and electoral pressures, that the advocates for public land have found their most congenial venue. By appealing to the courts to uphold the letter and spirit of environmental legislation and take its intent seriously, they have been able, at times, to gain tremendous leverage over federal land managers. This, in turn, has created a virtuous cycle whereby those favorable rulings (such as the landmark 1991 Dwyer decision to enjoin all Pacific Northwest timber sales until a plan to save the spotted owl was implemented) have forced institutional change in land management agencies that has resulted in environmentally better management practices that arguably do a much better job reflecting the overall will of the American people. However, radical changes in the future composition and possibly motivations of the federal judiciary and its interpretation of federal environmental law (including their very legitimacy) are a dark cloud looming on the horizon that could threaten to undermine all this progress going forward.

To the privatizers and extractors, this seemingly paralyzed bureaucratic realm is seen as nothing less than an epic disaster, as it is indeed quite easy to mischaracterize such delay and deliberation and paperwork and appeal as something far worse than it is. In professing to abhor this conflict with all its inefficiency and turmoil, they ask whether it would be better to simply shift the decisions to the calmer realm of an ever-rational and impartial market. Clean, transparent bidding and exchange in the market could decide things instead of ad hoc horse-trading and political favoritism. And since the land wouldn't be yours anymore, there will be no need or basis for anyone to fight over it. From the vantage point of this breathtakingly self-serving perspective, private property rights will definitively answer all questions that might arise and pre-emptively quash all the unseemly squabbling that accompanies policy deliberations over public land.

In this pinched free-market vision of the privatizers, there is only room in the world for one species, *Homo economicus*, the rational weigher of atomized

preferences and utility (though environmental economists assure us that even here, on his home turf of cost/benefit, his calculations are way, way off). *Homo economicus* is a solitary consumer who makes his lonely choices in a complete social and biological vacuum, expressing just isolated and immediate preferences: chocolate or vanilla, Android or Apple, ski resort or fracking site?

By contrast, a different creature, *Homo politicus*, splits loyalties between him or herself and the larger community, articulating complex and multi-faceted preferences that compromise between and merge individual and communal preferences. In the course of this winnowing and sifting and measuring and valuing of public and personal preferences, the consumer fades and is replaced by a citizen. And that citizen comes together with other citizens to forge a vision for how they want their world to be. This consensus that the process sometimes comes to is brutally hard work (see above), but when it happens it comes to comprise our collective values—those that cause people to cherish Yosemite and the Boundary Waters, Gettysburg and the Selma Bridge, libraries, art, historical landmarks, and public schools, to name a few. By its very design, the market, as currently constituted, is incapable of recognizing such values, let alone satisfying them. Only democratic political will can do this.

For a case study of collective values in action, let us ponder for a moment the phenomenon of citizen-led ecological restoration projects on public land in which many thousands of grassroots groups volunteer tens of millions of hours of labor restoring native landscapes and waterways. In an era of super-constrained conservation budgets, such citizen volunteerism is utterly crucial in achieving whatever restoration tends to happen on many parcels of public land. These volunteers, including many amateur citizen-scientists, cut invasive brush, burn prairies, collect seeds, band birds, and monitor water quality all in exchange for no pay and sore muscles. In the market/world of *Homo economicus*, none of this should be happening and none of it could be explained. Why on earth would people willingly give up their precious and valuable labor for something they do not exclusively own and for benefits they themselves will not exclusively enjoy? Concepts like stewardship, collective responsibility, intergenerational obligation, sense of

place, and a deep, abiding love (what E.O. Wilson calls *biophilia*) are utterly incomprehensible to *Homo economicus*.

Federal lands represent the best remaining strands holding together the web of life.

There are, of course, a myriad of other excellent reasons besides collective values to protect wild public lands, not the least of which are biological and ecological. Federal lands represent the best remaining strands holding together the web of life. By every measure of biodiversity—from degree of forest and habitat fragmentation to populations of imperiled species to remaining acreage of imperiled landscapes—the federal lands vastly outperform private lands in direct contravention of the privatizers’ dubious assertion that public lands, unowned and thus unloved and thus abused, represent the “tragedy of the commons.”

Likewise, a spectacularly persuasive case for public lands can be made on economic grounds as well. Only in the most tortuously narrow terms of operational costs vs. revenue can public lands be shown to “lose” money and thus be a bad deal for the taxpayer. But widen the lens just a little bit to include other, quite orthodox economic measures, like spin-off (multiplier) effects on surrounding communities and regions or return on investment for the acquisition or even operation of federal land and the cost/benefit ratio swings convincingly toward maintaining these lands. And if you widen the lens further still, you might recognize and include the trillions of dollars in unpriced but vital services, such as water retention and filtration, carbon sequestration, nutrient cycling, and pollination that spin off of the intact ecosystems on public lands, day-in, day-out, unnoticed and unvalued by any market. The wise botanist in Richard Powers’ novel *The Overstory* (New York: W.W. Norton,

2018) illustrates this principle of ecological services perfectly when she describes a tree thusly:

She could tell them about a simple machine needing no fuel and little maintenance, one that steadily sequesters carbon, enriches the soil, cools the ground, scrubs the air, and scales easily to any size. A tech that copies itself and even drops food for free. A device so beautiful it's the stuff of poems. (p. 436)

Studies of just one half-million-acre federally-owned watershed, the Skykomish in Washington, find a mid-range asset value of \$179 billion using an ecosystem services model (with \$1.7 billion of value spinning off annually). Compare this to the Office of Management and Budget's (OMB) conventional (which is to say, impoverished), market-based, non-ecosystem services valuation of \$463 billion for the entire 635-million-acre federal estate. To put it another way, the OMB estimates a federal acre of land to be roughly 500 times less valuable than do those who employ an ecosystem services framework.

Once you are wise to this much greater ecosystem services value, any subsequent notion that the federal lands "lose money" can be rightfully laughed off as a ridiculous absurdity. They are worth more than anyone can imagine; you might even say they are priceless. And the annual cost (in 2015) to the American taxpayer of managing their enormous continent-spanning treasure trove?—approximately \$11 billion or a billion less than one month fighting the Iraq war at its height or a bit more than half the \$20 billion annual cost of just air conditioning our military bases there.

Ultimately, though, despite all the sophisticated and nuanced arguments and the abundance of persuasive ecological and economic data, the defense of federal public wild lands could be boiled down to this one political justification: *They are ours and most of us love them dearly for what they mean to us and for all the riches, material and intangible, that they hold.* This alone is the most durable basis upon which to construct a defense of our commons. Abundant survey research tells us that in this incredibly polarized time, the continued strong protection of our public lands is a rare uniting principle with support from significant majorities cutting across class, race, region, and party.

Any scheme to divest of or abuse this public treasure should be responded to with the same outrage and disbelief that would greet any pilfering or vandalism of essential public assets. How would we respond to graffiti at Arlington or pages torn out of priceless old books in the Library of Congress? Rather than calmly and dispassionately analyzing and debating bills to sell off federal land or transfer them for free to the states that petulantly insist, as if these were reasonable demands, we need to call this out for what it is—a radical swindling of a much loved and relied-upon, multi-trillion-dollar asset to enrich a tiny few at the expense of a whole nation. And all in the name of a bogus market discipline. This sort of clarity is the only way to counter the slow, inexorable normalization and sense of inevitability that is beginning to creep in and bolster this audacious idea to rob the American people of their collective inheritance.

Suggested Reading

- Davis, Steven. 2018. *In Defense of Public Lands: The Case Against Privatization and Transfer*. Philadelphia: Temple University Press.

For a primer on privatization theory:

- Terry Anderson and Donald Leal, eds. 2015. *Free Market Environmentalism for the Next Generation*. New York: Palgrave MacMillan.

For other themes explored in this essay:

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Shopping for Wolves: Using Nonmarket Valuation to Inform Conservation Decisions

In a market economy where wildlife and environmental resources like clean air and water are not priced, there is an incentive to ignore and/or overuse these unpriced, or nonmarket, resources and services. This essay provides a brief overview of how economic methods for valuing wildlife and other environmental resources—an approach called “nonmarket valuation”—has been used to inform natural resource policy decisions on private and public lands.

This is written from a personal perspective, reflecting in part on the work that I and my colleagues have done over the last four decades. The first part of this essay describes the general context for this work. The following section offers several research applications that illustrate the breadth of issues. This section also highlights cases where nonmarket valuation has made a difference in conservation decisions.

Overview

Looking back, the existing research on the economics of fish, wildlife, and related natural environments, particularly with respect to Montana, is surprisingly extensive and varied. This is probably because Montana is blessed with some of the most important, unique, and largely intact land, water, and wildlife resources in North America. These resources attract recreationists who, in turn, may be the subject of economic studies. Several of the very first economic studies of the demand for outdoor recreation were for Montana sites, including a 1959 study by Marion Clawson of Glacier Park. Studies have since been undertaken relating to elk, deer, and antelope hunting, stream and lake fishing, waterfowl and upland game bird hunting, wildlife viewing, wolf recovery in

Yellowstone National Park, grizzly bear recovery, instream flow values, and numerous other topics.

While many of these are academic or agency-funded research efforts on a rather modest scale, Montana has also been a focus of one of the most extensive (and expensive) studies of the value of fishing



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firm, Bioeconomics, Inc., which he founded in 1989. John was born and raised in Montana and educated in public schools at Mystic Lake and Thompson Falls. He has a B.A. in economics from Northwestern University and a Yale PhD in economics. Over the last 45 years John has participated in a wide range of environmental and natural resource issues including air pollution standards, instream flow, endangered species, hunting and fishing values, fair market values for state school trust lands, and public lands management. John has participated in a number of nationally significant natural resource damage cases including serving as the economic expert for the Alaska Native Class in the Exxon Valdez oil spill case. Most recently John was the lead economist for the State of Alabama in the Deepwater Horizon oil spill case.

ever conducted. The latter was in the context of a Superfund case (*State of Montana v. Atlantic Richfield Company*) involving historic metals mining and smelting at Butte and Anaconda. One trigger to this lawsuit was the discovery of arsenic in well water in Bonner, Montana, more than 100 miles downstream on the Clark Fork River where a century's worth of toxic sediments had accumulated in the forebay behind Milltown Dam. An empirical issue in the case was the economic value to be placed on the foregone use of this fishery by Montana anglers. Both the State of Montana and the Atlantic Richfield Company developed complex economic demand models for this fishery. The economists involved included Daniel McFadden, who in 2000 was awarded the Nobel Prize in Economics for his pioneering work on models of individual choice, of the kind he helped apply in the Montana case.

Our research team at the University of Montana participated in the recreation work and led the groundwater economics studies at Butte and Milltown. This nonmarket valuation work and related restoration planning led to a \$470 million settlement just prior to going to trial. Among other actions, Milltown Dam, located at the confluence of the Blackfoot and Clark Fork Rivers just above Missoula, and the bulk of the toxic sediments has since been removed.

Working on environmental economic issues requires a number of different skill sets. There is an obvious need to collaborate with natural scientists in characterizing the biological population or ecosystem or hydrologic system at issue. Also, unlike some economic fields like finance or macroeconomics with their abundance of long-term government data sets, in environmental economics one may often have to create his or her own data through survey research. My research partners since the mid-1980s have included Chris Neher, an economist with expertise in survey design, database management, and econometrics (model estimation), and Dr. David Patterson, who teaches statistics and sampling.

There are several different types of nonmarket valuation methods, including some based on observed behavior, such as the travel cost model. By looking at travel cost as a kind of spatially varying price—where visits from greater distances have higher costs and

lower per capita participation—it is possible to infer an economic demand model for the site. This idea was first suggested in 1947 by Harold Hotelling of the University of South Carolina. This was in response to a query from the then-director of the National Park Service on how to value recreational use of national parks. By the late-1950s, empirical studies using this approach had been developed.

The other basic approach to valuing recreation and other nonmarket commodities is to use survey techniques to ask people about the values they would place on nonmarket commodities. One such approach is called “contingent valuation” in the sense that respondents provide a valuation statement contingent on the hypothetical situation posed. One of the first such applications was in the early 1960s by Robert Davis, then a graduate student at Harvard, who asked visitors to Baxter State Park in Maine whether they would still have taken their trip to this park if their travel costs had been higher. In other settings, survey participants have been asked whether they would donate a given amount for some environmental improvement, or vote yes in a hypothetical referendum on some issue like open space or pollution control, for a given increase in property taxes. Other methods derive in part from the previously mentioned work of McFadden. It is beyond the scope of this brief essay to discuss these and other methods in detail; however, some suggested readings are included at the end of this piece.

Which methods can be applied depend on the type of use at issue. One common distinction is between direct use and passive use. The former includes all types of direct on-site uses such as fishing, hunting, wildlife observation, and subsistence use. Passive use refers most commonly to the value individuals may place on just knowing that a species exists and is viable (existence value) or that future generations will be able to also enjoy the use of the given species (bequest value). For example, U.S. residents contribute money to the World Wildlife Fund for the protection of pandas in China or to Audubon for penguins in Antarctica. These are wildlife that the respondents will almost certainly never see themselves. This concept was first suggested in 1967 by John Krutilla, an economist at Resources for the Future, a Washington, DC, research institute.

It is fair to say that the development of nonmarket theory and methods is intertwined with and in part motivated by a sea change in the values Americans placed on recreation and other amenity-related uses of the environment after the prosperity that followed the hard years of the Great Depression in the 1930s and World War II in the 1940s. This change in values is also reflected in the passage of significant environmental legislation at the national level. From a personal perspective, my career path has been intertwined with the legal framework that emerged as my postwar generation was coming into adulthood. First was the Wilderness Act in 1964. The Wild and Scenic Rivers Act in 1968 was next, soon followed by the Clean Water Act, the Clean Air Act, the National Environmental Policy Act, the Endangered Species Act, Superfund (or CERCLA, Comprehensive Environmental Response, Compensation, and Liability Act of 1980) and, immediately following the 1989 *Exxon Valdez* oil spill, the Oil Pollution Act of 1990.

Soon after beginning work on an economics Ph.D. at Yale in 1970, I chose to work on the economics of wilderness preservation as a thesis and, thanks to my advisor's suggestion, I was fortunate to enlist John Krutilla on my committee. The choice of a wilderness topic probably reflects my formative years at a remote Montana Power Company hydroelectric plant, Mystic Lake, just a few miles off the northeast corner of Yellowstone National Park. Our little community of nine families and a one-room school were at the end of a 20-mile gravel road that came south from Fishtail, Montana. We shared that location with a trailhead into what became in 1978 part of the Absaroka-Beartooth Wilderness.

Of course I did not anticipate the major change in environmental policies that has occurred in my lifetime. As it has turned out, I and my colleagues have worked extensively within the framework of the environmental laws enumerated above. The following section provides a short chronology of some of our earlier work on conservation decisions involving public lands and waters.

Applications to Conservation Decisions

My first work in the area of environmental economics began in the mid-1970s. This included benefit-cost

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analysis of proposed dams including Auburn Dam on the American River near Sacramento. I was aware of an important case at the time concerning the proposed Hells Canyon Dam on the Snake River. This was a classic preservation-versus-development case that began as a conventional Federal Power Commission (FPC) license proceeding and issuance of a license to the developer in 1964. However, the license was challenged by the Secretary of the Interior, and in *Udall v. Federal Power Commission* in 1967 the Supreme Court remanded the matter to the FPC noting that whether nondevelopment of the canyon might be in the public interest was largely unexplored in the record: "...if the Secretary is right in fearing this additional dam would destroy the waterway as a spawning ground for anadromous fish [salmon and steelhead] or seriously impair that function, the project is put in an entirely different light. The importance of salmon and steelhead in our outdoor life as well as in commerce is so great that there certainly comes a time when their destruction might necessitate a halt in the so called 'development' or 'improvement' of waterways."

This statement by the Supreme Court has turned out to be prophetic, but for the case at hand, despite benefit-cost commentary to the contrary by John Krutilla in 1969, the FPC chose to build Hells Canyon Dam. In a sign of the state of nonmarket valuation at the time, John in his testimony also commented that existence values were likely to be significant, but that these values “were not taken into account in our computations because there are no currently known techniques or methodology whereby one might do so.” Nonetheless, this case is a significant benchmark for the serious consideration given to amenity values.

Closer to home and further along in the emergence of nonmarket valuation tools, a rural electric cooperative filed a license application in 1978 to construct and operate a hydroelectric project at Kootenai Falls in northwest Montana. By that point contingent valuation had been used to estimate passive use values, beginning with a study of air pollution impacts on visibility from the Navajo generating plant at Four Corners. The proposed 144-megawatt project at Kootenai Falls included a dam at the crest of the falls, which has been characterized as the last major undeveloped waterfall in the Pacific Northwest. I participated in a study initiated in 1981 as part of the State of Montana’s evaluation of the project in an environmental impact statement. In 1981 and 1982 we implemented both a travel cost and contingent valuation study to estimate direct recreation use values as well as passive use. Another element of the argument against the dam was that the falls and the surrounding area are a spiritual site for the Kootenai Indians.

In April 1984, the administrative law judge (ALJ) hearing the case chose to reject the utility’s license application. The ALJ’s decision turned on the esthetic and recreation values: “The conflicting interests instrumental in the denial of the application are the changes in the sensual and recreational values that would be caused to the Kootenai Falls by the proposed Project, and the adverse effect the Project would have on the Kootenai Indians to whom the Kootenai Falls have a special meaning. Even if there were no adverse effect on the Kootenais, the undesirable changes in the sensual and recreational values under these circumstances would result in a denial of the license.” All of the state’s recreation and indirect (passive use)

values were accepted into evidence, but only the contingent valuation estimates for direct recreation use at the site were judged to be credible.

This case is noteworthy in that despite opposing testimony, for perhaps one of the first times, contingent valuation estimates for recreational use were relied on in a legal proceeding. The Kootenai Falls decision is only the second of two cases where the Federal Energy Regulatory Commission or its predecessor FPC has denied a license application for a major hydroelectric project. The other was on the Namekagon River in Maine in 1954.

Following this thread of nonmarket valuation in the context of water resource development, we also had our contingent valuation work relied on in the context of the Missouri River water reservation process which began in 1985. In this case the administrative law judge relied on our estimates of fishing recreation and gave instream uses an earlier priority date over competing irrigation withdrawal rights from 70 conservation districts. Through this period, proposed dams were subjected to much closer scrutiny for fishery impacts. By the early 1990s the tide had turned and dams were beginning to be removed. Some of the first of the major hydroelectric dams to be removed were Elwha and Glines Canyon dams on the Elwha River, with headwaters into the Olympic National Park. This decision was supported by a passive use study by John Loomis at Colorado State who found the value of a recovered Elwha River salmon fishery to exceed the cost of dam removal and foregone future hydroelectric generation. Recently we participated in a Department of Interior-funded national survey that included passive use in an analysis of removing Iron Gate and the other major dams on the Klamath River, once the third-largest salmon fishery on the West Coast. Based on the findings of the study, there is a preliminary agreement to remove the dams.

In the late 1980s we were also estimating passive use values in terrestrial contexts, including evaluating elk winter range acquisitions in the Paradise Valley north of Yellowstone National Park. Because of this prior work on public lands management issues, we were invited by the National Park Service to work on an EIS stemming from the 1987 Northern Rockies wolf recovery plan. In 1990 and 1991 we surveyed park

visitors in Yellowstone and found that, overall, visitors strongly favored wolf reintroduction and that many were willing to donate to efforts to restore wolves. Biologists estimated the number of wolves that could be supported long-term in the recovery area (100 wolves), and also estimated the direct impacts of wolf predation on elk populations and livestock based in part on experience in Alberta and Minnesota where wolves were present. We estimated the costs of a full recovery as averaging \$937,000 per year (\$31,000 livestock loses, \$465,000 foregone value to hunters due to reduced elk populations, and management costs of \$441,000 per year). We implemented a random sample of national households as well as a subsample of all listed phone numbers in the three-state region of Idaho, Montana, and Wyoming. We found that for the national sample, supporters of wolf recovery outnumbered opponents by a 2:1 ratio, but within the three-state region, opinion was more closely divided with 49% in favor, 43% opposed, and 8 percent didn't know. The net existence or passive use annual value (after subtracting out the values for those opposed) for the national sample was estimated to be \$8.3 million per year. The estimated existence value benefits of wolf recovery were much larger than the associated costs at about an 8:1 benefit cost ratio for the national sample.

We also examined the impact of wolves on tourism in the park. Visitors were asked how they would change their visitation to the park if wolves were present: either increase, no effect, or decrease. Based on visitor expenditure data in the three-state region by out-of-region visitors, wolves were expected to provide an additional \$19.5 million in annual expenditure prior to any multiplier effects on the three-state economy. From the perspective of a regional economic accounting framework, this change has a positive effect on the regional economy. The benefit cost analysis and regional economic analysis on wolf recovery basically answered the question: Does wolf recovery in Yellowstone make economic sense? As is well known, in January 1995, 29 gray wolves from Canada were relocated into Yellowstone National Park and the wilderness areas of central Idaho. The action was the culmination of an extensive planning effort, including 160,000 public comments on the wolf recovery EIS, the most of any other prior or then-current federal planning effort.

In 2005, some 10 years after wolf reintroduction, we had an opportunity to revisit the issue of the economic impact of wolves on park tourism. By that point, wolf-watching in the park was well established and concentrated in the open country of the Lamar Valley. Respondents were asked whether they would have come to the park if wolves had not been present. We found the percentage of annual Yellowstone visitation attributable to wolves averaged 3.7% over the year, which amounts to a total \$35.5 million additional spending by out-of-region visitors. Our earlier estimate based on 1991 data and corrected for inflation to 2005 dollars was \$27.7 million, well within our 95% confidence interval for the 2005 study. Most wolves seen in the park are in the Lamar area where roughly two to four packs may be active in a given year, or roughly 20 to 40 wolves. Relative to the annual spending impact, these might be called million-dollar wolves.

To conclude this brief review of several case studies concerning public lands and waters, by the 1990s nonmarket valuation estimates of direct recreation were being relied on for both important policy decisions as well as in some litigation settings. The same can be said for contingent valuation estimates of passive use with regard to policy, but still to date I am not aware of cases where these types of values have been accepted by the courts.

Suggested Reading

The attached set of references provides an entry point into the economic literature on nonmarket valuation. *The Primer* edited by Champ et al. (2003) provides an accessible introduction to methods and many references to key papers. Another useful overview that introduces more of an ecological economics perspective is the panel report by the National Research Council (2005) on valuing ecosystem services. The remaining suggested readings are case studies that illustrate both methods and the range of issues.

One large set of 120 case studies from around the world has been assembled by The Economics

of Ecosystems and Biodiversity (TEEB) office in Geneva, Switzerland, which is a global initiative of the United Nations Environment Programme. With the motto “Making nature’s values visible,” its objective is to mainstream the value of biodiversity and ecosystems into decision-making at all levels. Our wolf recovery analysis (Duffield 2010) was selected as one of 17 North American case studies. Their perspective is that wolf recovery is an example of a biodiversity conservation action that benefits the local economy.

Another complex conservation case study is the impact of Glen Canyon Dam on the Colorado River through Grand Canyon National Park. Peaking flows at the dam have impacted an endangered fish (the humpback chub) as well as anglers and whitewater boaters and washed away scarce beach habitat in the canyon (Neher et al. 2017).

Nonmarket valuation has become important in litigation settings. In the case of the Exxon Valdez oil spill, we have published several papers on how nonmarket valuation of foregone subsistence use by Alaska Natives fared in this setting (Duffield, Neher, and Patterson 2014). A related area of focus for nonmarket valuation is measuring foregone use of tribally-owned cultural and natural resources. Studies for tribes include the Blackfeet, Hopi, Quapaw, Salish-Kootenai, and Penobscot (Duffield, Neher, and Patterson 2018).

A prominent current preservation-versus-development issue is the proposed development of a large gold mine proposed in the headwaters of the major rivers in the Bristol Bay area of southwestern Alaska (Dobb 2010). This relatively intact ecosystem supports the world’s largest sockeye salmon fishery and the livelihoods of Bristol Bay’s Alaska native villages where subsistence is a way of life. We have led several ecosystem services valuation studies of this area (Watson et al. 2007), including work for the U.S. Environmental Protection Agency on a potential withdrawal of this area from mining development under a Clean Water Act section 404c designation. Parenthetically, the idea for this essay’s title came from a book by Seth Kantner (2009)

about his life growing up in arctic Alaska.

A relatively new research direction is our current work in road ecology. Our papers coauthored with Marcel Huijser (2013) provide a benefit cost model for mitigating wildlife-vehicle collisions with wildlife crossing structures and fences. Empirical applications have included whitetail deer in the western United States and the rodents (capybara) of unusual size found in Brazil.

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Suggested citation:

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<https://headwaterseconomics.org/public-lands/people-and-public-lands/>



by Rob Godby, Roger Coupal, and Mark Haggerty

The Overlooked Importance of Federal Public Land Fiscal Policy

As demonstrated by the collective body of papers in this collection, public lands can be a tremendous benefit to local communities and regional economies. In this essay, we draw attention to how policy decisions—fiscal policies in particular—affect the ways in which communities benefit economically from public lands. We consider two case studies—federal timber harvests in Oregon and federal leasing of fossil fuels in Wyoming—to illustrate how federal land fiscal policy has undermined the economic benefits of public lands. In each of these cases, billions of dollars in resources were extracted from public lands with a portion (between a quarter and a half of federal revenue) returned to state and local governments where public lands are located. These payments were largely used to lower less popular local taxes, increasing dependence on continued federal payments and encouraging a narrow view of how public lands create value. In the cases of Oregon and Wyoming, federal revenue sharing eroded long-term economic



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authored many professional journal articles and has prepared several studies for agencies of the Wyoming government on energy, economic development, labor market and education policy. His comments also often appear in the international, national, and local media. Rob's passions outside of work include sportscar and bicycle racing, both of which he has participated in rather unsuccessfully.



Roger Coupal is a community development specialist at the University of Wyoming. His Extension, research and teaching programs are concerned with natural resource policy and community development. Roger's objective is to provide educational opportunities and information for students, community groups, and public officials engaged in policy issues that reside in the nexus of community development and natural resource policy.



Mark Haggerty moved to Bozeman, Montana, in 1993 and has worked across the state and the West as a researcher, teacher, community organizer, and facilitator. At Headwaters Economics for the past 10 years, Mark has worked to understand why some communities do better than others, and to communicate key lessons and policy ideas to people working to make their own states, counties, and towns more livable and sustainable.

Mark's expertise is in fiscal policy, rural economic development, and community planning. He has served on local planning boards, worked with county commissioners and state legislators across the West, and testified in Congress at the request of both Republicans and Democrats. Mark holds a BA in Economics and MA in Geography from the University of Colorado.

opportunities. These dynamics are not inherent to public lands but are the result of fiscal policy choices. Reforms to federal land fiscal policy that would substantially increase the economic benefits of public lands are possible.

What is Federal Land Fiscal Policy?

Federal land management agencies make payments to state and local governments through a variety of programs to compensate for the nontaxable status of federal lands. The first payments made in 1908 were revenue-sharing agreements that delivered 25% of the value of commodities extracted from the newly established national forest lands to local governments. (Payments equal to 10% of commercial receipts were shared with local governments beginning in 1906, but the Act of 1908 is still in effect today and is generally cited as the original U.S. Forest Service compensation program.) Gifford Pinchot and Teddy Roosevelt argued that revenue-sharing provided adequate compensation for tax-exempt lands and was synergistic with the conservationist goals of management efficiency and the development of the West. The same basic revenue-sharing model was later adopted by the BLM and the U.S. Fish and Wildlife Service. The Mineral Leasing Act of 1920 formalized the largest such program by sharing half of federal revenue from leasing of fossil fuels and other mineral resources with states, requiring only that states use the revenue within broad guidelines to mitigate impacts related to extraction on public lands.

For decades these policies remained relatively modest. U.S. Forest Service payments averaged about \$10 million annually between 1910 and 1940 (in 2017 dollars). That changed after World War II when timber harvests from public lands grew

exponentially to supply the postwar housing boom. Suddenly, communities and states began receiving substantial funds from federal land management. The highest timber payment from the Forest Service to local governments exceeded \$1.2 billion in 1977 (in 2017 dollars). Fossil fuel royalties also dramatically increased in this period with the expansion of oil production and the development of major coal leases in the West.

The rise in the value of revenue-sharing payments was welcomed by state and local governments, but also created concerns in the U.S. Congress which initiated a series of reviews and reforms. The Public Land Law Review Commission's report to Congress in 1970 documented that revenue-sharing provided unequal compensation because not all lands had the same revenue-generating potential; that payments were uncertain year to year (U.S. Forest Service receipts vary by 30% on average) making it difficult for counties and school districts to plan long-term budgets; and that revenue-sharing encouraged local governments and managers to view public lands narrowly for their revenue potential at the expense of other values.

Congress addressed these challenges with the addition of several new, appropriated payment programs, beginning with the Payments in Lieu of Taxes (PILT) program in 1976. PILT primarily addressed equity and predictability concerns by guaranteeing all counties a minimum per-acre payment. A second period of reforms responded to declining timber harvest levels and receipts from public lands brought on by industrial restructuring and emerging environmental concerns. Beginning in 1989, the BLM guaranteed O&C counties payments that were equal to at least 85% of historic revenue-sharing payments. ("O&C" refers to the Oregon and California land grants that were revested to the U.S. government and are managed by the Bureau of Land Management primarily for timber production. The O&C lands are located in 18 counties in western Oregon.) These "transition payments" were formalized in the Northwest Forest Plan in 1993 and extended nationwide with passage of the Secure Rural Schools and Community Self Determination Act in 2000 (known simply as SRS).

More recent structural changes in the U.S. economy toward services occupations have revealed another challenge. Because payments from SRS, PILT, and mineral revenues can make up a substantial portion of local and state government budgets, federal payments were often utilized to cut less popular property and income taxes. These decisions result in fiscal over-reliance on extractive activities taking place on public lands—and on uncertain appropriations from Congress. Essentially, budget decisions from local to federal levels have so fundamentally narrowed the fiscal relationship between public lands and state and local governments that the economic benefits of public lands also are restricted. As the U.S. economy continues to change, communities reliant on public lands are less able to participate in economic growth.

Case studies in Oregon and Wyoming illustrate these dynamics, but also demonstrate that adverse outcomes are not inherent to resource extraction or to the presence of public lands in rural communities. The economic benefits of public lands are shaped by fiscal policy choices at the federal, state, and local level.

Case Study 1: In Oregon, Over-Reliance on Revenues from Timber, and a Proposed Solution

Since the end of the Great Recession in 2009, the U.S. economy is characterized by increasing geographic inequality as the nation's major metropolitan areas pull away from the rest of the country because of their advantages—access to markets, access to capital, a large educated labor force, and the creative and innovative synergies created by agglomerations of like-minded companies and individuals. Meanwhile, rural areas are struggling because of distance to markets and labor-saving technologies (see more detail by Julia Haggerty in this collection).

In Oregon, growth is largely concentrated in the metropolitan Willamette Valley (nearly 60% of new jobs in Oregon are located in three counties around Portland). In the 1980s and 1990s, Oregon's rural counties were affected by restructuring in the timber industry and changes in management priorities on federal land that reduced harvest levels. Timber-dependent communities experienced wrenching economic transition as mills consolidated and

automated—reducing the need for workers—or closed altogether.

Billions of dollars were extracted from the region, but rather than build wealth and resilience in resource-rich communities, revenue was largely used to lower taxes, increasing dependence on continued extraction and resulting in fiscal crisis when revenue-sharing payments linked to high harvest volumes declined (Figure 1).

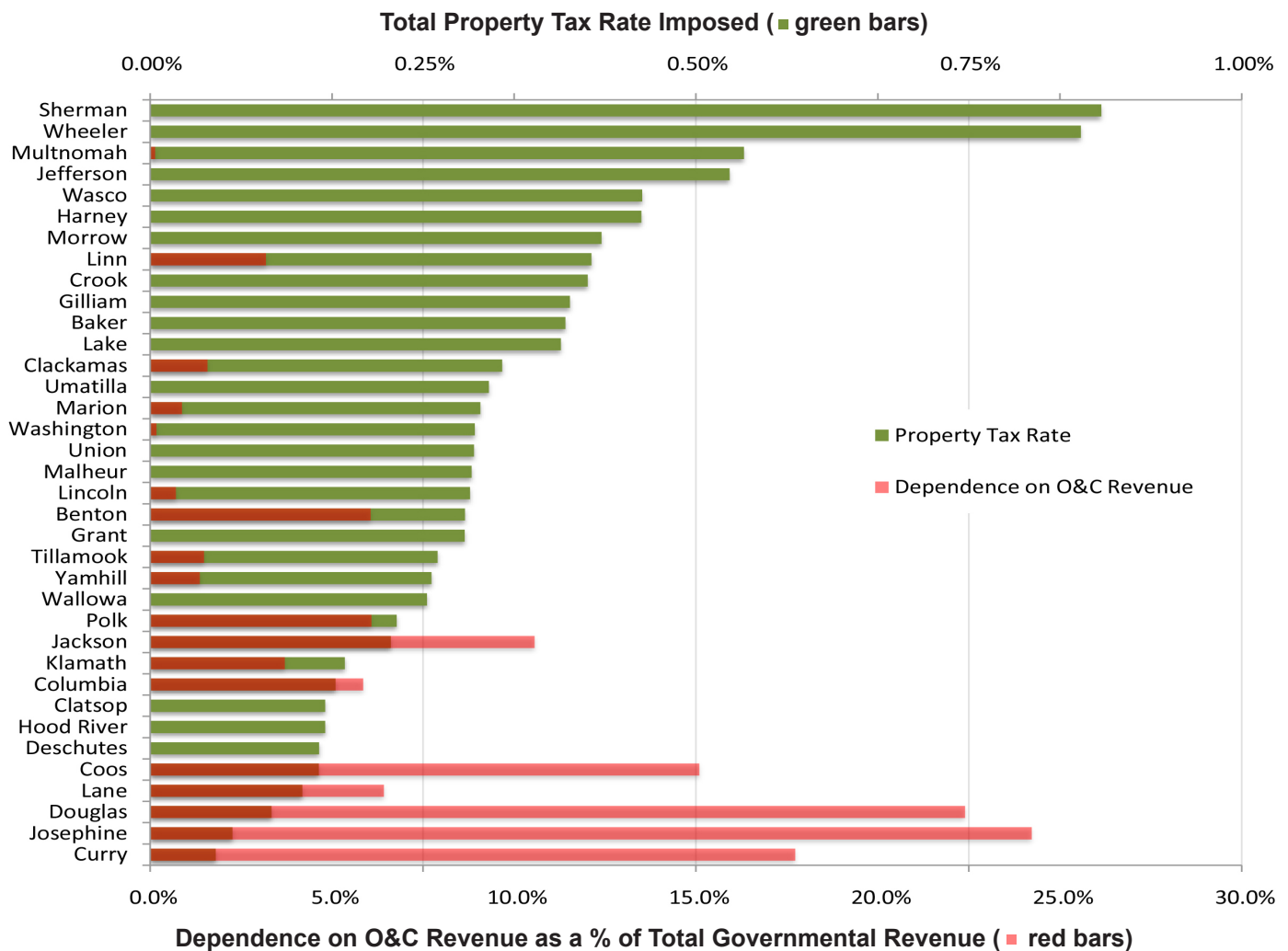
Rural communities responded by spending down savings and reserves, cutting service provision, reducing staff, and foregoing infrastructure improvements. These counties couldn't keep pace with increasing demands on local governments to take a more active role in economic development. Over time, these counties were unable to overcome their basic economic geography and slipped further behind peers that were more closely aligned with metropolitan economies or able to attract amenity migrants.

Dependence on federal transfer payments is not an inevitable outcome of participation in the timber economy but is driven, at least partially, by choices made by local, state, and federal governments. Locally, counties that received the largest timber payments maintained the lowest property tax rates. States, for their part, restrict the ability of local governments to manage volatile revenue via strict balanced budget requirements and taxation and expenditure limitations while offering declining levels of state assistance. Local and state policy choices contribute to the pressure placed on federal land managers to increase harvest levels as the solution to local fiscal stress, or to pressure Congress for bailouts when these strategies fail.

Congress has largely ignored—or failed to recognize—the impacts of uncertainty and volatility of payments on local economies, prioritizing its own discretionary spending authority (the power of the purse) over predictability and equity of payment programs. For some federal elected officials, the rhetorical link between local budgets and active management of public lands is seen as a powerful incentive for increasing harvests.

Current federal policy proposals seek to reform the

Figure 1: Oregon property tax levies compared to federal transfers of timber revenue.



dysfunction of federal land payment programs by creating a federal endowment fund to provide stable, increasing, and reliable payments (Forest Management for Rural Stability Act, S.3753 115th Congress).

The proposal would permanently authorize stable and predictable payments at 2017 payment amounts financed by the new endowment. Instead of sharing commercial receipts with local governments on an annual basis, these revenues would be deposited into the endowment, the principal of which would be invested to earn income. The endowment would begin to build wealth over time from the management of federal lands, creating predictability and permanence for counties and guaranteeing increasing payments over time.

Reforming federal land fiscal policy is a necessary but not sufficient condition for rural communities trying to leverage the economic benefits of public

lands. Communities still need to work with agencies to manage lands in ways that benefit local economies. The endowment model, by removing an annual revenue requirement associated with direct revenue-sharing programs, increases the types of activities that can add value to rural economies (recreation and conservation activities, for example). Predictable and rising payments support the increasingly important role of local governments in economic development and planning activities and in supporting resilient rural institutions.

Case Study 2: In Wyoming, Dependence on Federal Energy Revenue Has Contributed to a “Mineral Tax Trap”

Wyoming is home to the world’s first national park and the first U.S. national monument. Over half of the state’s surface land is publicly owned and, including

subsurface mineral rights, fully two-thirds of the state is federally administered.

These public lands contain significant mineral wealth and have become the backbone of the Wyoming economy. Nationally, Wyoming ranks first in coal production, and eighth in both oil and natural gas production. If Wyoming were a country, it would rank in the top 10 in the world for energy production. In 2016, extractive industries accounted for 20.3% of state GDP and 6.9% of state employment. A majority of Wyoming's coal, oil, and natural gas are extracted from public lands.

Despite this incredible wealth, the state's dependence on natural resources has created economic symptoms that suggest the classic resource curse as described in the academic literature is occurring in Wyoming: focus on resource extraction has resulted in a lack of economic diversity and slower growth. It has also caused a lack of state-revenue diversity.

Table 1 compares Wyoming sectoral employment shares to regional neighbors and the national economy. Differences in economic composition are stark.

Natural resources in Wyoming have an employment share 3.5 times larger than the regional average, more than six times the national average, and more than 50% larger than the next-highest state in the table. By comparison, manufacturing's share is less than half the regional average and only 40% of the national average, while employment shares in high-value sectors such as finance, professional and business services, and education and health trail from 28% to more than 50% below regional and national averages.

Educational attainment in the state also shows signs of the resource curse. While Wyoming's share of population with a high school diploma is slightly higher than the regional and national average, proportions of the population having a bachelor's degree lags behind all states in Table 2 and the national average, while the share of population with a graduate degree lags behind all but North Dakota, the second most energy-dependent state in the region. These outcomes are symptomatic of a less diverse, resource-dependent economy. The overall result has been a relative lack of growth in both personal income and population since 1980.

Table 1: Employment shares by sector by state and region.

Percent of Employment, 2017	WY	NB	MT	NM	ND	CO	UT	ID	SD	State Region	U.S.
Total Private	76%	83%	82%	78%	83%	84%	84%	83%	83%	83%	85%
Services	57%	67%	69%	65%	65%	71%	67%	64%	66%	67%	70%
Trade, Transport., Utilities	19%	20%	20%	17%	22%	18%	19%	19%	21%	19%	19%
Information	1%	2%	1%	2%	2%	3%	3%	1%	1%	2%	2%
Financial Activities	4%	7%	5%	4%	6%	6%	6%	4%	7%	6%	6%
Professional and Business	7%	12%	9%	13%	18%	16%	14%	13%	7%	13%	14%
Education and Health	10%	14%	16%	16%	15%	13%	13%	14%	16%	14%	15%
Leisure and Hospitality	14%	9%	14%	12%	10%	13%	10%	11%	11%	11%	11%
Other Services	3%	3%	4%	3%	3%	3%	3%	3%	3%	3%	3%
Non-Services Related	19%	17%	13%	13%	18%	13%	17%	19%	17%	16%	15%
Natural Resources and Mining	8%	2%	3%	4%	5%	2%	1%	4%	2%	2%	1%
Construction	7%	5%	6%	6%	7%	6%	7%	6%	5%	6%	5%
Manufacturing (incl. Forest prod.)	4%	10%	4%	3%	6%	6%	9%	9%	10%	7%	9%
Government	24%	17%	18%	22%	17%	16%	16%	17%	17%	17%	15%

Table 2: Change in population, personal income, and education shares.

	WY	NB	MT	NM	ND	CO	UT	ID	SD	State Region	U.S.
Population % Change, 1980-2016	24%	20%	30%	60%	13%	85%	102%	73%	23%	59%	41%
Personal Income % Change, 1980-2016	103%	122%	113%	145%	169%	210%	252%	174%	148%	175%	172%
Education											
No high school degree	8%	9%	7%	15%	8%	9%	8%	10%	9%	10%	13%
High school graduate	92%	91%	93%	85%	92%	91%	92%	90%	91%	90%	87%
Associates degree	11%	10%	9%	8%	13%	8%	10%	9%	11%	9%	8%
Bachelor's degree or higher	26%	30%	30%	27%	28%	39%	32%	26%	27%	32%	30%
Graduate or professional	9%	10%	10%	12%	8%	14%	11%	8%	8%	11%	12%

This dependency has also affected taxation choices that define Wyoming's public finance system. Taxing mineral extraction—and receiving large disbursements from federal mineral revenue—has allowed the state to maintain relatively low property and sales tax levels by national standards and has allowed Wyoming to avoid imposing state income taxes altogether. Using mineral revenue to fund government in Wyoming is similar to the choice to use timber revenue to fund local governments in Oregon. Using federal energy revenue to fund Wyoming's state and local governments is popular because resource taxes are largely exported (or paid by consumers in other states who are consuming energy resources exported from Wyoming), meaning Wyoming residents enjoy relatively low taxation and relatively high levels of service.

Table 3 describes the total revenues received by the state versus revenues from mineral extraction alone. Two problems are evident. Not only is the share of state revenues coming from minerals extreme, but the tax structure exacerbates the impact of mineral boom and bust cycles on the state, reducing the state's fiscal resiliency to energy market downturns. When mineral extraction and prices are high, public revenues rise disproportionately, creating a reinforcing stimulus to the state. Energy downturns, however, have the opposite effect, leading to a disproportionate decrease in public revenues and a need for significant fiscal austerity to balance budgets, something the state has known well since 2015.

Wyoming's decision to be dependent on energy commodity taxes has caused an economic and political “mineral tax trap” wherein a political culture and commitment has developed around protecting the self-interest of low taxes and the status quo, dynamics described by Freudenburg as “addictive economies.” The state is aware of the risks of its extreme dependency on coal, oil, and natural gas production, and the need to diversify away from these activities to increase economic development and resiliency. The mineral tax trap includes a pernicious

Table 3: Wyoming total state and mineral revenue comparison. (Source: Wyoming Taxpayers Association, 2018.)

Year	Total State Revenue (millions)	Mineral Revenue (millions)	Mineral Revenue Share of Total Revenue
1995	\$ 1,556	\$ 753	48%
2005	\$ 3,821	\$ 2,436	64%
2006	\$ 4,814	\$ 3,256	68%
2007	\$ 4,772	\$ 3,034	64%
2008	\$ 5,534	\$ 3,657	66%
2009	\$ 5,412	\$ 3,524	65%
2010	\$ 4,552	\$ 2,852	63%
2011	\$ 5,012	\$ 3,237	64%
2012	\$ 5,210	\$ 3,290	63%
2013	\$ 5,131	\$ 3,198	62%
2014	\$ 5,670	\$ 3,492	62%
2015	\$ 5,692	\$ 3,445	61%
2016	\$ 4,231	\$ 2,159	51%
2017	\$ 4,217	\$ 2,203	52%

problem that makes it difficult to make policy changes during a downturn—when the ability to make public investments in diversification are most difficult—or during a boom in energy prices and production when the incentive to change the state’s revenue structure is reduced.

For example, the state’s Tax Reform 2000 study proposed fiscal reforms after a decade-long bear market in oil. When prices and production recovered during the next decade, the report and its hard choices were largely shelved. More recently, the state’s Economically Needed Diversification Options for Wyoming initiative (ENDOW) was launched in 2016 during a historic downturn in oil, natural gas, and coal revenue concurrently resulting in a new fiscal crisis. ENDOW is tasked with developing a 20-year strategic plan to diversify the state economy, but it remains unclear whether momentum can be maintained to implement necessary reforms.

The state tax revolt that limits Oregon’s local governments’ fiscal autonomy also expressed itself in Wyoming. In 1974, Wyoming residents passed a new constitutional amendment mandating that in the event a future Legislature implemented an income tax, new revenue would first be used as tax relief, providing credits from sales, use, and property taxes Wyoming residents pay, undermining any benefit of efforts to reduce dependence on energy revenue, or to maintain budgets when energy revenue declines permanently (see Article 15, Section 18 of the Wyoming Constitution at <https://soswy.state.wy.us/Forms/Publications/09WYConstitution.pdf>).

The state revenue structure, combined with self-imposed barriers to reform, leads to an unintended consequence—sudden flourishing of new and diverse economic activity would not solve the state’s fiscal problems. The additional public service costs of such a change would outstrip the additional tax revenues this activity would create, making the state worse off. A study conducted in 2018 by REMI found that if 100 workers were added in any non-energy sector, the public service costs incurred by these workers and their families would outstrip the state tax revenue they generate; in REMI’s words “...only growth in resource sectors has positive fiscal impacts.”

Wyoming’s resource curse arising from its public land wealth is real. Not only has it distorted the state economy and its demography, it has also distorted its tax structure, and that in turn has created a wicked problem in the classic sense: to escape the state’s resource curse will require making a costly bet to attract new industry with an uncertain payoff. Compounding this cost, if such efforts were successful, they would lead to worsening fiscal outcomes unless an even tougher decision is made. To escape the curse will also require residents to assume a much larger share of their own tax burden, a decision stymied by the well-understood but powerful addiction to mineral revenue.

Despite the actions of the state, federal fiscal policy is implicated in Wyoming’s resource curse on several levels. Volatile revenue from fossil fuels rarely distorts annual budgets and economic policy at the federal level. Federal disbursements to Wyoming, however, make up a substantial portion of the state’s revenue. Federal actions that stabilized disbursements (via a federal endowment as proposed for timber revenue in Oregon, for example) or reforms that place local concerns and local economies at the forefront of federal compensation and impact mitigation payments should be considered. Examples may include diversified revenue from a broader set of services provided by federal lands (e.g., renewable energy and ecosystem services) or consistent funding for reclamation and transition planning in Wyoming’s rural communities.

Conclusion

Public lands offer a variety of benefits, including valuable resource endowments that when extracted generate substantial wealth. But if this wealth is not well managed, natural resources can turn into a curse. The fiscal relationship between federal public lands, states, and local governments is a key driver of dependence that can slow growth and increase economic and fiscal risks presented by a transitioning rural economy. Reforms to fiscal policy that retain and build wealth over time can begin to unwind dependence and increase the resilience of rural communities, a necessary step toward attaining the full economic benefits of public lands.

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Original Purpose of Federal Lands

This essay explores the original purposes of the federal lands—to provide public goods and services—and proposes a return to those public purposes for federal lands.

The Federal Lands

The U.S. federal government has acquired vast areas of land—1.8 billion acres in total—by treaties, agreements, and purchases. The initial federal acquisition was the “western lands” between the Appalachian Mountains and the Mississippi River which were owned by some of the original colonies. These lands were ceded to the federal government by the large land-owning colonies, such as Massachusetts and Virginia, as a concession to the smaller colonies, such as Delaware and Rhode Island, to reach agreement on the U.S. Constitution.

The next decades saw several acquisitions, beginning with the Louisiana Purchase in 1803. While some questioned the authority of the federal government to acquire lands, the purchase was not successfully challenged. Cessions were made by Great Britain in 1818, exchanging lands along the northern boundary in Minnesota and North Dakota, and 1842 in Maine. Florida was purchased from Spain in 1819. Texas was annexed in 1845. The Oregon treaty with Great Britain in 1846 settled the northern boundary of the coterminous United States, extending federal lands to the Pacific coast. The Mexican cession in 1848 substantially expanded western federal lands, including Arizona, Utah, Nevada, and California. The Gadsden Purchase in 1853 allowed the completion of the southern transcontinental railroad. Alaska—Seward’s Folly—was purchased in 1867, and the final territorial expansion was the Hawaii annexation in 1898.

Many have questioned the authority of the federal government to own lands. However, the Property Clause of the Constitution—Article IV, § 3, Clause 2—gives Congress authority over the lands, territories, or other property of the United States. Initial policy was generally to transfer ownership of the federal lands into private or state ownership. Lands were used to pay Revolutionary War soldiers, to finance the new government, and later to encourage the development of infrastructure and European settlement of the territories. However, from the outset, some lands were reserved for certain federal purposes, including military needs (e.g., lands for forts and certain timbers for navy ship masts) and certain minerals (e.g., salt). Lands were only granted to private landowners if agriculture was feasible (this was expanded to include forestry in the 1870s), but lands were also granted to



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states and to railroads to support western expansion. In total, the federal government has transferred 1.275 billion acres to state and private ownership. The remaining federal lands are the public domain (in contrast to federal lands purchased from state or private owners, federal acquired lands).

Management of Public Lands

The first federal conservation reservation was at Hot Springs, Arkansas, in 1832. The reservation merely removed the lands from privatization under existing land disposal and mineral laws. In 1864, Yo-Semite Valley was given to the State of California to be administered as a pleasuring ground (i.e., for recreation). Most famously, Congress designated Yellowstone in Wyoming Territory as the world's first national park in 1872. From their inception, the national parks (and the National Park Service when it was established in 1916) have had the dual missions of providing access for recreation while protecting the natural and historic resources of the sites.

Concerns about forest depredation arose in the 1870s. Initially, the concern was mostly expressed among scientists and academicians, particularly in the American Association for the Advancement of Science (AAAS) and the American Forestry Association. After several abortive attempts, including bills stalled in the Public Lands Committee, Congress enacted a rider to the 1876 general appropriations bill funding a study and report on forest supplies and conditions in the Department of Agriculture (USDA) appropriations. Hence, the beginning of federal forestry was in USDA rather than the Department of the Interior, which administered the public domain lands. The 1878 report, written by Franklin B. Hough, found wasteful, destructive logging resulting from criminal trespass (theft), and focused on the federal inability to influence activities on private lands. In 1881 Congress established the Division of Forestry in USDA, headed by Hough, to help track the situation.

Despite the Division of Forestry's conservation origins, western forest destruction continued with indiscriminate logging on fraudulent land entries (private acquisition of federal lands for settlement). In 1891, Congress acted to suspend entry to (disposal of) federal forest lands prior to their examination and

classification by granting the President the authority to establish forest reserves from the public domain, in § 24 of the Act of March 3, 1891 (26 Stat. 1095). Shortly thereafter, President Benjamin Harrison proclaimed the first reserve, the Yellowstone Forest Reserve (now the Shoshone National Forest in Wyoming), and created 15 reserves (13 million acres) by the end of 1892. His successor, President Grover Cleveland, quickly added another 5 million acres of reserves, but then stopped because Congress had provided no means of protecting the reserves.

Enter the National Academy of Sciences (NAS). NAS was commissioned by the USDA Division of Forestry, supported by the American Forestry Association, to study western forests. The report recommended significant new reserves, and lame-duck President Cleveland proclaimed 13 new reserves totaling 21 million acres on Washington's Birthday in 1897. Congress tried to rescind the proclamations in the 1897 Sundry Civil Appropriations Act, but Cleveland vetoed the bill. The appropriations bill was subsequently enacted and signed by President William McKinley without rescinding Cleveland's proclamations, but with restrictions on the purpose of new reserves: "No public forest reservation shall be established, except to improve and protect the forest within the reservation, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of the citizens of the United States." From the debates over the provision, Congress clearly intended the phrase "citizens of the United States" to mean homesteaders and other settlers, not the timber industry for supplying eastern cities with lumber. Furthermore, the timber could only be used in the state or territory where it was cut. The 1897 Act also limited timber harvests to "dead, matured, and large growth of trees." This restriction on presidential authority, in the 7th unnumbered paragraph of the section titled Surveying the Public Lands of the Act of June 4, 1897 (30 Stat. 11, 34), is commonly called the Forest Service Organic Act, which is commonly cited as the original purposes for administering the national forests. However, timber cutting was intended to be incidental, for local use, while the lands were reserved from large-scale logging.

Thus, purposes of national parks were for public recreation and resource protection, while the purposes of the forest reserves (renamed “national forests” in 1907) were effectively identified as protection of forests and preservation of water flows while permitting some local timber use. Original purposes of the National Wildlife Refuge System and of the public lands administered by the Bureau of Land Management are not discussed here because general management legislation for these lands was not enacted until after World War II. It should be noted that the 1897 Act authorized regulations to effect the purposes of protecting the forests and preserving water flows. Grazing permits and fees were subsequently established to protect reserves from excessive grazing; both were challenged in court, eventually ending up at the U.S. Supreme Court, which on May 1 and May 3, 1911, upheld the fees and use restrictions as reasonable for protecting the forests.

These public purposes were further supported by two subsequent events: the 1910 Big Burn that identified the need to protect forests from fire; and the 1911 Weeks Law authorizing acquisition of forest lands. The 1910 Big Burn refers to a severe fire season in Idaho and western Montana. By 1907, Forest Service Chief Gifford Pinchot had declared that the agency had developed efficient measures for detecting and extinguishing fires in the national forests. The drought in 1910 had begun in April, and numerous fires had sprung up in the region throughout the summer. Beginning on August 20, high winds drove the “big blowup,” which burned several towns and more than 3 million acres of timberland in Idaho and western Montana in two weeks. This drove fire protection to the forefront of U.S. Forest Service policy for decades.

The 1911 Weeks Law provides a different view of the public purposes of the national forests. Concerns arose over the destruction of eastern forests as well as western forests from widespread, indiscriminate logging, but there was little or no public domain land in the east on which to proclaim forest reserves. The Appalachian National Park Association (renamed Appalachian National Forest Reserve Association in 1903) and the Society for the Protection of New Hampshire Forests led the efforts to create eastern forest reserves. The constitutionality of federal agencies acquiring private lands was questioned.

[T]he ownership and management of federal lands was originally intended to provide recreation, to protect lands and resources, and to preserve water flows while allowing other activities.

The House Judiciary Committee initially ruled that legislation authorizing federal land acquisition was unconstitutional. However, the bills were modified to limit the acquisition to lands protecting the headwaters of navigable rivers, with proponents arguing that the Commerce Clause of the Constitution—Article I, § 8, Clause 3—gives Congress authority over navigation, and thus authorizing headwaters land acquisition to reduce downstream flooding was constitutional. The Committee agreed, if indeed forest protection could reduce flooding. The ensuing debate, largely between Hiram M. Chittenden of the Army Corps of Engineers and Forest Service Chief Gifford Pinchot, was spirited, with Pinchot’s view eventually carrying the day.

In summary, the ownership and management of federal lands was originally intended to provide recreation, to protect lands and resources, and to preserve water flows while allowing other activities. In other words, public lands were to provide and protect public goods and services while constraining commercial activities. So what, exactly, are public goods and services?

Public Goods and Services

Public goods are identified by economists as goods and services that have two particular characteristics. First, public goods are “non-consumptive” or “non-rivalous.” This means that their “use” does not diminish the availability of the goods for “use” by others. Scenery is one classic example; your viewing a scenic vista doesn’t reduce the scenic vista for others. This contrasts with private goods where your ownership or use necessarily makes those goods or services unavailable for others; your eating an apple,

for example, makes that apple unavailable to others.

At their most extreme, there are non-consumptive goods and services whose primary value is their existence rather than use. Wilderness, for example, is for many something they want protected, without any expectation of visiting wilderness areas.

The second characteristic of public goods is “non-excludability.” This means that if the good is provided to one individual, it is provided to all. National defense is the classic example: if you are protected, your neighbors are also protected—whether or not they want that protection, and whether or not they pay for it. This raises the “free rider” problem, where people who do not pay for the public good or service still have it available. Of course, it also raises an “unwilling rider” issue: some people who do pay for the public good may not want it, but have no choice about paying.

Economists generally recognize that many goods and services may have some degree of public goods characteristics rather than being purely public or private goods. Wildlands provide a variety of goods and services—timber, livestock grazing, wildlife habitat, water, scenery, etc.—some of which are partially or substantially public goods. This complicates matters, because lands produce several goods and services, some of which do not meet the test of non-excludability. The use of one good, such as harvesting the timber, affects the production and availability of others, such as water quality and quantity and habitat for various species of wildlife. Thus, management decisions for individual resources necessarily affect provision or protection of other goods and services.

Economists and others have also debated whether it is necessary that governments provide public goods directly, or even through regulation of private markets. The lack of government intervention in providing public goods and services commonly results in overproduction or underproduction (compared to “socially optimal” levels) of those goods and services. For federal lands, the question of government intervention was decided more than a century ago, with federal ownership of lands chosen as the means of providing public goods and services. But that has

not settled questions about the adequacy and efficiency with which these goods and services are provided. Many assert that the public goods and services being provided by federal lands are being short-changed. Management of the national forests and Bureau of Land Management lands has generally emphasized commodity production (timber, livestock grazing, and mineral production) since World War II. This emphasis, together with the joint production of public and private goods and services from federal lands and the dominance of private lands in producing private goods and services, certainly suggests the underproduction of public goods and services from federal lands.

Conclusion

It is time to rethink the public lands and to consider a return to the original purposes of the federal lands—management to preserve, protect, and produce public goods and services. Under this regime, some of the current uses of federal lands would likely diminish and could even disappear.

- First and foremost among these is water, both the quality and quantity of water coming off federal lands. This is also consistent with the geography of federal lands, since the majority of rivers and streams in the United States have their headwaters on federal lands.
- Providing wildlife habitat is another public good/service from federal lands. States are responsible for administering hunting and fishing and the population levels of huntable and fishable species. Federal lands can and should contribute to habitats for these species to the extent that such habitats are unavailable on other lands, but can and should emphasize habitats for species with no current market value, including (but not limited to) endangered, threatened, and rare species. While markets may not value most of the flora and fauna, that does not diminish their societal value and their integration into ecosystems that depend on the health of a multiplicity of species.
- Recreation management can emphasize public goods and services, such as dispersed recreation (e.g., hiking and berry-picking) and otherwise unmarketable activities.

- While timber production commonly focuses on commodities, timber from public lands managed for public goods and services could be managed for diverse, unusual, and unprofitable species and sizes (e.g., managing for old-growth timber) for poorly served markets.
- Livestock grazing on federal lands is questionable; federal lands do not appear to provide any unique, irreplaceable grazing, while livestock grazing significantly damages watersheds and many wildlife habitats.
- Finally, federal lands can be managed for additional values and purposes, such as ameliorating climate change by sequestering carbon and protecting forests by promoting diversity of tree species, sizes, and genetics, and emphasizing existence values, such as wilderness and habitat for charismatic megafauna.

In summary, public lands should be managed for public purposes.

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Community Resilience and the Third West in Transition

This essay considers community resilience in an economic geography called the Third West. The Third West describes those parts of the West that are deeply intertwined with production economies based on public lands resources and that refuse to “go away” despite widespread economic restructuring. Because this economic geography is one characterized by uncertainty and pressing transition, describing and addressing community resilience is a critical task for public lands stakeholders. A summary of lessons learned about how local institutions engaged with the impacts of the West’s recent oil and gas boom highlights the role of institutions in community resilience.

What is the Third West and Why are We Still Talking About It?

Ray Rasker of Headwaters Economics coined the term “Three Wests” to describe differences between three types of economic geographies found in the West. The three types include metropolitan areas, counties “connected” to metropolitan markets through commuting and airport networks, and the remote and isolated counties located beyond an easy commute to airports or metro areas (Map 1).

That third category of geographically isolated counties constitutes a formal economic region and also overlaps with both academic and popular notions of the rural West: It is characterized by open spaces, low population densities, and the landscapes of extraction and primary production associated with the Old West. Natural resources located on public lands are often a cornerstone of the primary industries of Third West geographies. Notably, the Third West is neither the metropolitan West, where the vast majority of westerners live, nor the connected counties that benefit

from proximity and access to metropolitan areas and the knowledge economy centered there. Third West counties underperform compared to metro and connected counties with respect to ability to capture high-wage service sector jobs, average earnings per job, and income volatility. Demographically, the region suffers from outmigration, an aging population, and lower levels of human capital as measured in educational attainment.

The Third West’s social and economic “under”-performance involves several related issues: First, their distance from metro areas severely limits the ability for rural residents to participate in the dominant economy of the 21st century—that built around innovation or knowledge-based services. The steadiest source of employment in rural areas for the past few decades has been in the public sector—in local, state, and federal employment. And that is largely because opportunities in primary industries reflect the ongoing



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trends of automation and mechanization, resulting in greatly reduced labor demand. Finally, the economic profile of Third West areas leaves them exposed to fluctuations in tax revenue and income associated with the volatility of commodity prices.

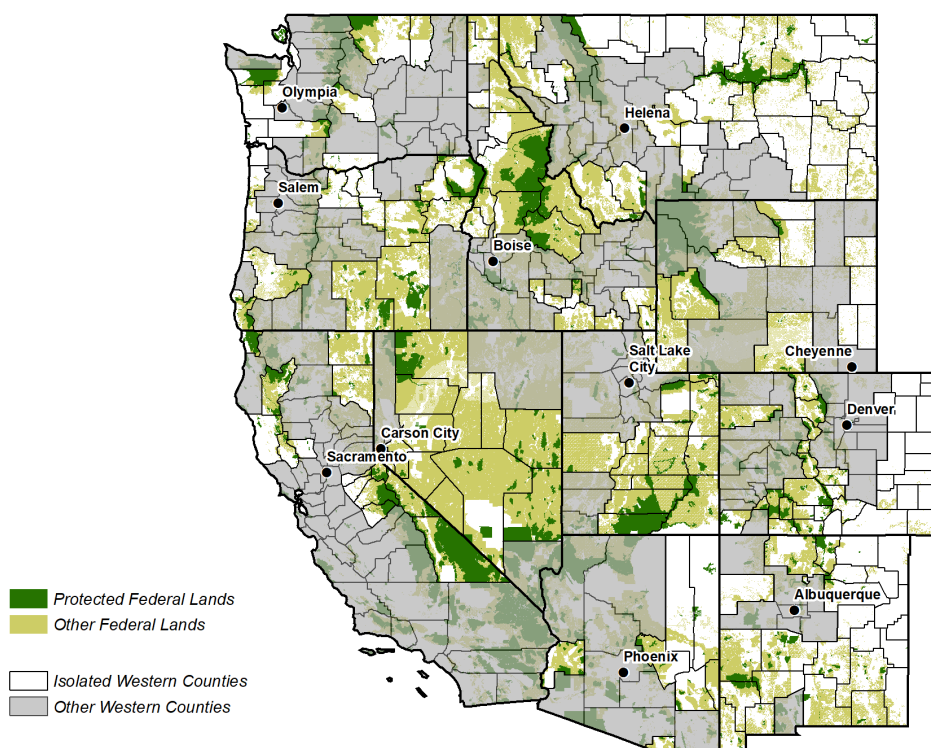
There is another characteristic of much of this region—what the rural sociologist Carl Frederick Kraenzel, writing in the 1950s, called the social cost of space. The social cost of space refers to the confounding effects of distance and low population density on the cost to deliver social and governmental services. From doctors to snowplows, there is more time and distance involved in providing services in the Third West, and fewer people to bear the cost.

More recently, Ben Winchester of the University of Minnesota Extension has added a new perspective on the social cost of space. Winchester has documented, using 501c3 records, steady growth in the number of nonprofit organizations across the country in recent decades. Much of this is in response to the devolution of governmental activities out of the private sector—nonprofits have emerged, in part, to pick up the slack in our nation’s safety nets. Winchester went on

to ask about the implications of this trend for rural communities. He found that the number of nonprofits was growing at similar rates in rural and urban areas, but of course, that populations are not. **In many parts of the Third West, and other rural parts of America, there are four times fewer adults for each volunteer role than in urban and suburban areas.** This is important when we think about community capacity to respond to economic and environmental change.

Drawing on the “New West” canon of economic geography featuring Ray Rasker, Patty Gude, Bill Travis, William Beyers, Thomas Michael Powers, and others, one could ask why we are still talking about this part of the West. Isn’t it a “lost landscape and failed economy” that has been replaced by amenity-based growth? In some ways, that is true—at least in terms of the Third West’s population, employment numbers, and levels of personal income compared to the rest of the American West. But the reality is—and electoral politics increasingly show—that the Third West is very much still there, still has communities and residents, many of whom are key public lands constituents, still supports extractive economies,

Map 1: The Third West includes isolated and remote counties in the West (outlined below), in contrast to metropolitan and connected counties (shown in gray).



and may have new and emerging value relative to the intensive development occurring in metro and connected places in the West.

Indeed, on top of the inexorable effects of industrial mechanization on the number of jobs in primary (goods producing) sectors, the Third West faces new and often overlapping forces of change (Table 1). In this way, the Third West is neither the Old West we know, nor the New West, but really a third geography with new sets of challenges. The most obvious are the impacts of climate change on hydrologic and weather patterns, but they also include continued growth in price gap between rural and urban land that attracts surplus capital to rural land for investment purposes. Financialization of the economy creates greater anonymity and turbulence in corporate structures and accelerates the process of eliminating “inefficient” rural firms. In addition, the Third West is witnessing new versions of industrial development with very uncertain local impacts and outcomes. Some parts of the Third West will experience tremendous investment in new types of industrial projects—and many of these projects will benefit from access to publicly-owned resources—in which the value of production remains high despite declining labor demands. Substantial capital will be focused on decommissioning of industrial projects and associated environmental restoration. Whether the projects are Superfund cleanups, new wind farms, or short-term, high-tech mining projects, all of these activities demand that Third West communities identify and capture the local value proposition (something which is often elusive at best).

Table 1: Share of sector employment, by type, for three county types in the West, 2016. (Source: U.S. Dept. of Commerce. 2016. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C. Table CA25N).

	Metro	Connected	Isolated
High Wage Services*	16%	11%	9%
Goods-producing Sectors	18%	23%	25%
Government	15%	18%	19%
*High wage services defined as Management of companies or enterprises; Information; Utilities; Professional Technical and Scientific Services; Finance and Insurance; and Wholesale Trade.			

Residents of the Third West appear to face an impossible situation: dwindling economic opportunities and a growing mismatch between local capacity and the scale and complexity of impending challenges. And despite warnings to the contrary, the Third West is not going away. Third West communities need resilience.

Community Resilience in the Third West

Community resilience is a popular term with high crossover appeal (from academia to policy and practice). With roots in psychology, community development, and social-ecological systems theories, community resilience describes how residents of a place self-organize and exercise agency in response to shock. Natural disasters (fires, floods, drought, etc.) constitute the primary pole of community resilience research and practice—here, the idea is that the most resilient communities self-organize when disaster hits in ways that reduce the damages of that disaster to their population. However, shocks can take multiple forms and can include economic and policy events as well as slow-onset environmental events. Community resilience remains a salient notion in these contexts, particularly because of the reality that, as in the case of fires and floods, Third West communities are “unbuffered”; they have high levels of direct exposure to the impacts of economic and policy change. As noted elsewhere in this collection, policy-induced economic dependence can increase exposure to risks associated with shocks and restricts the ability of communities to respond.

Drawing on the academic canon in this area, I like to describe community resilience as a very simple idea. In remote rural communities, community resilience involves five linked elements: outlook, place, people, networks, and process. The higher the relative “stocks” of each of these elements and the greater their integration with one another, the greater a community’s capacity for self-organization and agency in response to change. **Outlook** describes a willingness to embrace change and a positive attitude, as well as the antecedents of attitude such as social memory and local cultural traditions. **Place**—more specifically a strong sense of place and place attachment—is a catch-all term describing the vitality of the physical and built environments as well as the

relationships locals have with them. **People** refers to the individual leaders and citizens who are essential to the function of rural communities—in a model focused on local agency, you are nowhere without human capital. **Networks** are the bonds and organizations that connect and organize individuals within a community, and also, importantly, the linkages between the community and other social systems and institutions. It is these outward linkages that can foster exchange of ideas and resources, overcoming isolation and enhancing community resilience. **Process** is shorthand for the idea that when planning and self-organizing are a matter of habit for communities, they run more smoothly in a time of crisis. Think fire drill and more. Formal interactions, particularly those that result in a community vision of short- and long-term goals, are critical elements of responding to and making choices in the context of transition.

Local institutions intersect all of these elements of community resilience. Rural community and local institutions—including formal local government but also place- and community-based organizations and the rules, customs, and practices they perpetuate—are critical reflections and shapers of rural change, including its social, environmental and economic dynamics. How local organizations operate, their evolution, their victories and failures, and their potential to lead or constrain adaptive change, is critical to understanding and enhancing community resilience.

Lessons from the Oil and Gas Boom

Consider the case of the role of local institutions during the West's recent oil and gas booms (events that acted as major shocks in remote, isolated locations). In a nutshell, in most rural places the social and economic impacts of rapid oil and gas development went largely unregulated and unaddressed due to a lack of capacity and regulatory institutions at the state and federal level. As a result, the majority of the response to impacts of oil and gas development in places from New Mexico to North Dakota occurred through truly local institutions—local governments but also non- or quasi-governmental organizations formed explicitly to respond to the social, environmental, and economic impacts of energy boom-bust cycles. Comprised of citizen volunteers or local government

staff taking on extra duties, these local groups met in living rooms, churches and schools, and the basements of local courthouses, often at night. In this alone, they demonstrate capacity for self-organization and agency in response to shock.

How local organizations operate, their evolution, their victories and failures, and their potential to lead or constrain adaptive change, is critical to understanding and enhancing community resilience.

Our research suggests that, where they existed, local institutions in oil and gas boomtowns performed three critical functions from the perspective of community resilience to the disruption of oil and gas development. The first was simply sharing information to help make boom impacts legible and share strategies for solutions—for example, comparing notes on fiscal tools to capture revenue necessary for road repairs. These groups were also heavily focused on networking local stakeholders to ensure representation across diverse community sectors in assessments of impacts and discussions about possible mitigation of them. And finally, local organizations generally worked to prioritize and coordinate impact responses, whether those were formal investments in things like buildings and infrastructure, or social responses such as one county's drunk-driving task force that coordinated a local taxi service to keep the community's roads safe at night.

A number of secondary benefits accrued to individuals and communities from local organizations and their activities. These included enhanced policy literacy—many local stakeholders (including elected officials) lacked detailed knowledge about the policies that

directly affected their capacities, whether revenue policy or industrial regulations. As a result of engaging in these impact mitigation efforts, they emerged with deeper, more practiced understandings of the working of policy. Dialogue among community members had social co-benefits in a period of rapid change. Simply introducing different people to each other and providing a space for social learning that was less heated than public meetings proved to be an important outcome. Finally, participants noted the psychological benefit of actively engaging, i.e., doing something rather than sitting around complaining.

However, these ad hoc governance experiments also showed a number of shortcomings. Most representatives of groups we studied felt their organization and its activities started too late, demonstrating the importance of existing processes and institutions when it comes to sudden onset disruptions like an oil boom. In addition, engagement in oil and gas impact activities was costly to individuals. Most were drawing upon already overtaxed personal resources of time and energy and reported feeling exhausted and depleted from their efforts. Finally, a concern of some groups was that they were so outmatched by the scale of oil and gas impacts that they were only ever in reactive mode, unable to pursue proactive planning for post-boom issues.

In sum, the experiences of local institutions with responding to oil and gas impacts in remote rural communities confirm that individual people and organizations can make a critical difference to community resilience, even in the face of overwhelming transition. They make this difference in several ways: they create efficiencies that allow better use of limited resources, they take on issues that would otherwise go unaddressed, and they enable a strong sense of community and purpose. Finally, this research has demonstrated that local institutions will be a critical “frontline” response to change in an era of limited policy reform and even barriers to the implementation of existing policy. They are not, perhaps, the best ideal singular replacement for widespread policy reform that would mitigate the exposure of the Third West to the negative impacts of transition. Local institutions, nonetheless, are today’s agents of community resilience.

What to Do

This essay’s insights have important implications for how scholars, public land agencies, and decision-makers operate. To support community resilience, public lands stakeholders within and outside of Third West communities need to address the following questions (among many others): What policy changes would enhance and support capacity and institution-building in Third West communities? What investments lead to sustainable social networks that facilitate knowledge and capital exchange across diverse spaces in the West? How can information technology be used to address the social cost of space, especially with regards to barriers to participating in regional decision making? What opportunities exist to ramp up the mutual benefits provided by formal service learning (such as the AmeriCorps Vista program) for rural communities?

Finally, and most importantly, what does transition planning look like? Despite the fact that most impact assessments (including those mandated by NEPA) don’t match the ideal, the professional and scholarly literatures do offer established best practices for impact assessment addressing new industrial development. Ditto for forward-thinking land use planning. However, models of and resources for cumulative impact assessments and planning concerning the looming transitions in the Third West are much, much less clear.

Finding answers to these questions will demand collaboration and experimentation across sectors—industry, non profit, academia, public—to produce novel strategies for policy and practice. The Third West needs a major transition planning initiative drawing upon federal, state and local support, land grant and other universities, and the NGO community to link participatory, science-based regional scenario-planning efforts to local capacity building and policy reform discussions. There are any number of candidates for such an initiative—central Montana and the Powder River Basin are at the top of my list—and all of them have public resources as an integral element of their past and future economies.

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Rockies Region Natural Resources: The Foundation for Economy and Quality of Life – Then, Now, Tomorrow

The eight-state Rockies region is world-renowned for spectacular scenery, environment, and recreation. Decades of European settlement, coming on top of centuries of indigenous Native American habitation, have transformed the ways humans use the region's landscape. And yet prior human development and current uses largely conform to natural patterns of land, water, air, flora and fauna: all more intertwined and fragile than residents largely understand and support. Thus, regional concepts and perspectives are vital to understanding how natural resources serve as a foundation for economy and quality of life. An understanding of the role nature and resources play is central to preparing for the future of the Rockies region. It is a future that continues to be grounded in nature and resources even as the extraction phase gives way to a natural amenity phase in the region's economy and quality of life.

The Rockies Setting

The Rocky Mountains or “Rockies” as a geographical feature has integrity as a physiographic region connected by its Continental Divide spine running along its mountainous crest from the Canadian border in the north to Mexico in the south. Geographers describe it as a mountain range forming the cordilleran backbone of the great upland system that dominates the western North American continent. It is a distance of some 3,000 miles (4,800 km). In places the system is 300 or more miles wide.

In demographic terms the eight states embracing the Rockies form the U.S. Census Bureau's Rockies Division (Map 1). It comprises 863,242 square miles

and 24% of the U.S. landmass compared to 7.3% of the 2016 population in the United States.

In land management terms, 48% of the Rockies comprise federal public lands versus 28% for the United States; sparse settlement leads to 21 people per square mile versus 80 for the United States (Map 2). The region's defining features include spectacular natural beauty, harsh climate and soil conditions, and huge tracts of sparsely settled lands juxtaposed with



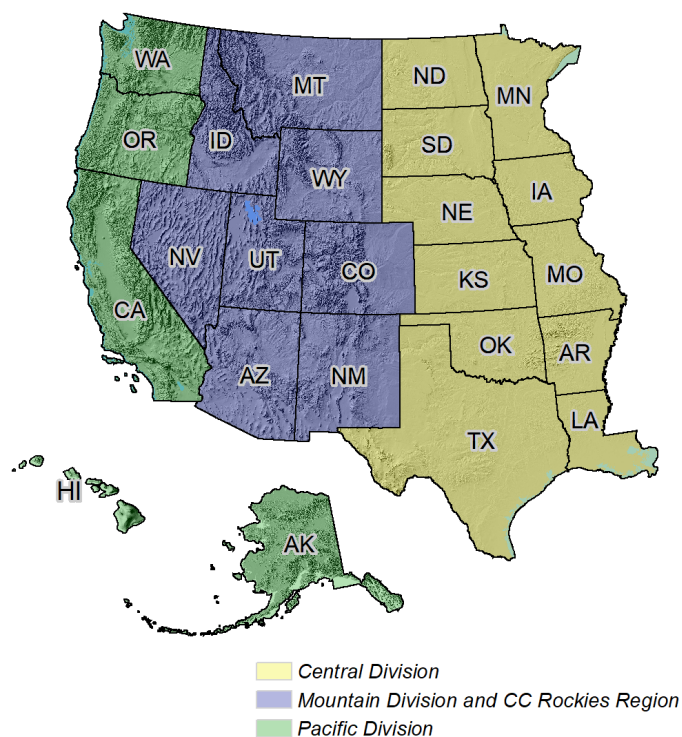
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Pomar Foundation's Pikes Peak Recreation and Tourism Heritage Series. Professor Hecox has managed and performed research for the Grand Canyon Trust; Colorado Department of Natural Resources Executive Director's Office; U.S. Dept. of Energy; World Bank; U.S. Agency for International Development; Southern African Development Coordination Conference; U.S. Military Academy; Ford Foundation; and the National Science Foundation. He founded and served for a decade as faculty advisor to the Colorado College State of the Rockies Project, supervising over 45 research studies on the eight-state Rockies region in demographics, energy, land management, climate change, and amenity economies.

rapidly growing urban areas. These vast open spaces continue to capture the imagination of residents and visitors alike while offering up profound challenges. These include a suggested promise of rugged individualism; the reality of recreation and solitude that appears endless but in fact is limited and fragile; limits to extracting vital natural resources in the future without damaging the land and environment as in the past; and the need to form sustainable patterns of human habitation and resource management to match the grandeur of the scenery.

At first glance, the view millions receive as they fly over the Rockies region on their way to other destinations is a vast area that appears to be a huge empty quarter. Clusters of dense population make the region 1.4% developed (urban or built-up land, including rural transportation corridors), confirming what our eyes told us from afar. Looking more closely, patterns emerge of dense agricultural activity, roads, and clusters of people in towns, cities, and large metropolitan areas. Water defines life in the region, historically along streams and in the rich river bottom areas, and increasingly today in areas where water has been pumped from the ground and diverted on the surface to feed agricultural, municipal, and

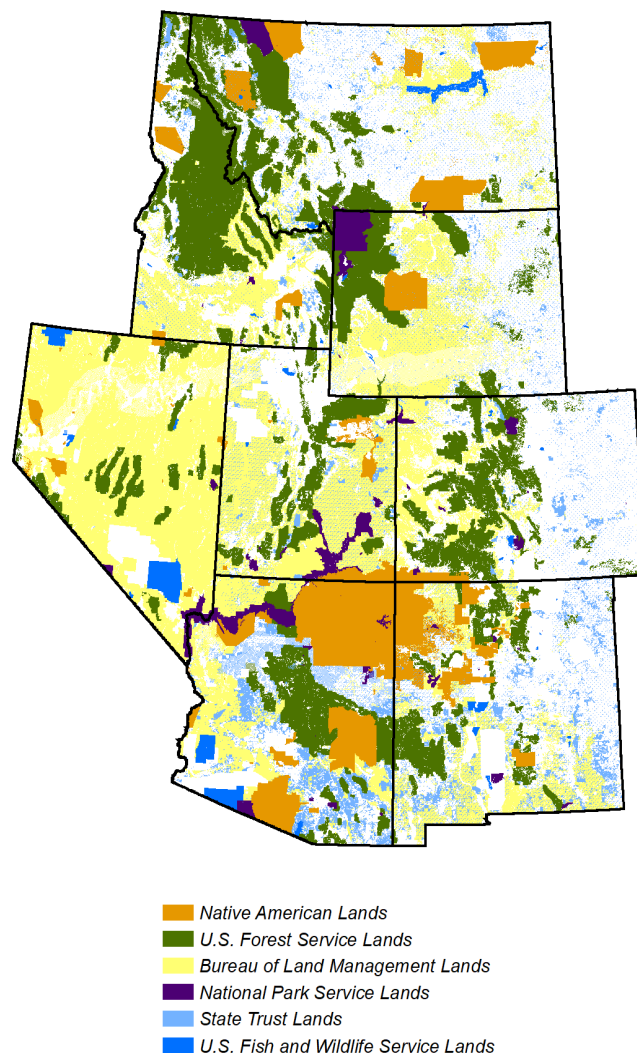
Map 1: Census divisions for Pacific, Central, and Mountain regions. (Source: Headwaters Economics, Economic Profile System.)



industrial demands. Equally defining of the Rockies is the abundance of land publicly owned and managed in a stunning array of types, from Bureau of Land Management grazing lands, to forests controlled by the U.S. Forest Service, to the “crown jewels” of nature and culture under the National Park Service, and to formal or informal wilderness designation. Some people chafe under “absentee” management from Washington, DC, while others look to this same management to preserve the public domain and its health for current and future generations.

So we have a region that is vast, rugged, and at the same time fragile, varied in the density and pattern of population and economic activity, alluring to waves of tourists and migrants wishing to partake of its openness and beauty. For decades, since the 1870s and early attempts to measure economic activity in

Map 2: Federally protected lands in the Rockies (Source: Headwaters Economics, Economic Profile System.)



the region, boom-bust cycles of human habitation and economic activity have made life in the Rockies challenging and uncertain. More fundamental forces have also been at work, creating a transition from resource extraction to amenity-based uses and values for nature.

A review of how the Rockies have changed over past decades, when joined to a snapshot of the entire region as it looks today, helps us understand why.

Regionalism is Always Important

Regional concepts and perspectives are vital to understanding how the Rockies region is defined. The area has evolved over centuries of human development, and must prepare for a future that continues to be grounded in natural resources even as their role in the economy and quality of life are dramatically changing. In contrast to the Rockies' natural resource extraction era, a broader "natural amenities" perspective is essential, one that comprehensively includes land, fauna and flora, water, and air. Thus, our understanding of the "services" of nature has evolved beyond extraction and cultivation into the concept of value derived from intact nature. Our understanding of natural resource systems in the region extends over large areas that are inextricably linked, such as entire watersheds and river basins, migrating herds of wildlife, ranges of mountains, and grasslands and forested areas connected by the increasing spread of insects and disease. All of the Rockies region shares climate change forces that ignore political and economic boundaries. The Rockies region thus enters a new era with forces binding together lands, people, and economic systems. In short, Rockies natural resources, once balanced and managed by nature, now require ever more sophisticated human management if the region's spectacular ambience is to be passed along to our children. And we must remember: The "rugged" Rockies are largely a misnomer, for the region shares high altitude, aridity, intertwined riparian systems, and vegetation that are prone to abuse and destruction.

The earlier nineteenth-century premise of an "empty quarter" across the American frontier underscored a time when government encouragement sent European explorers and settlers flowing westward,

Rockies natural resources, once balanced and managed by nature, now require ever more sophisticated human management if the region's spectacular ambience is to be passed along to our children.

seeking mineral, forest, and agricultural acreage often available through mining claims and Homestead Act filings. Initially those failing or exhausting the land's productivity could then move on when productive acres were exhausted. After a few short decades, emptiness has given way too often to crowding, a "tragedy of the commons" situation where many uses and users often compete and damage the shared commons and often have external third-party spatial and temporal impacts on others. Thus mine tailings of a century ago continue to leak toxic waste fouling land and water; acres previously farmed have often been abandoned as the associated water rights have been severed to higher monetary value municipal and industrial sectors. Human settlements, once sparse and dispersed, are giving way to large municipalities and associated dispersed habitation in the wildland-urban interface (WUI). Wildlife systems once balanced by predator-prey relationships have been severely disrupted by predator destruction, which has spawned overgrown and unhealthy herds that now require increasing natural balance management through human hunting and culling. A century of "all forest fires out by dawn tomorrow" U.S. Forest Service management philosophy, combined with major reductions in logging and vegetation management, have now created too often a perfect storm of dense, aged, diseased stands of timber in a situation where higher aridity and drought cycles bring forth vast wildfire burns that destroy natural and human assets.

Complex forces impacting the Rockies can be shortened into a near-poetic cadence: Wildfires burn, bugs eat trees, water supplies dwindle, snow

packs shrink, tourists overwhelm recreation, WUI developments pull people into danger, dream houses torch, urban proximity to nature chokes on archaic roads, tame and diseased wildlife invade gardens and parks, land management budgets are diverted to fighting fires.

The Rockies Then

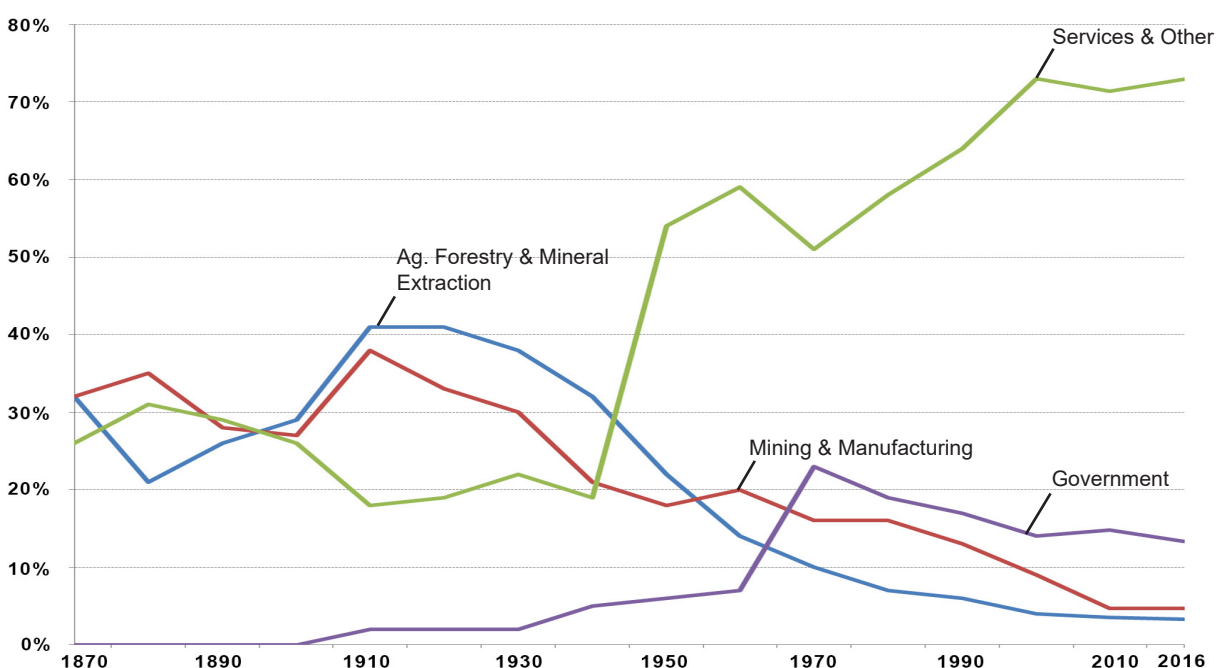
Natural resources and environment historically have both determined and shaped human habitation and economic activity in the Rockies region. Starting in the mid-1800s, a pattern of explorers, and then prospectors, followed by European settlers began to take advantage of the region's vast natural wealth, seemingly there "for the taking." In later decades, into and through the twentieth century, the numbers of people and sophistication of technology allowed for ever more significant extraction and use of land, water, minerals, and flora as well as fauna to support patterns of economic activity and European settlement.

A paucity of information makes it difficult to draw a complete picture of ways by which the land initially supported European settlement in the Rockies. Trends in four broad economic sectors of employment add to our understanding of how historic forces helped shape

today's Rockies region. Figure 1 traces in rough terms the roles of agriculture, forestry and fishing, starting at 32% of employment in 1870, peaking at four out of 10 jobs from 1910 to 1940, and then steadily decreasing to 10% in 1970 and down to 4% from 2000 to 2016. Manufacturing activity in the Rockies has always been modest, with the heavy industry located outside the region and transportation bringing finished manufactured goods to the Rockies. Mining and modest manufacturing started out at 32% from 1870 to 1890, then leveled off at three in 10 jobs from 1900 to 1930, followed by manufacturing gradually becoming more important than mining, with both at 20% from 1940 to 1960, after which a steep decline put such mining and manufacturing jobs at 15% from 1970 to 1990, and decreasing to 5% in the first part of the twenty-first century.

Services (broadly defined as jobs that support other sectors) helped the Rockies economy grow and diversify, standing at 26-30% of jobs from 1870 to 1900, decreasing with a fall-off in mining and modest manufacturing activity until 1950, after which services rose by decade to 64% in 1990 and 73% by 2016. Government employment is informative given the common misconception that "government bureaucrats" are heavily represented in the Rockies.

Figure 1: Rockies region employment trends in agriculture, forestry, mineral extraction; mining and manufacturing; services and other; government. (Source: U.S Bureau of the Census and Historic Atlas)



Such jobs were not even measured until 1910 when it stood at 2-7% from 1920 to 1960, followed by a near quadrupling by 1970, levelling off at 19% by 1990, and falling to 13% by 2016.

Care must be taken in looking at these decade-by-decade patterns: while cultivation and extraction of natural resources have dramatically declined, nature’s “amenity” characteristics have increasingly become the foundation for the Rockies’ population growth and increasingly service-based economy. Thus, nature’s role in the Rockies economy toward the end of the twentieth century and first two decades of the twenty-first century are implicit but no less important!

The Rockies Now

Our summary review since the decade of the 1870s has demonstrated the gradual movement of the Rockies economy from primarily land and natural resource extraction-based activities such as farming and forestry to increasingly amenity-based economic forces including recreation and retirement. What is fundamental about this shift is not that natural resources are less important because they are not extracted as in the past, but that natural resources themselves are still the foundation and driver for economic activity. A snapshot of the current Rockies economy, measured by modern U.S. Census Bureau categories of employment (Table 1) supports the phenomenon of continued natural resource dependence, radically altered toward more importance of natural amenities, recreation, and tourism and less extractive activities. Four employment dimensions from 2001 to 2016 stand out:

- Farm, forestry, fishing and mining (including fossil fuels) employment are 3.3% in both 2001 and 2016;
- Manufacturing employment was 6.6% in 2001 and declined to 4.7% by 2016;
- Arts, entertainment, recreation, accommodations, and food employment was 11.3% in 2001 and grew to 11.5% by 2016;
- Government employment was 14.5% in 2001 and declined to 13.3% by 2016.

These results reinforce the idea that natural amenities are an important ingredient in helping communities and states attract businesses, workers, and investment. While public lands are associated with travel and tourism activities—which are important in their own right—research increasingly shows that these activities are only one part of a larger amenity economy that is an important driver of economic growth across the West.

The Rockies Tomorrow: Natural Resource Theory Evolving

Natural resource economics is a long-standing part of economic theory, dealing with the supply, demand, and allocation of the Earth’s natural resources. Resource economists study interactions between economic and natural systems with the goal of

Table 1: Rockies region employment trends, 2001-2016.
(Source: Headwaters Economics, Economic Profile System.)

	2001 Shares	2016 Shares
Total Employment (number of jobs)	100%	100%
Non-Services Related	17.5%	13.8%
Farm	1.8%	1.5%
Forestry, Fishing, & Ag. Services	0.5%	0.4%
Mining (including fossil fuels)	1.0%	1.3%
Construction	7.6%	5.8%
Manufacturing	6.6%	4.7%
Services Related	67.7%	72.9%
Utilities	0.3%	0.3%
Wholesale trade	3.4%	3.2%
Retail trade	11.2%	10.4%
Transportation & warehousing	2.9%	3.3%
Information	2.5%	1.7%
Finance & insurance	4.9%	5.4%
Real estate & rental & leasing	4.1%	5.6%
Professional & technical services	6.2%	7.1%
Management of companies	0.8%	1.1%
Administrative & waste services	6.3%	6.3%
Educational services	1.2%	2.0%
Health care & social assistance	7.7%	9.8%
Arts, entertainment, & recreation	2.2%	2.4%
Accommodation & food services	9.0%	9.1%
Other services, except public admin.	4.8%	5.2%
Government	14.5%	13.3%

developing a sustainable and efficient economy. Public lands in the Rockies are central to such issues. For non-renewable resources, historic and current extraction of minerals and petroleum occur at rates feasible technically and financially. Results are not only substantial income-wealth benefits, but also third-party impacts called “external costs” such as air and water discharges and toxic residue. For renewable resources, such as silviculture, grazing, and water collection-diversion, again technological and financial feasibility are essential and third party impacts occur on riparian habitat, fauna-flora, and down-stream water availability. Designing optimum exhaustion for non-renewables and sustained yield for renewables ideally must also reflect levels of technology and globalization. Management of natural resources is thus complex and needs to draw from different disciplines within the natural and social sciences connected to broad areas of earth science, natural ecosystems, and human socioeconomic systems.

Contemporary natural resource theory increasingly encompasses the concept of “amenity” values from new uses of traditional natural resources and environment. Technology has replaced mineral content in much production and introduced alternative energy sources beyond fossil fuels, while globalization has often brought alternative sources of processed goods at competitive prices, thus reducing competitiveness of Rockies region products. The forces of climate change, aridity, and rising average temperatures complicate resource usage further. Meanwhile affluence and travel mobility have created new uses and benefits from “nature left in its own conditions.” Housing in wildland-urban interfaces, organized recreation at resorts, dispersed hiking and camping, tourism seeking beautiful vistas, hunting and fishing—all of these and more value “nature” more in its intact locations and condition than if it were processed and extracted. Nature by its mere existence increasingly contributes to overall social welfare and quality of life levels even as we threaten to “love nature to death.”

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<https://headwaterseconomics.org/public-lands/people-and-public-lands/>

Suggested Reading

To understand the Rockies as a holistic region requires perspectives drawn from geography, history, and ecology as well as natural resource and regional economics. The abundance of public lands as well as interconnected natural systems, from hydrology to climate to fauna and flora, mean that a broad theory of how economy and ecology interact is necessary. The major change in how nature serves as a foundation for economy and quality of life leads us to the overarching concept of “amenity economics” for modern management. Helpful readings span academic fields and approaches.

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Getting into the Dirt of Public Lands Policy

In a short paper entitled “The Obligations of a Policy Economist,” Paul Portney (2004) outlined three responsibilities of the public policy analyst. First, we must be very clear about what economics can and cannot tell us about a policy decision, as well as being explicit about the numerous assumptions that underlie any economic study. Second, we are required to describe the full array of benefits and costs of a given policy. That is, we must consider the good and bad aspects of a policy, even if we have undertaken the study for a client with an interest in a particular outcome (or, I may add, if we hold a strong personal opinion about a policy). Finally, Portney states that economists must think beyond an “optimal policy” and instead consider the political and social constraints faced by decision makers when designing a policy. Economic efficiency is only one piece of the policy puzzle and there are many other concerns that influence a final policy decision. This last obligation directs us to leave the ivory tower and get our hands dirty as we use our analytical tools to help shape public policy.

In much of public lands analysis, non-economists seem to consider the notion of economic efficiency as peculiar at best or, at worst, a laughably unattainable ideal. Instead of economic efficiency, those engaged in the octagon of public lands policy must grapple with more prosaic economic matters, such as the fiscal cost of a policy or its overall impact on employment opportunities and regional income. If an economist wishes to have his or her work influence policy decisions, then economic analysis must be framed to address the needs of policymakers and the general public. Much as it pains economists, economic efficiency seemingly takes a back seat to other concerns.

I have helped study two relatively high-profile public lands issues—the transfer of federal land to states and designation of landscape-scale national monuments—not from the perspective of economic efficiency, but instead based on questions defined from the perspectives of policymakers and interest groups. In neither case did our research teams conduct a full benefit cost analysis (BCA), as would be needed to evaluate whether a given policy improved economic efficiency, yet the public response to each study would seem to indicate a strong demand for a comprehensive BCA.

Encouraged by high livestock and energy prices in the early 2010s, Utah legislators sought to transfer 31 million acres from federal control to the state. Legislators assured residents that transferred land would remain publicly accessible and that environmental protections would remain in place. The state’s fiscal argument in favor of a transfer rested upon two contentions. First, state public land agencies, with experience earned from their administration of



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Utah's 5.5 million acres of state-owned land, could manage the transferred land at a lower per-acre cost than federal agencies. Second, state managers would increase revenues associated with commodity production and recreation. Increased revenues combined with lower management costs would allow the state to absorb the responsibilities of managing an additional 31 million acres of public land without raising taxes. Those against a land transfer claimed that Utah could never afford to manage the land and that, should it gain title to federal land, the state would be forced to engage in extreme actions so as to avoid budget shortfalls. Each of these arguments seems plausible.

The state of Utah sponsored a team of researchers, of which I was part, to analyze the proposed land transfer. Although our study focused on economic dimensions of numerous public land issues, its central focus was the question outlined above: Could the state assume the obligation of managing 31 million additional acres without resorting to non-land-based revenue sources? Our fiscal analysis, for which team members from the University of Utah did the heavy lifting, was released in December 2014, and then later distilled in a journal article (Jakus et al. 2017). We found that (1) federal lands were, on average, less likely to produce marketable commodities than private lands; (2) state agencies were unlikely to be able to manage public land at a lower per-acre cost than federal agencies; and (3) land-based revenues in Utah were dominated by oil and gas production. The state of Utah could generate land-based commodity revenues sufficient to cover the cost of land management if (1) oil and gas prices remained high (roughly, above \$90/bbl); (2) the state obtained 100% of all oil and gas royalties; and (3) the rate of drilling on public lands increased. If these conditions were not met, then the state could not cover the cost of its management obligations and other revenue sources would need to be secured.

This study received widespread coverage in the Utah press and, although our conclusion would hardly seem controversial to an economist, the debate was vigorous. The state of Utah, our study sponsor, expressed great confidence that energy prices would remain high—even as prices were in the midst a free fall from their record levels of July 2014—and

claimed that our study demonstrated support for a transfer. Environmental groups seized on our results to reach an opposite conclusion: we had convincingly demonstrated the fiscal risk of a land transfer.

A second public lands study effort addressed the economic effects of large, landscape-scale national monuments (NMs). Beginning with Utah's 1.9-million-acre Grand Staircase-Escalante NM (GSENM) established in 1996, Presidents Clinton and Obama used the Antiquities Act to designate about two dozen large monuments (roughly, greater than 75,000 acres). The large size of such monuments recognizes that the historic, prehistoric, and scientific objects to be protected do not stand in isolation from one another and are, instead, connected to one another in a manner similar to physical and biological elements that compose an ecosystem. Management plans for landscape-scale monuments are designed to shield the scientific value of the protected objects by preventing new commodity production activities and limiting expansion of ongoing activities, while simultaneously constraining development of tourism infrastructure within monument boundaries.

The joint restrictions on commodity production and tourism growth have naturally raised the question of the economic effects of large national monuments. Land use restrictions associated with landscape-scale NMs are alleged to harm local economies due to reduced profitability of agriculture and extractive industries, as well as constraining future regional economic development alternatives. In contrast, others have asserted that large monuments beneficially stimulate regional economies through growth of the tourism industry and reduced economic reliance on volatile commodity markets. Incredibly, both sides pointed to Grand Staircase-Escalante NM as evidence in support of their position.

The key economic question posed by participants in this debate is not economic efficiency, but whether large monuments cause aggregate regional economic benefit or economic harm. However, a review of the economics literature revealed no empirical basis for either of the economic arguments outlined above, and our study of the Grand Staircase was the first empirically rigorous characterization of the regional economic effects of landscape-scale NMs. We used

two different econometric approaches to gauge how monument designation affected the time path of per capita income in Utah's Garfield and Kane counties (home to the GSENM) relative to surrounding counties. Both econometric approaches yielded the same result: the GSENM has had no statistically significant effect on the time path of per capita income in the treatment counties relative to control counties. The GSENM has proven to be neither a boon nor a bane to the regional economy.

Similar to the land transfer study, our work on the GSENM was featured widely in Utah's statewide newspapers, on TV and radio broadcasts, and podcasts. In contrast to the strong response received from elected state representatives and interest groups for the land transfer study, the response to the national monuments study was...silence. Our result, which has since been replicated for counties hosting nine other landscape-scale national monuments, was ignored. We suspect this is because our research conclusion has left little room for either side to claim vindication for their position. Instead, these groups held fast to entrenched ideas regardless of the new information. At the urging of Utah's federal and state legislators, President Trump reduced the size of the Grand Staircase by half, claiming that large monuments "threaten your local economies." Environmental interest groups continued to use the NM analysis produced by Headwaters Economics, which showed only that large NMs have not obviously harmed local economies, to incorrectly claim that NMs benefit local economies.

Getting my hands dirty in fields where public lands policy is made has been, on the whole, rewarding. As an academic, watching the response of legislators, government officials, and interest groups to our policy analyses has been educational; as a citizen, the experience has been sometimes affirming and sometimes frustrating. But policymakers' reactions do not tell the full story. Public lands research is of intense interest to the general public so that one's academic work, typically restricted to the domain of the obscure, becomes subject to public debate as conducted by non-experts. Here I refer not only to opinion pieces and letters to the editor, but also to (often vitriolic) online comments regarding one's research. Reading through these pieces is not for the weak-kneed or faint-of-heart, but there is much to be

learned. Cutting through the mudslinging and name-calling, a common thread emerges: our economic studies have not answered the real question of public lands: How do different policy approaches affect the value of the market and non-market resources that flow from public lands?

The economic efficiency criterion so desired by economists to assess policy options is also desired by the population whose wellbeing and behavior will be affected by public lands policy.

For example, if a state ramps up oil, gas, and coal production on its newly acquired public lands, what will be the effect on public lands access? What are the consequences for water quality and air quality? How will additional releases of carbon affect climate change? How will state management influence populations of threatened and endangered species? If the Antiquities Act is fundamentally about protecting the scientific value of protected objects, what is the value of such protections and what trade-offs are we, as a society, willing to make to secure such protections?

It is evident from such public comments—although not always expressed clearly and succinctly—that the general public demands a comprehensive BCA of public lands policies. That is, the economic efficiency criterion so desired by economists to assess policy options is also desired by the population whose wellbeing and behavior will be affected by public lands policy. Such an approach would necessarily involve substantial reliance upon nonmarket valuation methods to estimate the full array of benefits and costs, methods for which many policymakers and interest groups have expressed great skepticism. Further,

such studies are time-consuming and expensive, two attributes typically at odds with the interest and needs of those who fund public lands studies.

As economists, we must continue to advocate for a comprehensive BCA; in the absence of such a study, the second-best solution is to adhere to Portney's third obligation and continue to work on economic questions as defined by those who are not economists.

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Non-Labor Income in the Rural West

Many households receive a large part of their income from sources other than their current jobs—including investment income, retirement savings, and welfare benefits. These income sources, together known as “non-labor income,” make up a large and rapidly growing economic driver. Because non-labor income is not connected to a job, it is an often overlooked and relatively unfamiliar component of local economies.

As non-labor income grows rapidly, particularly in rural places, it has the potential to transform the economies and affordability of many communities. Understanding the opportunities and challenges that growing non-labor income bring to communities may help places more effectively manage these changes.

This essay outlines the components of this “hidden paycheck,” its role in county economies, and the factors such as public lands that bring non-labor income into a community.

Background

Non-labor income has grown substantially over the past several decades, both in terms of total dollars and as a share of household income (Figure 1). In 1970, counties in the western United States had an average of \$619.6 million in non-labor income (adjusted for inflation), which was 27% of all personal income in the counties. In 2016, counties had an average of \$3.5 billion in non-labor income, which was 44% of all personal income in western counties.

Non-labor income can be divided into three main categories: investment-related (e.g., dividends, interest, and rents), aging-related (e.g., Medicare and Social Security), and hardship-related (Medicaid and unemployment benefits). In 2016, investment-related income made up half of all non-labor income, aging-related made up 29%, and hardship-related made up

15%. These shares have been relatively constant over time, but the share from aging- and hardship-related payments has been growing, largely due to rising Medicare and Medicaid payments.

Less urbanized communities are particularly dependent on non-labor income sources. In 2016, non-labor income exceeded labor earnings in 75 of 180 (42%) rural counties in the West. Non-labor income made up an average 48% of total personal income in rural western counties in 2016, ranging as high as 69% of income in San Juan County, Washington.

Components of Non-Labor Income

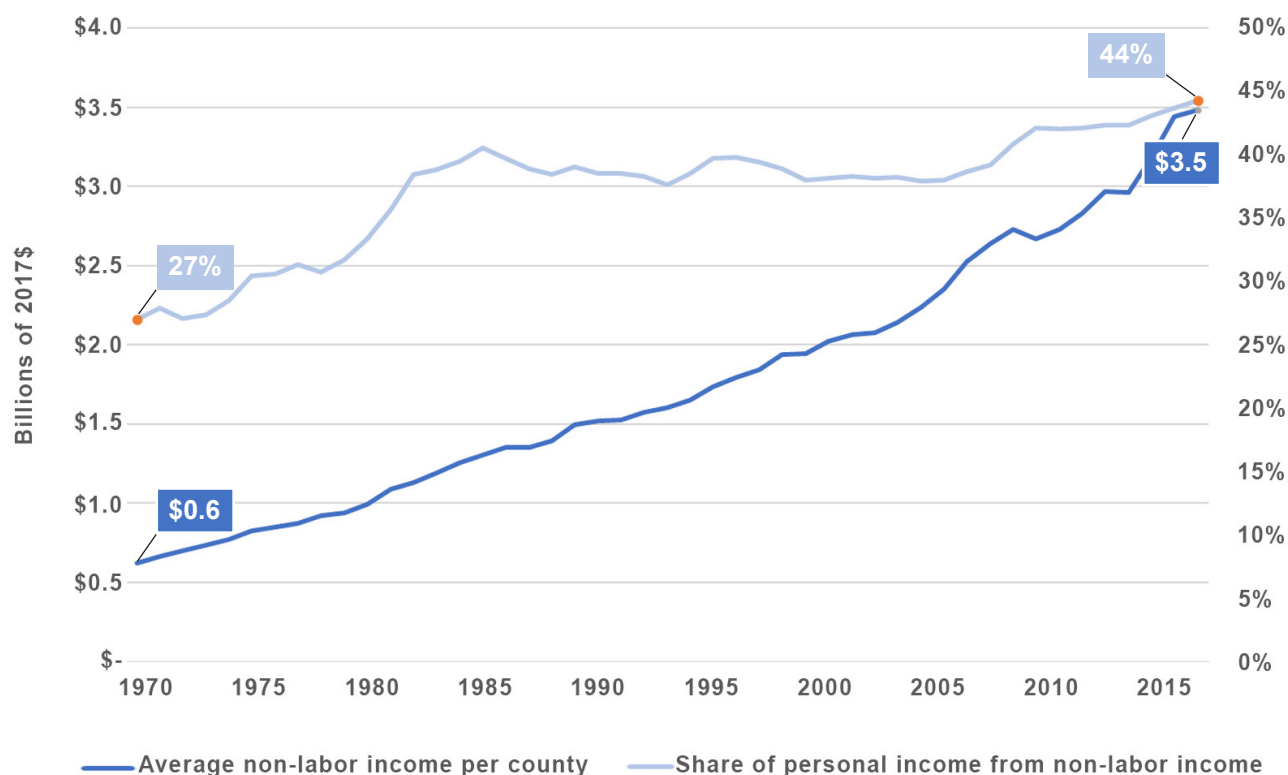
The effect this influx of money has on rural places depends on what types of non-labor income dominate the local economy. Consider the two counties in Table 1, in which 63% of personal income came from non-labor sources in 2016: Huerfano County, Colorado, and Blaine County, Idaho.

In Blaine County, home of Sun Valley resort, almost all non-labor income comes from investments: 89% of all non-labor income comes from investment-related



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Figure 1: Average non-labor income and share of total personal income from non-labor sources in western counties, 1970-2016.



sources, 8% comes from age-related payments, and 2% comes from hardship-related payments. Contrast this with Huerfano County, where non-labor income is more evenly divided: 40% is from investments, 31% is from age-related payments, and 23% is from hardship-related payments.

Implications for Rural Communities

The composition of non-labor income in Table 1 paints a quick portrait of the community: Blaine County is a resort area that has attracted wealthy residents, with relatively few seniors and lower-income households.

Table 1: Non-labor income composition in two example counties, 2016.

County	% of personal income from non-labor sources	Share of Non-Labor Income, by type		
		Investment-related	Age-related	Hardship-related
Blaine County, Idaho	63%	89%	8%	2%
Huerfano County, Colorado	63%	40%	31%	23%

Huerfano County has an older population driven by both long-term residents and retirees new to the area, and many households have low income. In Blaine County, 8.5% of residents live in poverty; 20.8% of Huerfano County residents live in poverty.

Beyond these two example communities, the components of non-labor income are associated with particular socioeconomic trends. Investment-related income is associated with a higher share of residents with college degrees, somewhat older residents, and lower poverty rates. Age-related income is associated with fewer residents with college degrees, higher poverty and unemployment rates, and a substantially older population. Hardship-related income is associated with higher poverty and unemployment rates, and high rates of out-migration from a community.

The different types of non-labor income have different implications for a community's economy. Additional investment-related income is associated with higher levels of employment and higher average wages in construction, finance, health care, retail, and professional services. Additional age-related income

is more mixed: the level of employment and average wages are higher in finance and in health care, lower in construction, and there is no effect on professional services. Age-related income is associated with more employment in retail and no relationship to average wages in retail. Hardship-related payments do not have as strong a connection to economic sectors: there is no relationship to performance of the construction, retail, and professional services sectors. More hardship-related payments are associated with greater employment in finance but lower average wages per job, and greater employment in health care with no associated change in average wages per job.

Public lands create scenic and recreation amenities that attract new residents, particularly those whose income does not depend on finding a job in the community.

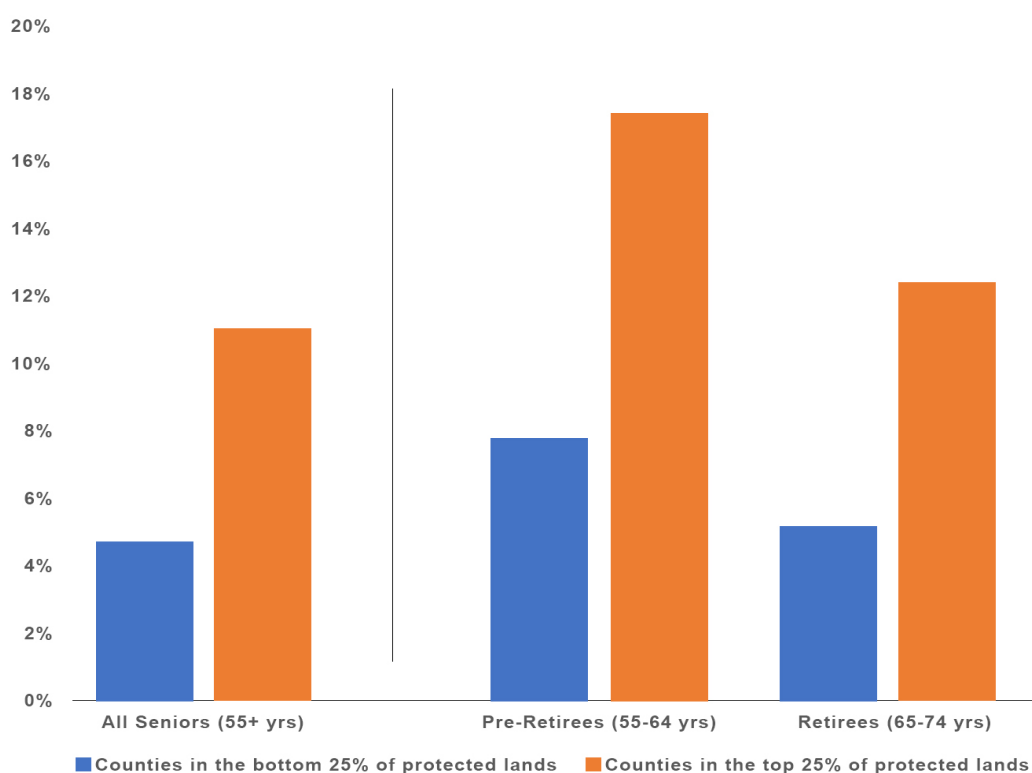
Public Lands and Non-Labor Incomes

Public lands create scenic and recreation amenities that attract new residents, particularly those whose income does not depend on finding a job in the community such as retirees, entrepreneurs, and the wealthy.

Seniors, in particular, have been moving to places with protected public lands, which include national parks, national monuments, and wildlife refuges (Figure 2).

When seniors move to these places, they bring their nest eggs with them. Between 1970 and 2016 in nonmetro counties, non-labor income grew more than twice as fast in places with the most protected public lands, compared to places with the least protected public lands. Most of the growth in non-labor income in these communities is due to growth in investment-related income, which grew 3.5 times as quickly in counties with the most protected public land. Age-related income also contributed to growth, increasing nearly twice as fast in nonmetro counties with the

Figure 2: Average net migration rate, 1970 to 2010, by age, for western counties based on protected public lands.



most protected public lands, compared with counties with the least protected public lands. There is no significant difference in the growth of hardship-related payments over time between places with a high and low amount of protected public lands.

When communities attract retirees seeking lower cost of living but do not provide opportunities for younger, working-age residents to move to or stay in the community, they face the possibility of a rapidly aging community with a limited economic future. During the past several decades, many nonmetro communities have been losing their young, working-age residents to metro areas, university towns, and booming tourism communities like Summit County, Colorado. (See Todd, L. 2017. Infographic: Where in the West young people are moving. High Country News <https://www.hcn.org/articles/state-of-change-where-is-the-young-west>.)

We find that places with the most protected public lands were significantly more likely to retain their working-age population: between 2009 and 2013, 19% of places with the most protected public lands lost working-age residents; 32% of places with the least protected public land lost working-age residents (American Community Survey, U.S. Census Bureau). The difference is even greater when we look at communities that also are growing in the share of retirees: 23% of these retirement counties with a lot of public land are losing working-age residents while 58% of retirement counties with the least protected public land are losing working-age residents.

These findings suggest that places with the most protected public lands have been attracting new non-labor income and at the same time are less likely to lose their younger work force and associated labor earnings.

Non-Labor Income is Not an Economic Silver Bullet

Non-labor income, particularly related to investments, brings new money into communities regardless of the strength of the local job market. This new money then supports more jobs and higher average wages per job across many economic sectors. However, non-labor income also brings with it several challenges that can

affect a community's long-term resilience, including rising cost of living, dependence on the performance of stock markets, and dependence on national policies.

When left unchecked, non-labor income can eventually crowd out labor income in a community. When people move to a rural community with income tied to non-labor sources (or jobs they work remotely), their income often does not reflect local job market conditions. While new non-labor income can inject much-needed money into the local economy, it also can drive up cost of living, particularly around housing. Over the long term, an influx of non-labor income can make a community unaffordable for those employed locally. This challenge is played out in high-amenity resort communities around the West as workers move farther from the community core. Research by Hunter et al. suggests that in some high-growth, high-amenity places, the increases in income for locals can be outstripped by rising cost of living.

As non-labor income from investments moves into communities, particularly in places known to attract investment income such as those with protected public land, leaders can seek solutions from other communities that have dealt with similar challenges. Programs such as employee housing and affordable housing lotteries can help mitigate the crowding-out of local workers if the programs are big enough to make a meaningful impact.

If non-labor income crowds out labor income, local businesses and government become dependent on non-labor income to support local businesses and property tax rolls. During recessions, communities dependent on investment income will be particularly hard hit. In Teton County, Wyoming (home of Jackson Hole Resort), where investment-related income alone made up 82% of all personal income in 2007, the recession caused investment-related income to drop nearly 40% and personal income around the county dropped by 16%.

If local governments recognize this dependence on non-labor income, they can help mitigate the effects of recessions on local tax revenue using fiscal policies that recognize likely recessions, not just the booms.

Finally, in communities with a large share of income

from aging- and hardship-related payments, national and state policies to reform Medicare, Medicaid, and Social Security payments will have an outsized effect. In 2016, 28 of 414 western counties had at least 20% of household income from either aging- or hardship-related payments. Many of these communities are in Indian Country, and others are concentrated in formerly timber-dependent communities. Leaders in these communities must be aware of their dependence on non-labor income sources and ensure they are engaged with national policy debates that will affect them.

Conclusions

Non-labor income is a large and growing source of income, and the trends described in this essay will likely continue as more people retire and a larger share of the population has investments in the stock market. Non-labor income has the advantage of being separate from local labor markets, allowing people to move for reasons other than jobs, including quality of life and access to public lands. These trends will be particularly strong and have an outsized effect on communities in parts of the rural West with a large share of public lands.

Communities with significant amounts of the protected public lands that attract non-labor income are well positioned to capitalize on their natural resources as a means of drawing new residents. This is particularly true of places that are connected to markets by being within driving distance of a major city or airport with service to major cities. The most isolated communities, far from cities and major airports, are more likely to see their dependence on non-labor income sources rise, bringing new money into communities with struggling job markets but also increasing uncertainty associated with stock market fluctuations and federal and state policy changes.

This relatively unknown source of income brings the potential for rising employment and wages, but also presents a challenge that communities must anticipate. Local strategies around affordable housing, fiscal policies that allow for financially resilient local governments, and engagement with state and national policies that affect Medicaid and Medicare can help communities avoid the pitfalls of dependence on non-

labor income.

Researchers need a better understanding of the mechanism by which non-labor income, particularly investment-related, crowds out labor income, and strategies that can be used to mitigate this effect. By learning the characteristics of those communities that have been able to attract non-labor income and at the same time grow local jobs and income, places are more likely to capitalize on the opportunities non-labor income sources present.

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<https://headwaterseconomics.org/public-lands/people-and-public-lands/>

The Evolution of Economic Analysis of Public Land Management

The use of economics by the U.S. Forest Service (USFS) and Bureau of Land Management (BLM) has evolved over the years in response to changes in the laws governing the agencies and advances in economic valuation methods. Some of this change is also in response to many stakeholder groups that now recognize that environmental values have economic value, and thus want the agencies to incorporate such values into the agencies' analyses. The USFS was quicker to expand its analysis of economic values beyond market values than the BLM. By the time this essay was written (2019), these two agencies routinely recognize recreation use values but also other values of ecosystem services, including non-use values. In some cases these agencies monetize these values in their planning documents and Environmental Impact Statements (EISs). At a minimum, many of these agencies' planning documents and Environmental Assessments usually cite the literature documenting that a wide range of nonmarket values are associated with outputs not traded in markets (e.g., water quality, wildlife habitat, wilderness, etc.). The net result has been to slowly change the nature of many public land debates from "economy versus environment" or "owls versus people" into debates that center on the types of economic values that society wants a particular area of public land to produce. This essay provides a brief synopsis of the events and associated timeline for the evolution in economic values used by the USFS and BLM. This essay is written from the perspective of someone who witnessed these changes over his 40-year career, and in a few cases participated in events that contributed to these changes.

The 1960s: In the Beginning There Were Only Market Values and Economic Impacts

While the 1960s brought about the Multiple Use – Sustained Yield Act for the USFS, much of the emphasis was on market values of a subset of multiple uses, primarily timber. The BLM informally adopted the multiple-use paradigm as well. A later BLM director jokingly referred to the agency during this time period as the "Bureau of Livestock and Mining." In part, this was as an ode to the agency's heritage in the Grazing Service and General Land Office, and in part due to recognition that these were the dominant two outputs during the BLM's history. Not coincidentally, these were the primary two outputs with market values. Economic analysis not only focused on market values but also local economic impacts—how the particular timber sale or mine would increase jobs in nearby rural counties.



John Loomis, PhD, is a Professor at Colorado State University. He has published more than 200 journal articles and book chapters on valuation of nonmarket resources such as ecosystem services, recreation, wilderness, water

quality, wetlands, rivers, forest fire management, and endangered species. He has taught courses on public land management at both University of California-Davis and Colorado State University. Prior to being a professor, Dr. Loomis was an economist with the U.S. Fish & Wildlife Service, and he started his career as an economist with the Bureau of Land Management.

U.S. Forest Service and Economic Valuation

1970-1980: The Need for Economic Values in Two Acts

The Resources Planning Act (RPA) of 1974 required the USFS to do a formal Assessment of all the natural resources on all lands in the United States every 10 years. Every five years the USFS was required to develop an RPA Program that laid out a set of alternative five-year national and regional plans for how the entire National Forest System could be managed. This was a “top down” view of how the national forests could be managed for producing alternative levels of multiple uses. The 1980 RPA Program attempted to value the quantities of multiple uses that could be produced with each of the alternative RPA Programs. The 1980 Program made an initial attempt to include values of recreation, hunting, and fishing based on the minimal valuation literature available in the 1970s. These initial RPA values became a reference point for future efforts to refine the RPA values.

The 1976 National Forest Management Act (NFMA) took a different approach to determining how national forests were to be managed. This “bottoms up” approach required each national forest to develop its own comprehensive plan on how it was to be managed for the next 15 years. The U.S. Forest Service decided to link the NFMA plans to the RPA Program by requiring that one alternative in the NFMA plans be the individual national forest’s “share” of the national RPA Program.

The implementation of the NFMA planning took a decidedly quantitative approach with the development of FORPLAN. This computer program was essentially a linear programming model. As with most linear programming models, it had an objective function that had dollar values of each output (here each multiple use). One of the many challenges that the USFS had to overcome was where to get these values. For timber there was, of course, timber stumpage prices from that national forest’s timber sales. For recreation, hunting, fishing, and wilderness, the RPA values seemed like good candidates as they were official and standardized values.

1981-1985: The Beginning of Recreation Use Valuation

To develop better RPA values for the 1985 RPA Program (and potentially for FORPLAN), the USFS Rocky Mountain Research Station in Colorado commissioned two young economists (myself, then with the U.S. Fish & Wildlife Service, and Cindy Sorg of the U.S. Forest Service) to assemble the now rapidly growing literature on the economic value of recreation, hunting, fishing, and wilderness. As is standard in economics, this recreation value was measured by visitors’ consumer surplus or willingness to pay over and above their travel cost. Our comprehensive assessment was peer reviewed, and appropriate revisions were made to arrive at a set of recreation values by broad categories of recreation activities and geographic regions. (This is an early example of what became known in 1992 as “benefit transfer.”) These initial values were sent up to the U.S. Forest Service’s headquarters in Washington, DC. The initial response from the Washington, DC, office was that the values of recreation were too high and to cut them in half. The Rocky Mountain Research Station project leader (George Peterson) supervising these two economists objected (including providing the authors’ written response to the Washington, DC, office’s concerns). At that point the Washington Office simply took matters into its own hands and cut the values themselves. Once this cutting of values became widely known, several state fish and game agencies decided to develop their own values for the USFS to use in its future RPA Programs and FORPLAN model. The most successful were the joint Idaho Fish and Game / USFS Rocky Mountain Research Station / U.S. Fish & Wildlife Service effort (led by myself and Cindy Sorg), and a Montana Fish, Wildlife and Parks effort with John Duffield at University of Montana and myself, then at University of California-Davis.

During this time period the USFS pioneered the regional economic model called IMPLAN for standardizing regional economic analysis of county income and jobs associated with its national forest plans. Thus, despite the nonmarket valuation efforts, the USFS economic analysis still relied heavily on economic impact analysis. As such, much of the 1980s public land debates over designation of roadless areas as “wilderness” was dominated by sound bites such as “economy versus the environment.” Later

controversies over protecting spotted owl critical habitat were framed as “spotted owls versus people.” But nonmarket values were beginning to make headway into changing these false dichotomies and recognizing that people had economic values for the environment, wilderness, and spotted owls.

1982-1991: Evolution of Economic Valuation of Wilderness

Recreation use values of wilderness were utilized in the RPA values beginning with the 1985 RPA Program. However, by this time economists were beginning to use the federally approved Contingent Valuation Method (CVM) to quantify the general public’s option, existence, and bequest values associated with protecting natural environments. “Option value” referred to the willingness to pay (WTP) to protect the opportunity to visit an area in the future. “Existence value” referred to the WTP to know that a natural environment such as wilderness existed even if no future use was anticipated. “Bequest value” referred to the WTP today to provide intact natural environments to future generations.

The first effort for wilderness appeared as a Colorado State University report in 1982 in which I was a coauthor, and was published in a journal in 1984 (see Suggested Reading, by Walsh et al. 1984). I incorporated the 1982 report on what was called at the time “preservation value” (now call “non-use” or “passive use” values) in a training course for federal government economists on nonmarket valuation. I recall the resistance to inclusion of these values by BLM and USFS economists to including these values in economic analysis at the time. However, by 1991 there was some semi-official recognition of these types of value in the first-ever conference “Economic Value of Wilderness” organized by the USFS, and a subsequent General Technical Report published in 1992.

A New Millennium for Economic Valuation Arrives

1999 to the Present: U.S. Forest Service Training Courses in Wildlife Economics

Another branch of the USFS interested in embracing nonmarket valuation was the wildlife biologists. This effort was led by Cindy Sorg-Swanson, who had done

her dissertation using CVM. She approached two economists—John Bergstrom (University of Georgia) and myself (now at Colorado State University)—along with Craig Shinn (a political scientist at Portland State University) about developing a two-week training course that became “Resource Policy, Values and Economics.” The training course has since been shortened to a week, and has been run every two years at one of the three universities ever since.

[M]uch of the 1980s public land debates over designation of roadless areas as “wilderness” was dominated by sound bites such as “economy versus the environment.”

Over the years the course participants have broadened beyond just wildlife biologists, and these participants have become internal USFS advocates of including a broad array of nonmarket values into the economic analysis of National Forest plan revisions and EISs. They have pushed the agency to broaden its economic analysis beyond its primary emphasis on IMPLAN regional economic models of local county income and employment. This new push from inside the agency—when combined with external push from external stakeholders who knew that nonmarket valuation methods could be applied to value fish and wildlife habitat, including water quality—helped accelerate the incorporation of nonmarket valuation in agency analyses. These broader economic analyses often gave district rangers and forest supervisors the economic information they needed to back up decisions to protect fish and wildlife habitat in the face of competing multiple uses. Much of this new nonmarket valuation occurred through the application of values drawn from existing nonmarket valuation literature rather than original data collection and

analyses. However, applying values from the existing literature was often the approach of other agencies such as the U.S. Environmental Protection Agency even though that agency had an entire staff of environmental economists. However, the advent of the USFS National Visitor Use and Monitoring (NVUM) data collected at each national forest every five years on a repeating cycle soon was generating sufficient data that national forest level economic analysis could potentially be undertaken.

Publication of the Primer on Nonmarket Valuation: 1st Edition (2003) and 2nd Edition (2017)

A highly visible endorsement of nonmarket valuation was led by the U.S. Forest Service's Rocky Mountain Research Station in the development of a *Primer on Nonmarket Valuation* (see Suggested Reading, below). This book was the culmination of more than a decade of leadership by George Peterson and his staff of economists. Two of the three editors of the book were USFS employees (Patricia Champ and Thomas Brown) in George Peterson's project. These two along with Kevin Boyle (University of Maine) assembled a team that included other USFS employees (e.g., Thomas Holmes of the Southern Research Station) and a host of academic researchers to produce the first comprehensive, practical guide for performing nearly all the main types of nonmarket valuation. This seemed to affirm that nonmarket valuation, even if done by applying the existing literature, could provide economically useful information.

Bureau of Land Management and Economic Valuation

BLM Nonmarket Valuation Pilot Studies

BLM was slower to include nonmarket values in its Resource Management Plans (RMPs) than the USFS. This slowness was despite the striking similarity of its 1976 "Organic Act" (Federal Land Policy and Management Act) to the USFS's National Forest Management Act of 1976. Officially, BLM did not formally recognize the need for nonmarket values until 2013 when it published Instruction Memorandum 2013-131.

However, a few BLM field offices were using nonmarket values prior to that date by adopting USFS RPA values in select RMPs. Roy Allen, the Wyoming

State Office economist, teamed with me to conduct a pilot demonstration project of an original nonmarket valuation survey as part of the Snake River RMP in Jackson Hole, WY, in 2000-2001. This effort involved both a CVM survey of the general public and on-site surveys to estimate a demand model of recreation use value. One of the outcomes of the survey was to show the alignment in rankings of RMP alternatives by respondents in Teton County, the State of Wyoming, and the rest of the United States. This information was incorporated into the BLM RMP.

As part of the Craig, Colorado, Little Snake River RMP, I conducted an on-site visitor survey with my students at Colorado State University in 2005 to estimate a recreation demand model to calculate recreation use values. These values were used in the BLM RMP. The CVM part of the survey was dropped at the repeated insistence of the oil/gas stakeholders.

The visibility of nonmarket valuation concepts and methods received a big boost when in 2004 BLM's National Training Center started its official training course entitled "Social and Economic Aspects of Planning." I presented a half day of this course on nonmarket valuation and how it could be used in EISs and RMPs. The course was repeated every year until it was taped at the 2007 course and uploaded on BLM's official training website.

Everybody Jumps on the Ecosystem Services Bandwagon

Gretchen Daily's 1997 book (see Suggested Reading) popularized the concept that ecosystems provide benefits to people. This was a valuable expository device, but in many ways the actual methods and mechanics of quantifying and valuing ecosystem services were really nothing new to environmental economists. Much of this ecosystem services analysis drew on methods that environmental economists had been using for two decades. Thus it was easy for nonmarket valuation economists to jump on this bandwagon. And what a bandwagon it was with the development of its own journal, *Ecosystem Services*. One of the most tangible benefits of the ecosystem services paradigm was to foster collaboration between ecologists and economists.

The ecosystem services framework also dovetailed with the semantics of the ecosystem management paradigm that USFS, U.S. Fish & Wildlife Service, and BLM were adopting for their National Forest Plan revisions, National Wildlife Refuge Comprehensive Conservation Plans, and Resource Management Plans, respectively.

What Has Been the Impact of Improvements in Economic Analysis on Public Lands Management?

The advances in economic valuation methods and the application of these methods have improved public lands management in several ways. First, these advances have made clear to both agency staff and leadership that there is more to economic analysis than just running IMPLAN software to calculate the local jobs and income generated by different public land management alternatives. While EISs will continue to provide such regional economic impact information, agency personnel and leadership now recognize that many more economic values are generated by public lands than just jobs. Second, the conduct of visitor surveys such as those now routinely conducted by the USFS on each national forest provided data to indicate that visitors from far outside the local areas were using the national forests, and thus should be treated as stakeholders. This broadening of the geographic reach of stakeholders was even more apparent when household surveys of an entire state or multi-state geographic region occurred. Third, economic valuation techniques have given managers desiring to protect water quality, wildlife habitat, nonmotorized recreation areas, and intact ecosystems the economic data to show the economic values of these nonmarket resources. These managers could then use that economic information to show that there were economic benefits being realized by environmental protection, not just from development. Finally, economic valuation information has helped move the agency and public away from unproductive and polarizing debates over “economy versus the environment,” “owls versus people,” and “fish versus people” false dichotomies to discussions in which we recognize the environment has economic value. This has often led to more productive stakeholder collaborations that search for innovative alternatives to provide the greatest values to the American public

who, after all, pay the bills for managing our public lands.

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Valuing Protected Public Lands

Our landscapes are getting pretty tame. More than 380,000 miles of roads fragment our national forests, and tallgrass prairie covers less than 4% of its former range. Today, even sea creatures in the deepest ocean trenches test positive for high levels of persistent organic pollutants. If you really want to experience a pristine ecosystem, you may have to venture to Lake Whillans where bacteria survive undisturbed (until recently) in a two-meter-thick lens of water hidden under roughly 2,500 feet of Antarctic ice.

We are getting pretty tame too. As the concept of play shifts from an outdoor to an indoor activity, kids are spending less time in natural environments. Less time building forts and more time breathing recirculated air and looking at screens lit by artificial light. This probably is not making them happier. A recent study of more than a million American students found that kids who spend more time immersed in social media have lower levels of psychological wellbeing. All this, despite studies showing that connecting with nature has positive effects on health, including stress reduction and weight loss. And perhaps the rest of us should not be too smug? How many mountain bikers can name as many species of trees as they can types of beer?

John Muir was far too poetic to use a phrase like “nature deficit disorder,” but he recognized the danger:

“Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home; that wildness is a necessity; and that mountain parks and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life.” John Muir, *Our National Parks* (1901)

Connecting with nature can bring joy, exuberance, exhilaration, and perspective. Too few wildlands

remain, and they should be enjoyed by more of us. I think we need protected public lands like wilderness areas and national parks more than ever. They may not be truly wild, but they are still shaped by natural processes, and they are open to all of us.

There are also good reasons to think protected lands are only going to increase in value. In the 1960s, John Krutilla noted that wilderness areas are rare, unique, and fragile. Once degraded, the supply of wildlands decreases, as they are difficult to restore. He also thought that the number of people valuing wilderness would increase because of growth in population, recreation, and tourism. (Despite our iPhone addiction, the outdoor recreation industry remains large – generating more than \$400 billion in 2018). The implication is that increasing demand for a shrinking resource should promote more investment in wilderness.

Not everyone agrees that protecting wilderness, roadless areas, national parks, and national monuments makes good economic sense. Some view protected public lands as symbols of outside control. They want public lands to serve as warehouses of raw materials, and fear that environmental protection locks up valuable resources and undermines the foundation



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of rural economies by cutting off access to timber, minerals, energy, and grazing lands. This “jobs versus the environment” perspective may be a view through the rearview mirror, yet it still resonates in places left behind by the economic transition from extraction to amenity economies.

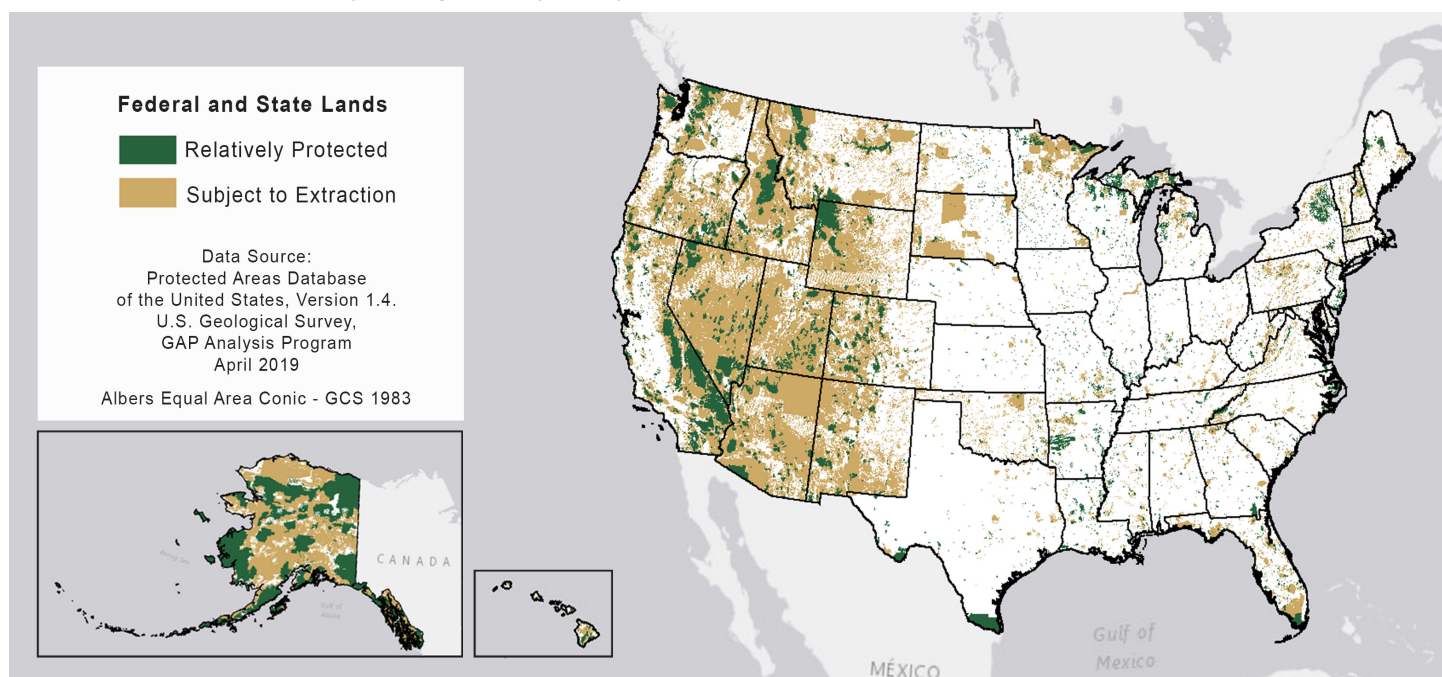
Land management policies have the power to reshape the economies, cultures, and landscapes of the rural West. This makes balancing demands for resource extraction, recreation, and environmental protection extremely difficult. Conflict between those who want to protect public lands and those who want access to resources can be intense, partly because so much is at stake. Federal and state agencies manage approximately half of the land in the 11 western states, and therefore control landscapes surrounding many rural communities (see Map 1). Wilderness areas alone cover 110,025,309 acres—approximately the combined size of Germany and Austria.

Much of the debate over our public lands is fueled by emotion, tribal affiliation, and political calculation. Still, I think the Old West view that conservation and the presence of protected lands undermines economic growth has two key weaknesses.

The first weakness is that extractive industries no longer drive prosperity. A wide range of factors (including mechanization, economic diversification, environmental policies, global competition, a declining resource base, and rapid growth in more competitive economic sectors) has undermined the relative importance of natural resource industries. One sign of this decline is that America now has more parking lot attendants than coal miners. The simple fact is that the relative contribution of extractive industries to rural western economies is small and has been declining for decades. The vast majority of new jobs in the West are in services, and in the rural West, non-labor income is nearly an order of magnitude larger than income generated by mining, oil, gas, and timber.

The second weakness is based on a long-running natural experiment. Protected public lands are unevenly distributed throughout the West. The result is a wide range of variation from one county to the next: some are dominated by protected lands, while others are dominated by lands open to resource extraction. Over time, these management differences should influence their development paths. So if the “jobs versus the environment” view is correct, counties containing high levels of wilderness, national parks, and national monuments should be at a competitive

Map 1: Relatively protected state and federal lands and lands subject to extraction. (Data: Protected Areas Database of the United States, V. 1.4., USGS. Gap Analysis Program, May 2016.)



disadvantage. Similarly, if extraction drives growth, then counties containing public lands that are open to grazing, logging, mining, and energy extraction should do relatively well.

This is just not the case. A wide range of studies shows that counties containing land protected for conservation and recreation outperform counties containing land managed for commodity production. Study areas vary, as do variables used to measure economic security, but the results are consistent. One careful study of the 284 nonmetro counties in the West found that an increase of 10,000 acres of protected public lands was associated with an increase of per capita income of \$436. You have to work fairly hard to link protected lands to negative economic outcomes. (Hint: Gerrymander the study area in ways that allow you to compare rural wilderness counties to a group of counties containing cities and suburbs. Then focus on the size of the economy. It also helps to exclude variables like property values, education levels, and retirement and investment income.)

Why do many public lands counties do relatively well? Environmental amenities provide more stability and long-term economic benefits than commodity resources. Some communities still suffer from a legacy of lost landscapes and failed economies, where a narrow reliance on extraction creates a “jobs first – then migration” boom and bust cycle. In contrast, the lure of natural beauty, clean air, and spectacular opportunities for outdoor recreation attracts tourists. Tourism can bring a number of benefits, including support for new restaurants, shops, and recreational opportunities. When people visit, some decide to stay, including relatively wealthy retirees who bring money earned elsewhere (dividends, interest, rent, and Social Security payments) and spend it in their new communities. Increasing numbers of tourists and retirees promote growth in industries ranging from health care to construction. The result can be economic diversification and increased investments in transportation, including regional airports.

This happens in concert with an influx of amenity migrants. Many are relatively educated and increasingly mobile knowledge workers who find protected public lands more attractive than jobs in mines, natural gas fields, or timber mills. They move

to public lands counties and then either look for jobs, create jobs, telecommute, or live off investments—a “migration first – then jobs” strategy.

Protected lands improve our quality of life and they support employment in large and growing economic sectors.

As it gets easier to work in communities near wilderness and national parks, amenity migration should continue to increase, especially public lands counties with access to nearby population centers and regional airports. Not everyone focuses on the fact that knowledge-based production allows people to work on mountaintops instead of centralized manufacturing centers, but we all know that you can conduct global business in a rural setting. If you have the money, you do not have to sacrifice much in the way of comfort, either. Amazon delivers, Netflix is ubiquitous, and many resort towns have world-class doctors, financial advisors, brew pubs, and bookstores.

As the West shifts from extraction to amenity economies, our debate over public lands should evolve. The “jobs versus the environment” argument makes little sense. Protected lands improve our quality of life and they support employment in large and growing economic sectors. There are also far more economic reasons to protect wildlands than I have covered in this short essay, including direct use values, ecosystem services, scientific benefits, existence value, bequest value, option value... the list goes on (see Figure 1).

Our last great wildlands are threatened, increasingly scarce, and essential to our wellbeing. Our climate is changing and we need bigger islands of habitat connected by migration corridors to promote resilience and limit the damage. Our grandchildren deserve better than what we are leaving them.

All of this does not change the fact that some communities are being left behind. Most of us

understand that economies thrive when they attract talent, focus on innovation, and diversify, but that knowledge does not help isolated communities lacking environmental amenities. I think that this means that we need to think carefully about the “jobs in extraction versus jobs in services” question—especially if we use forest products, eat beef, or rely on minerals and fuels extracted from public lands. Yes, we should conserve and recycle; yes, we should transition from fossil fuels to renewables. But do we really want to eliminate production on public lands and instead rely on global commodity markets to supply raw materials and energy? Instead, I think we should consider the value of traditional ways of life, of self sufficiency, and of the limited economic prospects facing isolated counties without environmental amenities. If we want electric vehicles, we have to ask ourselves whether mining lithium in Bolivia is less environmentally destructive than mining it in Nevada.

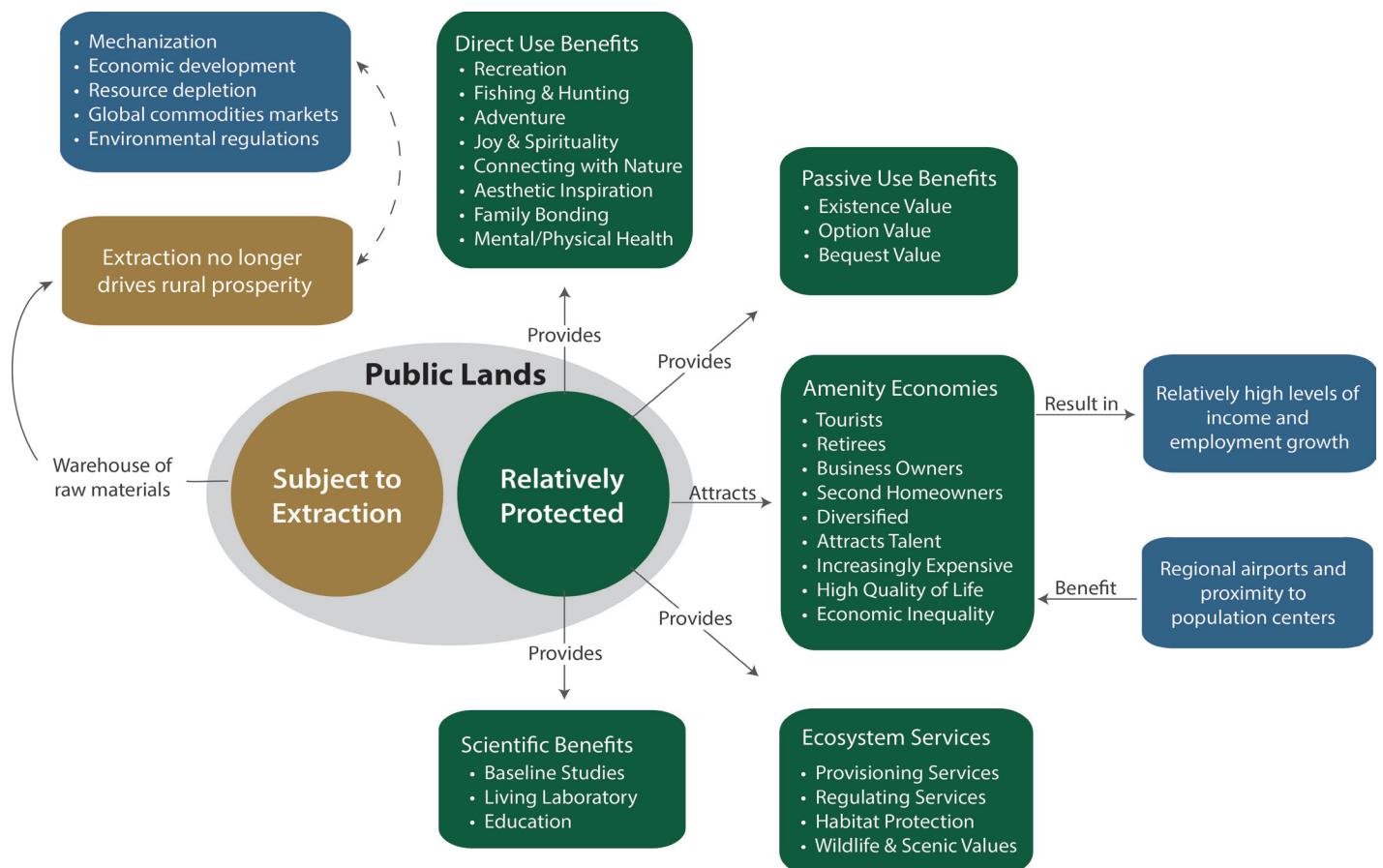
Another challenge we face is that environmental amenities, creative class workers, increasing property

values, and downhill skiing all sound pretty great unless you have to struggle to support your family. There is something to the joke that billionaires are pushing millionaires out of Aspen, or the observation that the bigger the mountain home, the less time it is occupied. The connection between environmental protection and economic growth is hopeful in many ways, but as we work to protect wildlands we also need to consider ways to ensure amenity-led growth benefits a wider range of people.

“What we risk creating is a theme park alternative reality for those who have the money to purchase entrance. Around this Rocky Mountain theme park will sprawl a growing buffer zone of the working poor. In the last century, the Western Slope functioned as a resource colony for timber and mining interests. Those scars will be with us for generations. We cannot afford to stand by now as the culture of a leisure colony... takes its place.”

- J. Francis Stafford

Figure 1: Benefits of protected lands.



I am hopeful that many ways forward involve a “jobs and jobs and environment” solution. The Nature Conservancy’s grass-banking programs support neighboring ranchers, build community, and improve prairie habitat. Careful logging practices can reduce fire risk, improve habitat in second-growth forests, and generate local employment. A few ranchers in western Colorado are building a network of modernist tiny homes to rent to mountain bikers. It is also easy to imagine kids in both the old and new West becoming interested in restoration ecology and the many hours of work required to start restoring degraded landscapes. We should all put down our iPhones, get outside, and get to work.

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Demographic Dynamics in Public Lands Counties, 1990-2016

Introduction: Public Lands, Amenities, and Demographic Dynamics

In 1954, Edward Ullman wrote, “[f]or the first time in the world’s history pleasant living conditions – amenities – instead of more narrowly defined economic advantages are becoming the sparks that generate significant population increase, particularly in the United States” (Ullman 1954, page 119). Ullman made his claim based on observations of regional population shifts in the 1930s and 1940s largely out of the North and East and toward destinations in the South and West with more pleasant climates, particularly California, Arizona, and Florida. Despite Ullman’s amenities hypothesis, the rusting of the “Rust Belt” and suburbanization dominated the lion’s share of the migration literature in the 1960s, 1970s, and 1980s. However, in the 1990s in the context of the “Rural Rebound,” migration scholars began to examine more explicitly the relationship between amenities and demographic change. This new line of research broadened the scope of natural amenities beyond Ullman’s simple climatic focus to include such factors as recreational opportunities and access to public lands. The amenity-migration relationship was particularly evident in many Rocky Mountain communities undergoing an economic transition from heavy dependence on traditionally extractive industries to more service-based economies (Gosnell and Abrams 2010). These economic shifts coupled with previously unseen levels of population growth sparked considerable debate over the appropriate uses of public lands. Those with stronger connections to the “old” economy worried that certain management decisions may limit access to timber, minerals, or grazing traditionally available on public lands. At the same time, others argued that greater protection



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Nelson’s recent articles include: “Rural gentrification and networks of capital accumulation—A case study of Jackson, Wyoming” in *Environment and Planning A*; “The global rural: gentrification and linked migration in the rural USA” in *Progress in Human Geography*; “Baby Boom Migration and Its Impact on Rural America” for the U.S. Department of Agriculture; “Linking baby boomer and Hispanic migration streams into rural America” in *Population, Space and Place*; and “Rural gentrification and linked migration in the United States” in *Journal of Rural Studies*. Peter lives in Weybridge, Vermont (population 824) with his wife and two sons. He enjoys fly-fishing, biking, golf, and anything involving skis.

of unique environmental and cultural resources found on public lands could be seen as an economic development tactic as these place-based resources could draw in footloose individuals, households, and businesses (Power and Barrett 2001). These debates continue today as the Trump Administration, under influence from the coal, uranium, and natural gas industries, is working to scale back the size of some of the more recently created national monuments in places like Grand Staircase Escalante and Bears Ears in southern Utah.

While a sizeable literature exists examining amenities and demographic change from the 1990s, scholarly attention on the topic has waned to some extent more recently with the overall slowing of migration across the country (Cooke 2013). This essay employs a simple descriptive analysis of the demographic structure and change over the last 25 years in counties with public lands, paying particular attention to the various demographic components of change (natural increase vs. migration), age structure, and racial/ethnic diversity. The descriptive and exploratory analysis is designed to determine the degree to which counties with public lands present distinct demographic

signatures compared to those counties without public lands. The results open up a series of remaining research questions surrounding the relationship between conserved public lands and the demographic dynamics in their adjacent communities.

Identifying Public Lands Counties

“Public lands” is a rather crude term and can encompass a variety of different spaces ranging from the playground at a local primary school to vast stretches of federally managed national forests and parks. In the analysis below, we identify public lands as those managed by the federal government, yet even these federal lands are quite diverse and include military reserves or BLM rangelands. To narrow our focus even further, we limit our analysis to four different types of federal lands: national parks, federally designated wilderness areas, national monuments, and national recreation areas. Map 1 and Figure 1 display the geographic distribution of these types of federal lands across the nine U.S. Census Divisions.

Map 1: Relatively protected state and federal lands and lands subject to extraction. (Data: Protected Areas Database of the United States, V. 1.4., USGS. Gap Analysis Program, May 2016.)

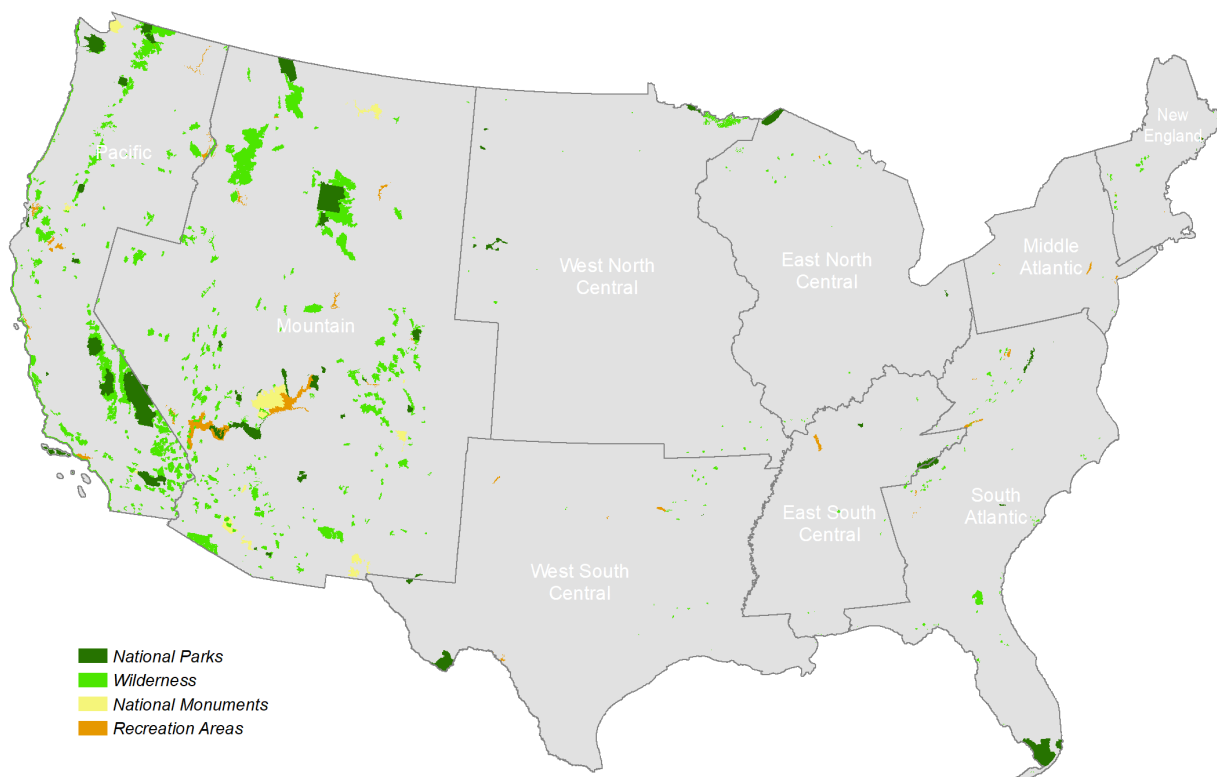
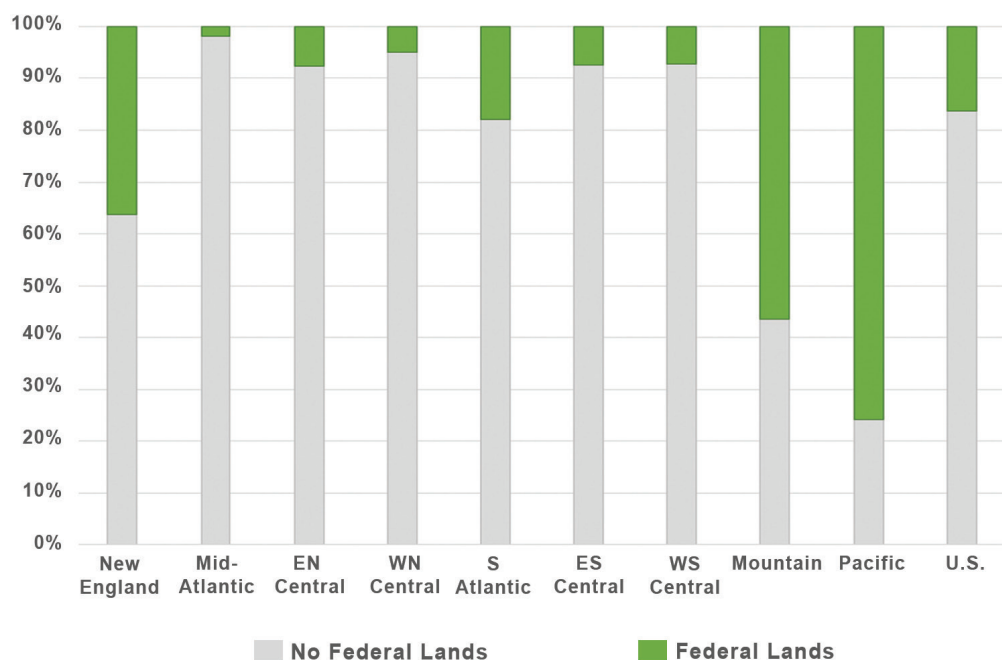


Figure 1: Proportion of federal lands by Census Divisions. Note: The total set of counties is limited to non metropolitan counties.



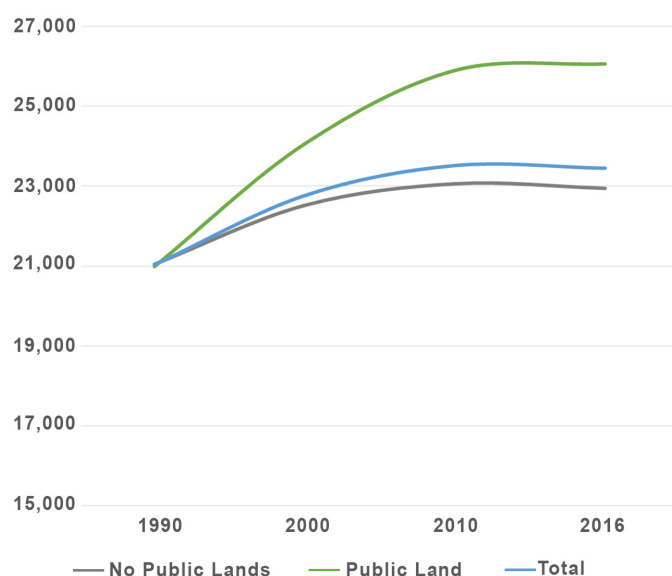
We consider any county with one or more of these four types of public lands within its borders as a “public lands” county. The remaining counties we label as not having any public lands. In the analysis below, we limit the set of counties to those in the lower 48 states and examine only nonmetropolitan counties.

Overall, 316 (16%) of the nonmetropolitan counties in the lower 48 are public lands counties, yet it is clear from Map 1 and Figure 1 that federal lands are not distributed evenly across the United States. Public lands counties are quite uncommon in five of the nine Census Divisions: the mid-Atlantic, East North Central, West North Central, East South Central, and West South Central each have less than 10% of their counties with any of these public lands. The South Atlantic division closely mirrors the overall U.S. distribution with approximately 15% of the counties in this region having some type of public land. Public lands are more than twice as likely to be found in New England, and the Mountain and Pacific divisions both have disproportionate shares of public lands. In both of these divisions, the majority of counties have some type of public land.

Demographic Change in Public Lands Counties

Demographic dynamics over the past 25 years have differed considerably between counties with public lands and those without. In 1990, the average sizes of counties with and without public lands were virtually identical (Figure 2). On average, both types of counties were home to roughly 21,000 residents. The 1990s, however, brought substantially more

Figure 2: Average population size of counties with public lands.



growth to the public lands counties: by the year 2000, the average public lands county was home to 24,000 residents, 1,500 more than those counties without public lands. The gap in average population size doubled by 2010 with public lands counties having nearly 3,000 more residents than the other set of counties. Coming out of the Great Recession, public lands counties continued to grow in average size albeit more slowly with the average public lands county now exceeding 26,000 residents. In contrast, counties without public lands shrank between 2010 and 2016, losing on average 100 residents.

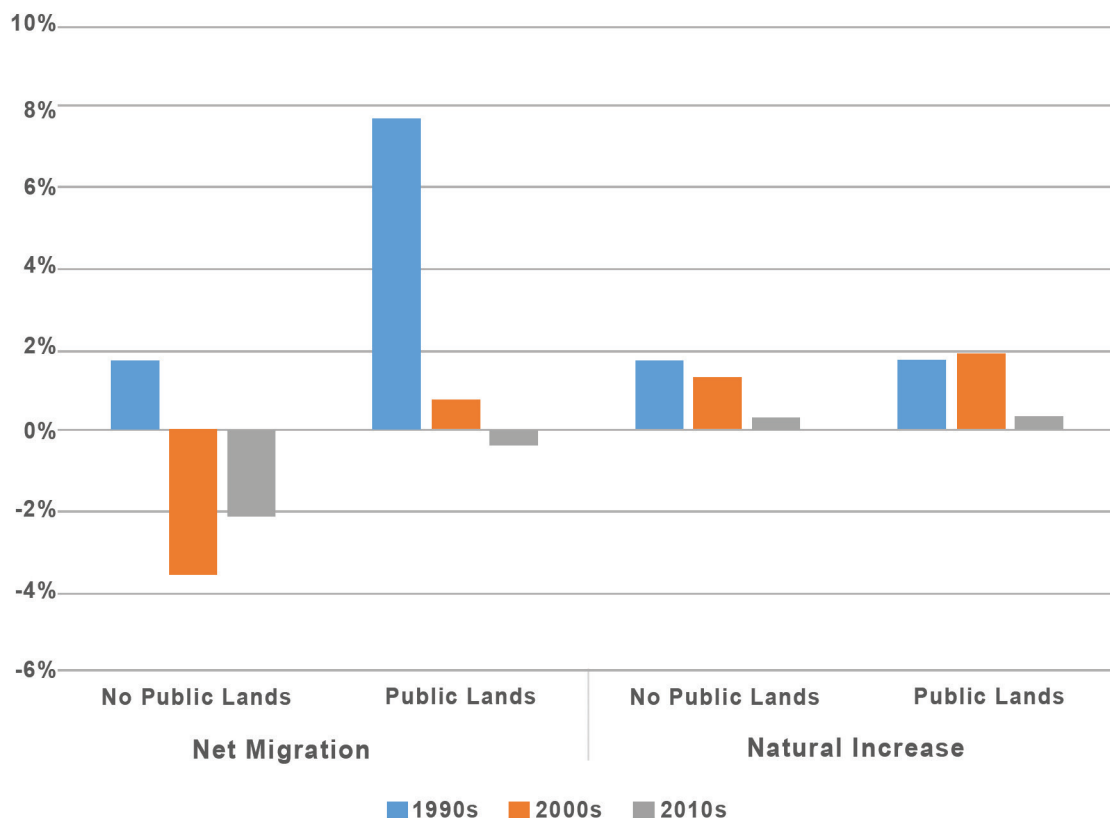
A combination of factors contribute to the more rapid growth in public lands counties. There is strong evidence from the 1990s supporting Ullman’s amenities hypothesis. As interest in the Rural Rebound grew during the 1990s, much was made of the rise of the “amenity migrant” as footloose service workers began to act on preferences for rural residences and moved to areas with more access to natural landscapes. These migration streams are well documented in the literature and were often directed toward counties with public lands (see, for example, Löffler and

Steinicke 2007, Chi and Marcouiller 2012, Abrams and Bliss 2013). During the 1990s, public lands counties experienced net migration rates of nearly 8% compared with less than 2% for the rest of non-metropolitan America (Figure 3). Migration streams toward public lands counties slowed considerably during the first decade of the twenty-first century to under 1%.

These migration streams, nonetheless, remained positive. The same cannot be said for those areas without public lands. On average, net migration was negative for the remaining counties with net migration losses of nearly 4%. Migration continued to slow in the wake of the Great Recession (Cooke 2013), and now public lands counties have on average net migration streams that are effectively zero while counties without public lands on average continue to lose population to migration at a roughly 2% rate.

As migration slows across all types of counties, natural increase has become a relatively more powerful contributor to population change. Migration rates peak for populations in their 20s, so areas with

Figure 3: Components of population change.



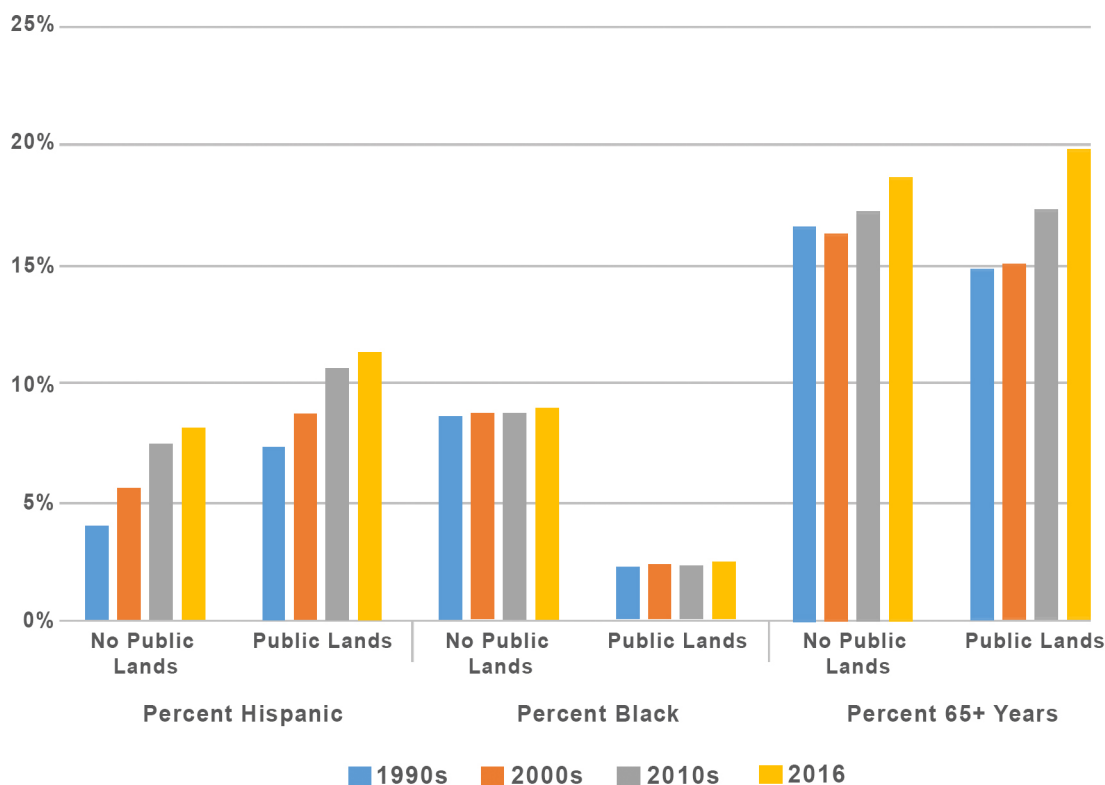
large positive net migration rates tend to also have populations with younger age structures producing higher birth and lower death rates. The interplay of these demographic dynamics generates higher rates of natural increase across counties with public lands (Figure 3). In fact, since 2000, rates of natural increase surpass net migration rates in both types of counties, so the continued overall population growth in public lands counties this century is less a result of continued positive net migration and more a product of births outnumbering deaths. Since 2010, natural increase has been able to offset the very small level of net out-migration in public lands counties. In contrast, counties without public lands are decreasing in size because the small positive natural increase is unable to counter the relatively large rates of out-migration.

The variations in components of demographic change are both an influence on and influenced by somewhat distinct demographic structures differentiating counties with public lands from those without. In the 1990s, public lands counties were not just younger than those without public lands, they were also considerably more diverse. The 1990s brought sizeable

flows of Latinx migrants to rural destinations across the country, and these new destinations were heavily concentrated in the Southeast and Rocky Mountains (Kandel and Cromartie 2004). Several explanations exist for these new migration streams into rural destinations, including one that demonstrates how in many amenity destinations, Latinxs provide the workforce to build the new houses, wash the dishes, and mow the lawns for the Anglo amenity migrants (Nelson and Nelson 2011).

Figure 4 compares the demographic structure of the two types of counties and reveals a few important distinctions. First, the black population is more concentrated in counties without public lands, and this distribution has not changed over the last two-and-a-half decades. Second, the Latinx population was more concentrated in public lands counties in 1990, and in both types of counties the Latinx population has grown consistently over the last 25 years. Today, on average, more than one in 10 residents of a public lands county identifies as being Latinx. Finally, while in 1990 public lands counties were somewhat younger than the rest of nonmetropolitan America with less

Figure 4: Demographic composition of counties with and without public lands.



than 15 percent of their populations over age 65, by 2016 public lands counties were slightly older. These most recent data indicate nearly one in five residents of nonmetropolitan public lands counties is over age 65. Moreover, the aging of public lands counties has been more rapid going from 15% over the age of 65 in 2000 to 20% by 2016. This aging of public lands counties likely reflects the continued attraction of public lands for retirement migration as well as the aging in place of earlier waves of migrant baby boomers arriving as 40- to 50-year-olds in the 1990s (Nelson and Cromartie 2009).

The West Versus the Rest

Given the uneven regional distribution of public lands (Figure 1), it is possible that the differences in population dynamics and structure revealed above result less from the presence/absence of public lands and are more the product of broader regional differences in population change. In other words, maybe the West is simply different and because the West has more public lands this “regional effect” is distorting the results. To account for this possibility and control for potential regional effects, Figures

5, 6, and 7 present the same comparisons reported above but are limited to only counties within the West, effectively controlling for region. Briefly, the differences revealed above remain when the analysis focuses exclusively on the West suggesting that the distinct demographic structures and dynamics in public lands counties do not reflect the uniqueness of the West as a region. Rather, even within the West, public lands counties tend to have larger populations and have experienced more positive net migration in the 1990s and early 2000s. Within the West, public lands counties also tend to have somewhat higher shares of Latinx residents (though the gap has narrowed considerably since 1990). Finally, similar to the national set of counties, populations in public lands counties in the West were younger than their counterparts in 1990, but today are slightly older, with nearly 20% of their populations over the age of 65.

Conclusion - Dynamism and Difference Characterize Public Lands Counties

Across the United States and within the West, the demographic structure and components of change distinguish counties with national parks, designated

Figure 5: Average population size by county type, western counties only.

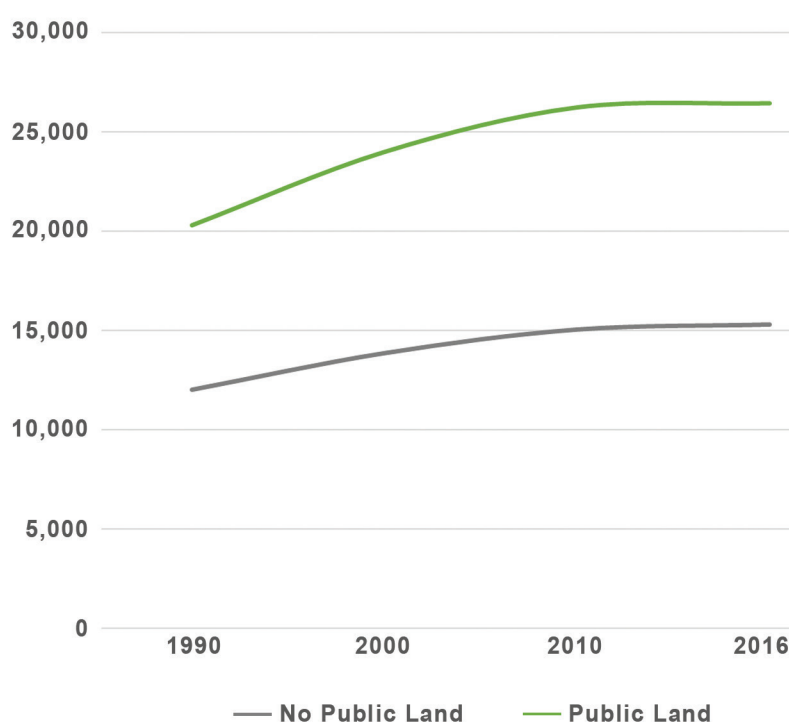


Figure 6: Components of population change by county type, western counties only.

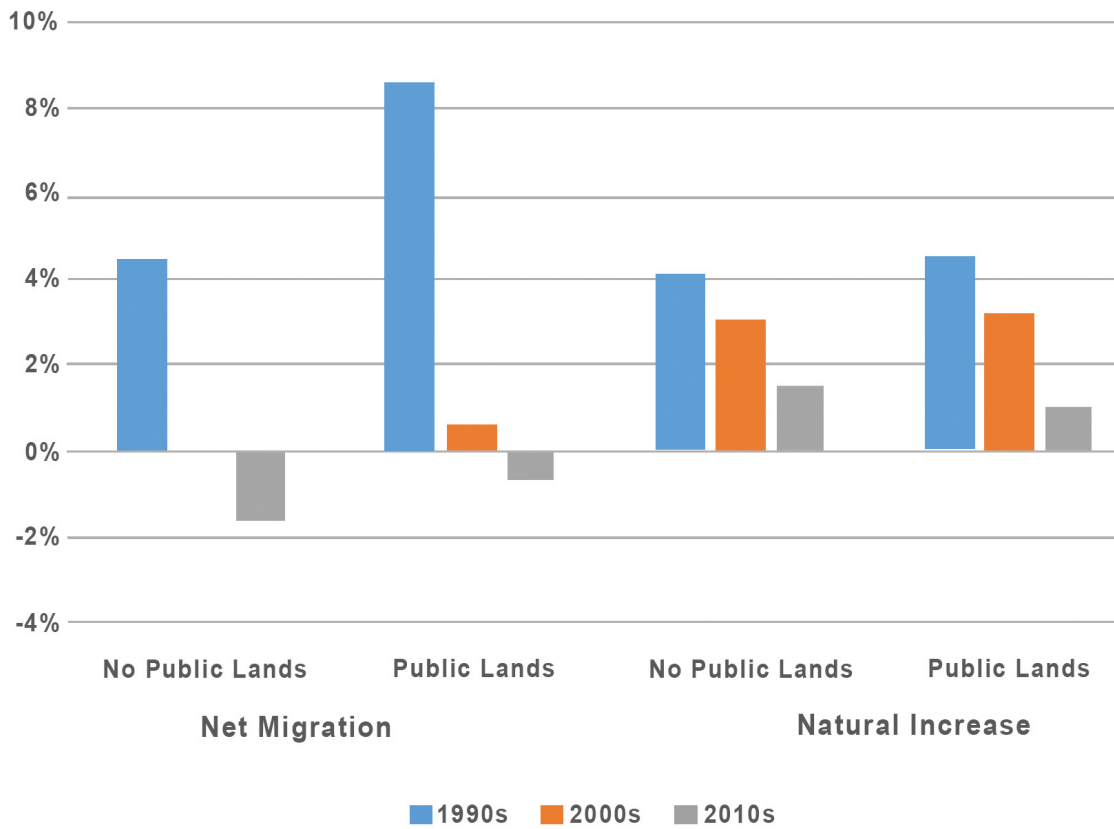
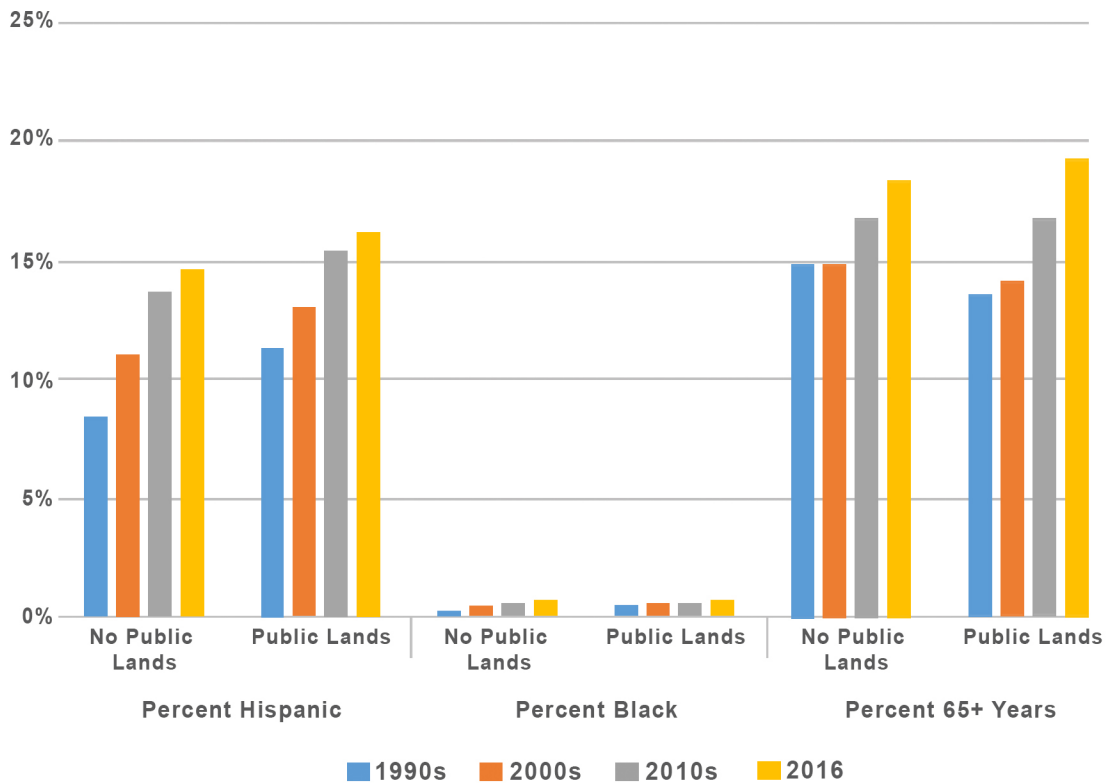


Figure 7: Demographic composition by county type, western counties only.



wilderness areas, national monuments, and/or national recreation areas from those without these types of public land resources. Public lands counties tend to be somewhat larger, more diverse, and today are slightly older. Moreover, the analysis reveals how the components of change in these counties differ as well. Public lands counties enjoyed considerably higher levels of in-migration during the Rural Rebound of the 1990s compared to the average county without public lands. Since the 1990s, the extremely high levels of positive net migration subsided in the first decade of the 2000s in public lands counties. Nonetheless, these areas retained positive net migration while the rest of nonmetropolitan America experienced net out-migration. Interestingly, today natural increase plays a much larger role in driving demographic change in public lands counties than it did just 15 or 20 years ago.

Going forward, several key questions remain for scholars interested in the relationship between public lands and population dynamics in nearby communities:

- How do the increasingly diverse populations living in nearby counties value and interact with our public lands?
- As the populations living in public lands counties continue to age, how will their utilization of public lands change, and what infrastructure and systems will be needed to enable continued access to valued public lands for this aging population?
- Given the ongoing immigration policy debates at the federal level, what labor market vulnerabilities exist in public lands counties increasingly reliant on immigrant/Latinx workers?
- With declining migration and stabilizing natural increase, how do public lands counties build sustainable economies not based to such a large degree on growth?

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Suggested citation:

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by Gundars Rudzitis

Public Lands, Place, and Quality of Life

In the 1980s when I joined the faculty as a geographer at the University of Idaho, I saw bumper stickers that stated: “Wilderness, the land of no use.” They were part of debates about how much, if any, federal lands should be declared as federally designated wilderness in Idaho and elsewhere.

I was surprised because I had co-authored a 1982 article, “The Plight of the Parklands,” in which we documented and discussed the various threats to the national parks, the low morale of park rangers, and the increasing visitations and growing population in areas around the parks.

I decided to examine population trends in nonmetropolitan counties with or adjacent to federally designated wilderness. The logic was quite straightforward: If wilderness was “the land of no use,” there should be out-migration from such counties.

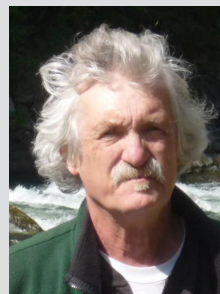
I discovered that during the 1960s, nonmetropolitan wilderness counties had population increases three times greater than other nonmetropolitan areas. In the 1970s, they grew at twice the rate of other nonmetropolitan counties. In the 1980s, wilderness-county population increased 24%—six times faster than the 4% nonmetropolitan national average and almost twice as fast as counties in the nonmetropolitan West. These trends continued in the 1990s with population growth of 30%, more than twice the U.S. metropolitan rate.

From 2000 to 2010, wilderness-county population increased by 12%, almost three times faster than the 4.5% rate of nonmetropolitan counties and slightly faster than the 10.8% rate of metropolitan counties. More specifically, population in wilderness counties in the West grew at a rate of 9% between 2000 and

2007 then declined during the Great Recession (2007 to 2011) to 3%. The impacts of the recession were greatest on the more remote rural wilderness counties which suffered a decline in population while metropolitan and adjacent wilderness counties both grew by 3%.

Wilderness counties since 2011 have rebounded with an 11% increase, more than twice that of metropolitan counties as a whole. Meanwhile, rural counties overall lost population with negative growth rates every year from 2011 until 2017.

Another indicator of the attraction of wilderness counties is that 16 of the top-20 highest-income rural counties in the West are wilderness counties. These richest wilderness counties are just one of a subset of counties ranging from those few still dominated by resource extraction to those composed of a variety of recreation and other New West characteristics. The relatively



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consistent growth of these wilderness counties raised the question of why people moved to them.

Why Do People Move?

A classic assumption is that people move primarily for economic reasons—that is, to increase their incomes. However, studies show that economic motivations were not the primary factors in why people moved to wilderness counties. Economic motivations accounted for about 30% of the reasons for moving. Statistical migration models also showed that economic variables explained only part of the migration into wilderness counties. Both approaches (asking people why they moved in large-scale surveys, and statistically modeling migration rates) came to similar conclusions with non-economic factors being more important. Both approaches also showed that the attractiveness or “pull” of these areas was more important than the “push” of any negative features of the areas that people were leaving.

Surveys also indicated that once they moved to wilderness counties, people were less stressed, happier, more satisfied, and became attached to the areas. And this was despite up to one-third of the migrants taking income losses or moving with no job waiting for them. People were often trading off higher incomes in urban areas for perceived higher levels of amenities. This trade-off may increase in the future, depending on accessibility via better airports, the impact of rising or falling transportation costs, and other factors such as expanded and improved internet access. Over time, demand has increased for goods and assets that more rural high-amenity areas can provide (solitude, outstanding scenery, outdoor recreation, large estates, etc.). Much of what people moving to these areas want is provided by public rather than private goods.

Private and Public Goods and “The Market”

Wilderness and other state and federal lands are public goods that people increasingly want and move toward. By contrast, some economists and others argue that there should be no national parks, wilderness, or other public lands unless they are provided by the logic of an unregulated market.

Periodically, there are calls and movements for the privatization of parts or all of our public lands—whether in the so-called “Sagebrush Rebellion” in the 1980s-1990s, the stand-off at the Malheur National Wildlife Refuge in Oregon, or the current Administration’s attempts to decrease the size of national monuments and other public lands. What is often forgotten in such arguments is how and why public lands came to be. Public lands were set aside because there was a fear of what would happen if market forces were left unchecked.

Capitalism in the early nineteenth century in the United States developed in large part on what economist Thorsten Veblen called “the predatory behavior of a largely unregulated market which will degrade human beings and despoil nature.” This was, for example, exemplified by child labor in the mines, unsafe working conditions, use of the military to put down labor and union unrest, and various forms of labor discrimination or exploitation. Many of these market-based abuses were subsequently eliminated or regulated to one degree or another.

There was also the threat of private companies eliminating the western forests, much as forests had been eliminated in the Midwest. Agencies were established to manage the public lands and to halt giveaways and privatization. Unfortunately, current economic theory does not deal well with public land issues. Nor does the market generally supply them to the public. There are, for example, only a few private wilderness areas in the West.

A Quality of Life Approach

The recognition of the role of public lands points to a theoretical need to expand the economic view of people’s behavior from a simple utilitarian maximizing process to one concerned with quality of life. Maximizing income has not been borne out as the reason why people move into and stay in wilderness and other amenity-based counties. Consequently, there is a need to broaden or replace the traditional economic utility approach.

If quality of life is what really matters, then material goods and services are perhaps a small part of what people care about. Non-economic amenities broadly

defined may be what people really care about. If so, emphasis needs to shift away from how people allocate their income on consumer goods and services. Instead, we need to analyze the full array of what matters to people and the activities they pursue in their daily lives. Public lands and waters in the West then become an important component of such an approach.

What becomes important is how people spend time living near and “using” public lands. Time—not income—is the real constraint we all face. And we can never totally predict how much time we have or when it is up. How we use both the work and leisure time we have is a trade-off with the material goods and services we consume. Have we for too long sacrificed time for consumption goods? The traditional income-utility approach fails to take into account time as well as other inputs.

Attempting to maximize our utility or happiness from privately purchased goods and services may also be antithetical to the goal of achieving cooperation with others, an important contributor to quality of life. The purely economic model presumes no civil society, but in fact we live in a community of people who care about one another. And geographers in particular study and care about places.

Private and Public Goods, Place, Community and Quality of Life

If it creates enjoyment, living and working in an amenity-rich place deepens roots, sense of place, and community ties, leading to increases in quality of life. An increase in public goods (education, libraries, parks, public lands, clean environments, strong community culture, etc.) is in line with increased place values, while an increase in private goods can trigger a decrease in place values. Increased public goods are also reflective of a caring society.

If we don't care for a place, it can be more easily “commodified”—that is, become a place for tourists to consume. Tourism depends on the commodification of leisure, transforming places into objects.

If we want community, what contributes more—private or public goods? Generally, increased public goods do. Public goods are inherently more equitably

shared and not dependent on high incomes. Public goods often substitute for the expensive commodities of higher-income lifestyles. Increasing demand by individuals for the use of public lands can make the goal of income growth itself less attractive given an increased desire to use a wide variety of public lands amenities.

The recognition of the role of public lands points to a theoretical need to expand the economic view of people's behavior from a simple utilitarian maximizing process to one concerned with quality of life.

I am a geographer and we often focus on places, their similarities and differences, as well as on the importance of place. “Place” is normally defined as space that is experienced and given meaning. Human experience creates attachments and connections between people and places, leading to a sense of place.

Attachment to a place keeps people from moving away during times of economic distress or draws them back, which is part of the migration to high-amenity federal lands counties. In today's global world, people can have multiple identities and attachments to different places, multiple senses of place, even a global sense of place. Although we no longer expect to live our lives in the place where we were born, a sense of place, even one acquired late in life, can counteract the emptiness of living everywhere – and nowhere.

French philosopher Simone Weil in her *The Need for Roots* (1952) attacked many of the societal structures that destroyed roots and created an “uprootedness” in society. She argued that the pursuit of profits destroyed roots. By making money the near-sole motive for all actions, the measure of all things, the “poison of

inequality” was introduced in society. Many firms, she argued, have no intrinsic loyalty to any community or country. They fail to adopt society’s goals as their own.

Weil was farsighted in arguing that the purpose of education and work was to increase the appreciation of the beauty of places, nature, and the world, rather than their utilitarian advantages. She placed love as a central concept—love of what exists, love of life, persons, places, nature—and in the process raised the question of how to construct places and societies that we love. I would argue that the study of places includes finding what we could love about them, seeking out their beauty, and then maintaining them.

If we want to move toward an approach that sustains quality of life and community, we need a different set of priorities in which actions that undermine community are unacceptable. We need a society based on the primacy of relationships, emotions, social relations, and “deep living” with meaningful relationships with family, friends, and community.

We need to nurture caring communities. It is precisely the sense of community that gives meaning to our lives. Without it, we are truly alone. Fortunately, there are examples we can look toward. I believe we can learn much from the indigenous Native American tribal societies and cultures.

Learning from Native Americans and Moving Toward Alternative Approaches

A traditional indigenous view of Nature and understanding of life is very different from the worldviews of today’s “mainstream” Western societies. The significance of place, land, landscape, and a shared spiritual relationship sets up different ways of knowing and being that still endure in parts of Indian Country. Everything is seen as interconnected, and everybody is related to everybody else—humans and non-humans. There is a focus on reciprocal giving and sharing.

From a traditional perspective, economics is not the base of life; the profit motive does not reign supreme. Traditionally, lands are not individually owned or privatized. All natural resources are, essentially,

“public” and treated with respect.

Public land management agencies, with some exceptions, have not included nor worked closely with tribes or fostered co-management projects. Fortunately, some environmentalists and other non-Native Americans are listening and starting to work together with tribes. We need to do more of that. Non-Native Americans need to share ideas and worldviews with tribal partners, but more importantly listen with respect and learn.

Concluding Thoughts

The public lands we use for a variety of uses from extraction to recreation or solitude were once tribal lands and used much differently. They were to one degree or another (depending on your historical perspective) either subdued, occupied, ethnically cleansed, voluntarily traded, bought, or with or without fraudulent treaties stolen from tribal nations. Non-Native Americans have a duty on many of these lands to either co-manage them, give them back, or compensate tribes.

A quality-of-life approach moves us away from the traditional utilitarian assumptions and a worldview where desires and wants are unlimited, where there are no resource limits, where efficiency is a paramount driver of our theories. Efficiency is simply not as important a criterion in wealthier countries, high-amenity areas, or within societies with alternative worldviews. Self-interest should be replaced with love in our relations with others. Quality of life is different from traditional utilitarian self-interest and happiness, which are flawed concepts since they lack a moral compass.

Price should not be the determinant of how we classify or use our public lands in a democracy. The value of a tree is not the price it fetches when logged, or how many people recreate, pay, or would pay to sit under it, be near it, or just know it is there. Public goods are provided by democratic processes in society, not priced by it.

Public goods like federal lands and waters compensate somewhat for what otherwise would be affordable only for the rich. They do so in the name of decency

and justice as otherwise our institutions and society promote and reward the most fortunate. Minimizing material inequalities via public goods is a necessary condition for democracy.

I believe in possibility. We cannot predict what will happen but we can allow for it, make space for it (whatever it is), and remain optimistic. Our challenge, whatever our discipline or calling, is to work toward the creation of approaches-models-paradigms—and places—shaped around generosity, beauty, and love of place, rather than self-interest and greed at the expense of others. Quality-of-life models based on this more humane approach are a step in this direction and can help us regain an intimacy with place. And place matters!

Suggested Reading

For some of the early research into quality of life and development issues in the American West, see:

- Rasker, R. 1994. A New Look at Old Vistas: The Economic Role of Environmental Quality in Western Public Lands. *University of Colorado Law Review* 65(2): 369-399.
- Power, T.M. 1996. *Economic Development and Environmental Protection: Economic Pursuit of Quality*. New York: Taylor & Francis.
- Rudzitis, G. 1996. *Wilderness and the Changing American West*. New York: John Wiley & Sons.

For a later review and overview, see:

- Gosnell, H. and J. Abrams. 2009. Amenity migration: diverse conceptualizations of drivers, socioeconomic dimensions, and emerging challenges. *GeoJournal* 76(4): 303-322.

For a larger context of the issues discussed in this essay, see:

- Rudzitis, G., P.E. Graves, and L.A.G. Moss. 2014. Amenities, Public Goods and Community in L.A.G. Moss and R.S. Glorioso, eds. *Global Amenity Migration: Transforming Rural Culture, Economy and Landscape*. Santa Fe: New Ecology Press.
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- Rudzitis, G., D. Marcouiller, and P. Lorah. 2016. The Rural Rich and Their Housing: Spatially Addressing the “Haves” in D. Marcouiller, M. Lapping, and O. Furseth, eds. *Rural Housing, Exurbanization, and Amenity-Driven Development: Contrasting the ‘Haves’ and the ‘Have-Nots’*. New York: Routledge.
- Dearien, C., G. Rudzitis, and J. Hintz. 2006. The Role of Wilderness and Public Land Amenities in Explaining Migration and Rural Development in the American Northwest in G.P. Green, S.C. Deller, and D. Marcouiller, eds. *Amenities and Rural Development: Theory, Methods and Policy*. Northampton, MA: Edgar Elgar.
- Rudzitis, G., N. Barbier, and D. Mallick. 2013. Aging on Indian Reservations: The Ugly, the Bad, and the Good in N. Glasgow and E.H. Berry, eds. *Rural Aging in 21st Century America*. New York: Springer.

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