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THE WILDERNESS SOCIETY

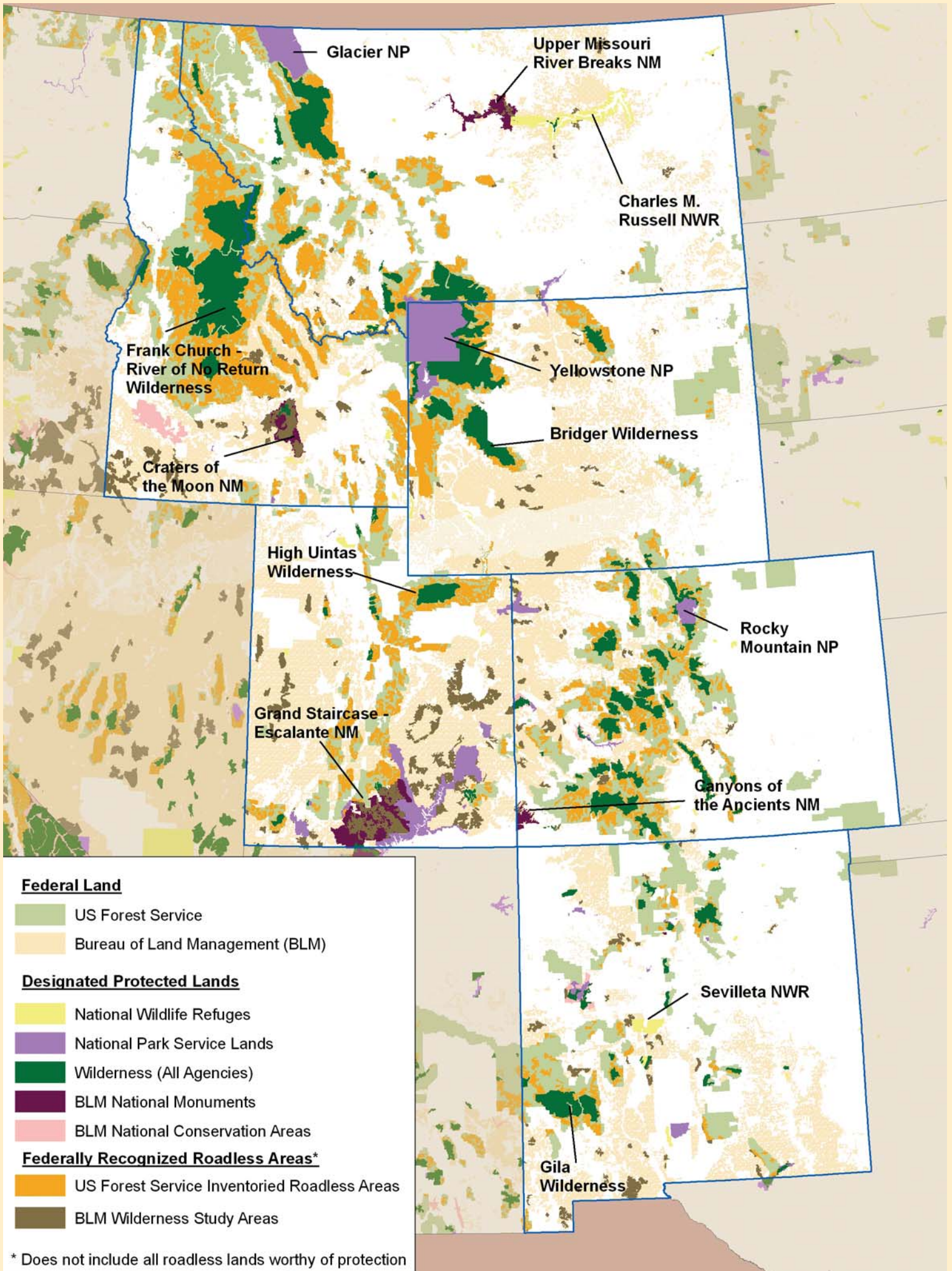


NATURAL DIVIDENDS

*Wildland Protection
and the Changing
Economy of the
Rocky Mountain West*

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NATURAL DIVIDENDS:

Wildland Protection and the Changing Economy of the Rocky Mountain West

About The Wilderness Society2
 Preface3
 Report Highlights4
 Introduction5
 Overview of the Rocky Mountain Economy7
 Key Economic Indicators for Western Communities11
 Recommendations and Discussion17
 References.24
 Appendix.26

Figures

Figure 1:
 New Oil and Gas Wells Drilled on Public Lands
 in the Six-State Rocky Mountain Region6
Figure 2:
 35-Year Trends in Personal Income from Agriculture and
 Resource-Extractive Industries in the Rocky Mountain Region7
Figure 3:
 Income from Professional and Service Sector
 Occupations in the Rocky Mountains (2005).11
Figure 4:
 Trends in Total Personal Income in the Rocky Mountains12

Tables

Table 1:
 Agricultural and Extractive-Industry Income as a Percentage of
 Total Personal Income in the Rocky Mountain States (2005)7
Table 2:
 Hunting, Fishing and Wildlife Watching
 in the Rocky Mountains (2006)13
Table 3:
 Non-Labor Income as a Percentage of Total Personal Income (2005)15

Faces of the Rocky Mountains

Protecting our Natural Treasures in Radium Springs, New Mexico9
 Finding a Place to Work and Play in Boise, Idaho12
 Profiting from the Beauty of Wilderness in Nampa, Idaho14
 Discovering New Economic Springs in Kanab, Utah16
 Brewing Success in Fort Collins, Colorado18
 Building a Wilderness Business in Choteau, Montana20
 Getting Inspired to Make a Difference in Paonia, Colorado22



About the cover photos
 (from top):
*Young hikers in Grand
 Staircase-Escalante National
 Monument, Utah.*

*Alpine vista, Rocky Mountain
 National Park, Colorado.*

*Every year visitors enjoy
 the changing colors of the
 Rockies' quaking aspen.*

Photo this page:
*A hiker enjoying Cold
 Spring Mountain, a Citizen-
 Proposed Wilderness Area
 in northwestern Colorado.*

ABOUT THE WILDERNESS SOCIETY

Our Mission

The Wilderness Society is a national conservation group dedicated to science-based advocacy. For more than 70 years, our group has worked to conserve America's unparalleled wildland heritage and ensure the wise and balanced management of our public lands legacy.

Headquartered in Washington, D.C., the Society also maintains regional offices throughout the country where our staff address on-the-ground conservation issues linked to local communities. Since spearheading passage of the seminal Wilderness Act in 1964, we have been a leading advocate for every major piece of Wilderness legislation enacted by Congress, work that is supported by an active membership of more than 200,000 committed conservationists. Our effectiveness stems from a team approach to conservation, which links our scientists, policy experts, and media specialists to thousands of grassroots activists—creating a potent force to promote change.

Building the case for land preservation with research and sound science is the key to successful environmental advocacy and policy work. Nearly a quarter century ago, The Wilderness Society helped pioneer strategies that incorporated expert economic and ecological analysis into conservation work. Today, through focused studies, state-of-the-art landscape analysis—and diligent legwork by our many partners who provide us with on-site data—our Ecology and Economics Research Department is able to serve the needs of the larger conservation community.

Legislators, on-the-ground resource managers, news reporters, our conservation partners, and—most importantly—the American people must have the facts if they are going to make informed decisions about the

future of this nation's vanishing wildlands. The answers to the pressing legal, economic, social, and ecological questions now at issue are the stepping stones to that understanding and, ultimately, to achieving lasting protection for the irreplaceable lands and waters that sustain our lives and spirits.

Acknowledgements

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Heath Nero produced the map of the Rocky Mountain States' public lands. Dr. Susan Solarz helped guide this project through the initial planning and organization. She also provided invaluable help with the "faces" of the contemporary western economy, as did Chris Mehl, Melissa Kolwaite, Steve Smith and Suzanne Jones. Thanks also to the photographers who have allowed us to use their artwork and to the individuals and businesses featured throughout the report.

Finally, we would like to thank Dr. John Loomis of Colorado State University, and Dr. Ray Rasker and Ben Alexander of Headwaters Economics for their insightful peer reviews of early versions of this report.

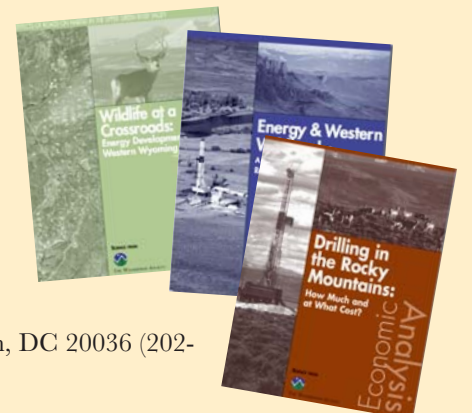


ABOVE: Rafting on the Yampa River through Dinosaur National Monument, Colorado. Americans spend nearly \$300 billion annually on gear and services for non-motorized, outdoor recreation and generate an additional \$430 billion in spill-over economic activity.

This science report is one of a series that stems from conservation research studies conducted by The Wilderness Society's Ecology and Economics Research Department. Other reports in the series that focus on issues relevant to this report include:

- **WILDLIFE AT A CROSSROADS: Energy Development in Western Wyoming**
- **ENERGY & WESTERN WILDLANDS: A GIS Analysis of Economically Recoverable Oil and Gas**
- **DRILLING IN THE ROCKY MOUNTAINS: How Much and at What Cost?**

The entire series is available on The Wilderness Society's web site <www.wilderness.org> and from The Wilderness Society, Communications Department, 1615 M Street, NW, Washington, DC 20036 (202-833-2300 or 1-800-THE-WILD).



Preface

The vast landscapes of the Rocky Mountain West—Colorado, Idaho, Montana, New Mexico, Utah and Wyoming—comprise one of the most unspoiled and fastest growing regions of the United States. New residents, drawn to the clean environment, open spaces and recreation opportunities offered by public land in the Rockies, have brought new money to rural communities and opened the door to high-paying occupations such as computer programmers, doctors, architects and financial advisors. Meanwhile, technology continues to liberate workers from urban settings, allowing them to choose places to live based on other quality-of-life concerns. “Footloose” entrepreneurs who migrate to areas rich in natural amenities have also infused rural economies with new vitality.

Contrary to a common misperception, the economy of the American West no longer depends solely on traditional resource-extractive industries. Mining, logging, oil and gas development, farming and ranching are waning in importance. Instead, economic health and sustainable growth often are tied to the protection of the region’s abundant natural resources—a trend that will likely intensify in the coming years. Public lands, particularly protected lands which provide natural amenities and open spaces, are crucial to this economic equation.

At the same time, however, a frenzy of oil and gas development has taken hold with unchecked drilling eroding the quality of life in communities across the region. And as land managers consider the future of our western public lands, they frequently limit their analyses to the number of potential jobs created by fresh opportunities for resource extraction—an approach that is insufficient to predicting either the true economic costs of development or the long-term economic benefits of land protection.

The Wilderness Society’s report, *Natural Dividends: Wildland Protection and the Changing Economy of the Rocky Mountain West*, examines these recent economic trends in detail. Synthesizing research on socioeconomic patterns, authors Dr. Michelle Haefele, Dr. Pete Morton and Nada Culver reveal the underlying connections between intact landscapes and growing community, regional and national economies.

Their study demonstrates how maintaining sustainable economies in many areas of the American West is directly linked to preserving natural resources and not exploiting them. While we believe resource-extractive industries, including oil and gas development, have their proper place in the region, some natural areas are simply inappropriate for these activities. Elsewhere, drilling and other types of extraction should only occur in the right location and with appropriate safeguards to protect the region’s clean air and water, abundant wildlife and healthy communities.

By working to ensure that sound policies come forth from Washington, D.C., highlighting better alternatives and partnering with local citizens to help plan and monitor development projects, The Wilderness Society believes the Rocky Mountain West can enjoy the benefits of its many resources—and economic stability—without diminishing our nation’s unparalleled natural treasures.



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THE WILDERNESS SOCIETY

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ABOVE RIGHT: Sunset skies over the Watchman, Zion National Park, Utah.

In this report, we synthesize recent research from economists and other scientists to provide a new picture of the economy of the contemporary Rocky Mountain West. This picture—broader and more accurate than the commonly held view that the region’s economy is heavily dependent on resource extraction—recognizes the full value of protected public lands in ensuring sustainable economic development. Key findings and conclusions of the report include the following:

- **PROTECTED PUBLIC LANDS** produce measurable benefits in terms of employment and personal income for communities in the Rocky Mountains. Research has shown that real per capita income in isolated rural counties with protected land grows faster than in isolated counties without any protected lands.
- **KEY ECONOMIC INDICATORS** that signal both a change in the West’s economy and the health of specific communities include the rapidly expanding professional and service sectors, the increasingly important role that hunting, fishing, recreation and tourism play in the region, the rise of small businesses and other entrepreneurial endeavors, and the growing economic importance of retirees. All of these important economic sectors directly or indirectly benefit from protecting public wildlands, and yet are often ignored in public land management plans.
 - **THE PROFESSIONAL AND SERVICE SECTOR** has been growing in importance in the Rocky Mountains, accounting for over 30 percent of total personal income in 2005. This sector is very diverse, encompassing a wide range of both entry-level and high-wage occupations.
 - **OUTDOOR RECREATION, HUNTING, FISHING AND TOURISM** are important components of western economies. In 2006, hunters, anglers and wildlife watchers spent over \$7 billion in the Rocky Mountain States, and non motorized outdoor recreation generated over \$22 billion in economic activity.
 - **ENTREPRENEURS** bring jobs and income to the region and have been found to be an important indicator of an area’s overall economic health and potential future prosperity.
 - **RETIREES** and other residents with investment income represent one of the top “industries” in the region, with their income making up nearly one-quarter of total personal income in 2005.

Retirees moving to the Rockies are attracted to the natural amenities provided by public land.

- **EXTRACTIVE-INDUSTRY INCOME** in the Rocky Mountain economy has declined in the last 30 years, with oil and gas extraction accounting for just 1.3 percent of total personal income in the region in 2005.

This analysis shows how the West’s people and communities have come to depend on the region’s natural amenities—the clean air and water, quality outdoor recreation and hunting and fishing opportunities—suggesting a need for a more comprehensive approach to evaluating land management in the American West. Accordingly, we map out an approach that communities can use to encourage the sustainable growth of their economies without destroying the natural amenities on which those economies—and the community’s quality of life—have come to depend. Our recommendations include:

- **IMPROVE THE SOCIOECONOMIC IMPACT ANALYSIS** in public land management plans by 1) incorporating an analysis of historic trends in jobs and personal income—including trends in retirement and other non-labor sources of income, 2) addressing the direct and indirect role protected public lands play in the regional economy, 3) accounting for the economic importance of the recreation, hunting and fishing that occurs on public land, 4) using estimates of economically recoverable quantities of oil and gas resources and 5) fully accounting for the hidden costs associated with oil and gas drilling.
- **PLAN FOR AMENITY DEVELOPMENT** by developing strategies to ensure that the scale and pace of amenity development doesn’t result in the same negative impacts as the current oil and gas drilling boom.
- **SLOW THE PACE OF OIL AND GAS DRILLING** by implementing phased development of oil and natural gas resources.

We also include detailed information about many sources of economic and demographic data available at both the state and national level to aid in land management planning. We hope that this report will provide citizens, communities and decision makers with better information for balancing the extraction, recreation and amenity values of our public lands in the Rocky Mountains.

With the economic diversification of the Rocky Mountain West over the past several decades, continued healthy economies in many of the region's communities depend on protecting natural resources rather than only on exploiting them. Resource extraction, such as the current boom in oil and gas drilling in the region, should only happen at the right pace and with appropriate safeguards to protect the West's wildlands, clean air and water, abundant wildlife and healthy communities.



The western United States is known for its vast expanses of open space and remote wildlands, from broad prairies to sagebrush scrub, twisting canyons and rugged mountain peaks. Most of these wild landscapes are public lands, held in common ownership by all Americans—a status that has helped keep them wild in the face of considerable pressure to develop the natural resources found there. Protecting our western public wildlands¹ provides immense public benefits: recreation opportunities, wildlife habitat, scenic vistas, clean air and water and the preservation of a vital part of our American heritage (Morton 1999).

Yet if the story of the American West is one of unspoiled nature, it is also one of harnessing nature's bounty for human ends. Traditionally, the economy of the western United States has been perceived as one based on the extraction of the region's abundant natural resources—mining, logging, oil and gas drilling, farming and ranching. However, over the last

30 years the West's economy has become much more diversified (Bennett and McBeth 1998, Johnson 2001), with recreation, tourism, the professional and service sector, retirees and entrepreneurs making important contributions to the region's economic well-being. As we will discuss, the diversification and hence the health of our western economy benefit greatly from the protection of public wildlands.

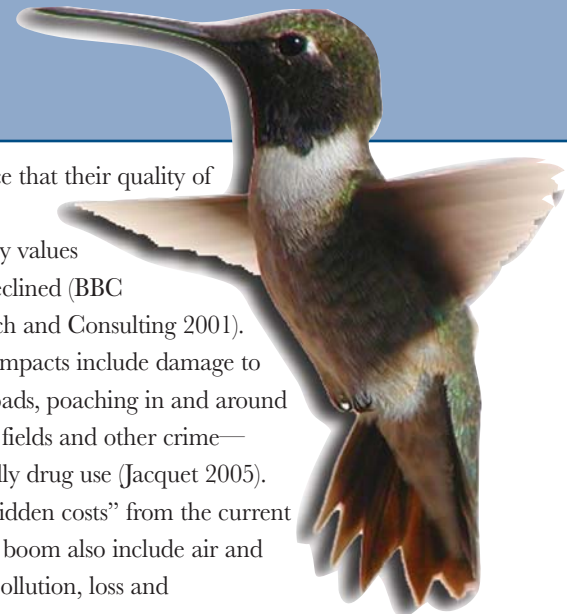
This report provides a snapshot of the economic trends that have shaped the contemporary Rocky Mountain West (Colorado, Idaho, Montana, New Mexico, Utah and Wyoming), and describes key economic indicators associated with the growth and diversification of rural Rocky Mountain economies. Understanding these key economic indicators is particularly important in light of the frenzy of oil and gas development that is currently threatening public wildlands and natural amenities in the Rockies, and hence the competitive economic advantage of the region. Between 2001 and 2006, more than 17,000 gas and oil wells were drilled on

ABOVE: Frank Church-River of No Return Wilderness Area, in Idaho, designated in 1980, is one of the largest units of the National Wilderness Preservation System.



ABOVE: A hiker in the Santa Fe National Forest, New Mexico.

AT RIGHT: Black-chinned hummingbird.



public land in the Rockies, with thousands more wells drilled on private land in the region (Figure 1). In contrast, fewer than 9,500 wells were drilled between 1995 and 2000.

Oil and gas development is notorious for resulting in “boom and bust” cycles that can have devastating impacts on nearby communities. Research has indicated that an emphasis on resource extraction results in inherently unstable community economies (Fortmann et al. 1989, Freudenburg 1992, Freudenburg and Gramling 1994), often due to forces such as fluctuations in prices and changes in extraction technology, which are completely outside local control. The current drilling boom is a case in point. Rural communities have had little control over the pace or location of drilling—as the Bureau of Land Management (BLM) continues to ignore widespread local opposition to this development.

The current upsurge in oil and gas drilling is already having negative impacts on communities in the West (Limerick et al. 2002).² Recent news accounts document residents leaving areas where drilling has become such a

nuisance that their quality of life and property values have declined (BBC Research and Consulting 2001). Other impacts include damage to rural roads, poaching in and around the gas fields and other crime—especially drug use (Jacquet 2005). The “hidden costs” from the current drilling boom also include air and water pollution, loss and fragmentation of critical wildlife habitat, decline in the quality of hunting and outdoor recreation in general and the potential damage to the region’s natural amenities (Morton et al. 2004).

While oil and gas drilling, along with other natural resource development, can contribute to rural economies, the pace and scale of oil and gas booms can have negative impacts on many of the important economic sectors in the Rocky Mountains. Unfortunately, the fast-track energy plans prepared by the BLM to rush these drilling proposals out the door

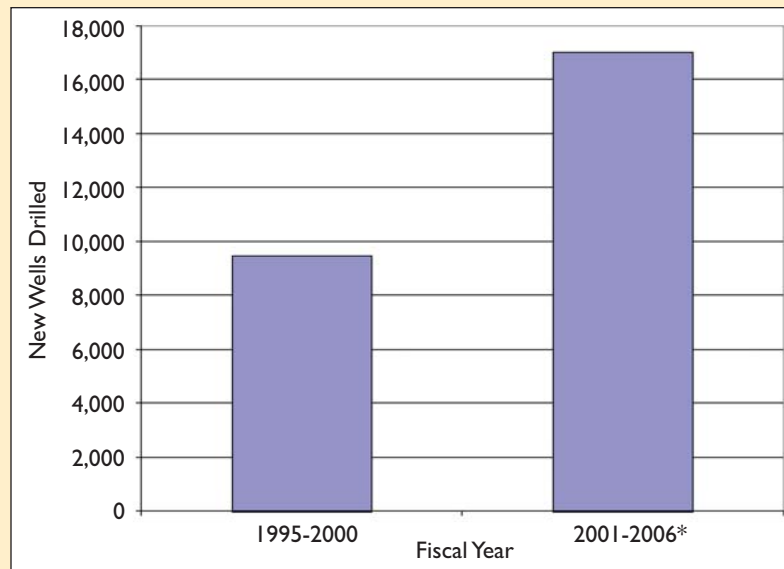
focus almost exclusively on oil and gas jobs, largely ignoring the contribution of other more important sectors of the local and regional economy. As this report makes clear, merely counting jobs in oil and gas drilling is not sufficient to predict the economic impact of proposals to increase this development. Communities and planners must also consider the increasing importance of industries and economic sectors that rely on protected wildlands, which could be harmed by the extraction of natural resources.

We begin our analysis with an overview of economic trends in the Rocky Mountains, before examining key economic indicators for measuring the health of western communities. We end our paper with recommendations for communities and public land managers.

FIGURE 1.

New Oil and Gas Wells Drilled on Public Lands in the Six-State Rocky Mountain Region

The Rocky Mountain States have become the major focus of natural gas drilling in the United States in recent years, putting at risk the quality of life and natural amenities that are key to sustainable economic growth for western communities.



* Due to an Automated Fluid Minerals Support System (AFMSS) shutdown in FY 2005, data are incomplete for this fiscal year. If these data were included the number of wells drilled in this period would be even greater.

Sources: U.S. Department of the Interior, Bureau of Land Management, *Public Lands Statistics (FY 1995-1997)* and Bureau of Land Management, *AFMSS (FY 1998-2006)*.

OVERVIEW OF THE ROCKY MOUNTAIN ECONOMY

Trends in Resource Extraction in the Rocky Mountains

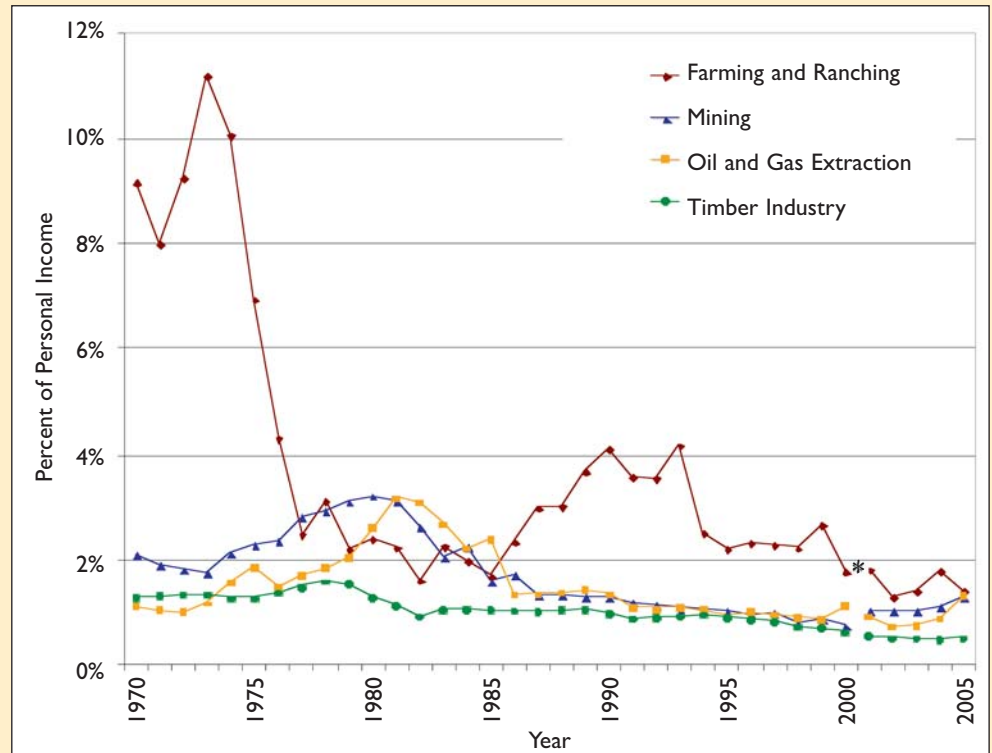
Despite widespread assumptions to the contrary, the timber, mining and oil and gas industries, while important locally to some communities, have never been large contributors to total personal income in the Rocky Mountain region (Figure 2).³ In fact, the contribution of oil and gas extraction is roughly where it was 30 years ago—about 1.3 percent of total personal income in 2005, a remarkably small percentage given the current drilling boom. Meanwhile, the small contribution of the timber industry has also declined.

In 2005, the percentage of total personal income from extractive industries in the Rocky Mountain region ranged from just over 2 percent in Utah to approximately 14 percent in Wyoming (Table 1). As discussed, most western counties are not “resource dependent,” but instead have developed diversified economies that also include recreation, retirees and the professional and service sector. A recent study examining the impact of public lands on economic well-being in 11 western states found that only 3 percent of western counties could be classified as resource-extraction dependent (Rasker et al. 2004). In fact, as we discuss in the following section, protected public lands are playing a more and more important role in the economies of most western communities, including many of the remaining resource-dependent counties.

FIGURE 2.

35-Year Trends in Personal Income from Agriculture and Resource-Extractive Industries in the Rocky Mountain Region

Over the past 35 years, the importance of extractive-industry income in the Rocky Mountain States has declined. Even during the current oil and gas drilling boom, this industry contributes less than 2 percent of total personal income in the region.



* In order to show the long-term trend, the figure is based on data collected through the Standard Industry Classification (SIC) system, which was used through 2000, and the North American Industry Classification System (NAICS), which has been used since 2001. (See the Appendix for a discussion of these classification systems.) The switch in classification systems is represented by the break in the graph.

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce (2005 data are the most recent available).

TABLE 1.

Agricultural and Extractive-Industry Income as a Percentage of Total Personal Income in the Rocky Mountain States (2005)

The extraction of natural resources represents a relatively small proportion of total personal income in the six Rocky Mountain States. This is true despite the frenzy of oil and gas drilling that has recently been occurring in the region.

	Farming & Ranching	Mining	Oil & Gas Extraction	Timber Industry	Total Agriculture & Extractive Income
Colorado	0.6%	0.7%	1.6%	0.2%	3.2%
Idaho	4.0%	0.4%	NA	1.9%	6.3%
Montana	3.0%	1.8%	0.8%	1.2%	6.8%
New Mexico	2.2%	1.6%	1.7%	0.2%	5.7%
Utah	0.5%	0.9%	0.4%	0.4%	2.2%
Wyoming	1.5%	8.2%	4.2%	0.2%	14.1%
Rocky Mountains	1.4%	1.3%	1.3%	0.5%	4.5%
United States	1.0%	0.4%	0.5%	0.7%	2.5%

Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce (2005 data are the most recent available).

The Role of Protected Public Lands

The population of the rural West has been increasing since the 1970s (Bennett and McBeth 1998). The Rockies are one of the fastest growing regions in the United States (U.S. Census Bureau 2001), and, contrary to the pattern seen elsewhere, population growth has preceded employment growth in the rural West (Vias 1999). People appear to migrate to the region for its amenities (McGranahan 1999), including abundant natural and scenic resources such as varied topography, access to water bodies and a pleasant climate.

Along with population growth comes demographic change (Shumway and Otterstrom 2001). As more people move from urban areas to rural communities they bring with them expectations about how local public lands ought to be managed, and these changing community values must also be accounted for in the management of surrounding public lands.

A large and growing body of research indicates that the natural amenities provided by public lands are an important economic driver in the rural West (Rudzitis and Johansen 1989; Johnson and Rasker 1993, 1995;



What do we mean by natural amenities?

The natural amenities provided by protected public lands include quality outdoor recreation, hunting and fishing opportunities, clean air and water, scenic beauty, open spaces or natural areas, habitat for fish and wildlife, a clean environment, varied topography and access to water. The natural amenities from public land contribute to the quality of life for local residents. For example, residents of Sublette County in Wyoming cited the beautiful scenery, abundant recreation opportunities and rural lifestyle as the top three reasons they chose to live in the Rockies (McLeod et al. 1998). In addition, natural amenities attract retirees with their investment income, and an educated and talented workforce, which in turns attracts businesses to the region.

Scientists at the Economic Research Service, a branch of the U.S. Department of Agriculture, recognized the economic importance of protecting natural amenities and developed a scale that measures the level of amenities in each county. The Amenity Scale rating is based on six factors: warm winters, plentiful winter sunshine, temperate summers (not too hot), low summer humidity, variation in topography (hilliness) and water area.

The results (right) show that 91 percent of the counties in the Rocky Mountain States have amenity scores higher than the national average, and in New Mexico and Utah every county scores higher than the national average.

Counties in each state with Amenity Scale scores higher than the national average

Colorado	95%
Idaho	95%
Montana	72%
New Mexico	100%
Utah	100%
Wyoming	91%
All Rockies Counties	91%

Source: U.S. Department of Agriculture, Economic Research Service, Natural Amenities Data Base (<http://www.ers.usda.gov/Data/NaturalAmenities/>).



Rasker 1994; Power 1995, 1996; Duffy-Deno 1998; Rudzitis 1999; Lorah 2000; Rudzitis and Johnson 2000; Whitelaw et al. 2003; Holmes and Hecox 2004; Rasker et al. 2004). Local communities with protected wildlands reap measurable benefits in terms of employment and personal income. Counties with high levels of natural amenities are more likely to experience both greater population and greater economic growth than counties with fewer such amenities (McGranahan 1999). Protected lands have the greatest influence on economic growth in isolated rural counties that lack easy access to larger markets. From 1970 to 2000, real per capita income in isolated rural counties with protected land grew more than 60 percent faster than in isolated counties without any protected lands (Rasker et al. 2004).

More and more workers in the West, and all over the United States, are able to choose where they live and work. Technology makes it easier for professionals to “telecommute” using electronic communications. Many businesses are able to conduct national or international commerce from any location they choose. Other entrepreneurs simply choose to live in a particular place and build a business in response to local needs. Retirees and others who collect non-labor income are not tied by a job to a specific location. Many of these people seek an attractive place to live. As development

pressures increase, public lands become a backdrop or setting that contributes to or even creates the amenities that will help a community's economy thrive and grow.

Residents of counties with designated Wilderness cite the presence of that Wilderness as an important reason they moved to the county, and long-term residents cite it as a reason they stay (Rudzitis and Johansen 1989). Recent survey results also indicate that many firms decide to locate or stay in the West because of scenic amenities and wildlife-based recreation, both of which are strongly supported by Wilderness Areas (Johnson and Rasker 1995). Resource managers, economic planners and community leaders should be aware of these trends and consider the role that protected public lands play in the community's long-term economic and social health and well-being.

Many rural sociologists and economists have highlighted the role of natural resource protection in economic growth. In a study of the relationships between rural poverty and natural resource development, Freudenburg and Gramling (1994) concluded:

...it needs to be recognized as a serious empirical possibility that the future economic hope for resource-dependent communities of...the United States could have less to do with

ABOVE: Collared lizard, Mesa Verde National Park, Colorado.

OPPOSITE PAGE: Backpackers hiking along the bottom of a red rock canyon.

Protecting our Natural Treasures in Radium Springs, New Mexico

Pat Buls' connection to New Mexico's public lands is both physical and emotional, and a daily experience. As the owner of Shining Heart Farms, a horse training and riding lesson facility in Radium Springs, Buls “rides the range” almost every day.

“America is unique in its treasure trove of wild backcountry—public land that belongs to all of us, whether we live in New Mexico, or across the country in New York City,” says Buls. “I have spent my life sharing the outdoors with my students, and as a result have witnessed over and over again the healing power of wilderness.”

Reflecting on a past student, Buls recalls witnessing a shy, overweight girl blossom into a self-confident, active woman due to the nourishing power of nature. Buls believes that wilderness doesn't just heal the soul, it also serves as an economic driver, especially in southern New Mexico where the area is experiencing a population surge.

“More and more people come here, drawn to this area because of its beauty and our quality of life,” says Buls. “As a result, I believe it is our duty to protect our natural treasures because they serve as the backbone for our economy and our community. It is the best we can do for our children.”

Pat Buls
Owner, Shining Heart Farms





ABOVE: Chetro Ketl Pueblo at Chaco Culture National Historic Park, New Mexico.

OPPOSITE PAGE: For many professional and service workers, coffee and internet access are key ingredients for success in the 21st Century western economy.

the consumption of natural resources than with their preservation.

Deller et al. (2001) echo this finding:

Rural areas endowed with key natural resource amenities can manage those resources to capture growth more effectively. This may entail expansion beyond policies that have historically been focused on extraction of the resource base.

In addition, a letter to the president and the governors of the western states, signed by 100 economists from universities and other organizations throughout the United States, reads in part, “The West’s natural environment is, arguably, its greatest long-run economic strength” (Whitelaw et al. 2003).

KEY ECONOMIC INDICATORS FOR WESTERN COMMUNITIES

A number of economic indicators signal both a change in the West's economy and the health of specific communities in the West. These indicators include the rapidly expanding professional and service sector, the increasingly important role that recreation and tourism play in the region, the rise of small businesses and other entrepreneurial endeavors and the growing importance of retirees and non-labor income.

We've chosen to highlight this particular set of indicators because they have been shown to be strong drivers of rural economies (Deller 1995, Deller et al. 2001, Henderson 2004, Henderson and Abraham 2004, Low 2004, Rasker et al. 2004, Low et al. 2005). Furthermore, despite their significant role in rural economies, the indicators described here have been largely ignored in recent land management planning documents when assessing the region's relationship with its abundant public lands. We hope this information will be useful for communities where traditional extractive industries have declined, as well as for communities enduring the current oil and gas drilling boom.

The Professional and Service Sector

Over the past quarter-century, the U.S. economy as a whole has seen a shift from extractive and primary manufacturing industries to service-oriented businesses, a trend that is also evident throughout the West. A common misconception about the so-called service sector is that it includes only low-paying jobs. This is not the case; several high-paying professional occupations such as computer programmers, lawyers, financial advisors, engineers and doctors (Figure 3) are classified as part of the service sector. Many of the counties in the Rocky Mountain West with economies that are characterized by a predominance of service industries have the highest incomes (Shumway and Otterstrom 2001).

A diverse economy is important for sustainable economic development and prosperity, and given the growing importance of the professional and service sector, it is also important that this sector remain diverse, not dominated by any single segment.

The growth in these service sector professions in the Rocky Mountain West is linked in many cases with an increase in investment and retirement income. As retirees (discussed in more detail beginning on page 17) and others migrate to rural communities, they contribute to overall income and employment (Deller 1995). Employment and income in the health-care sector may increase as the number of retirees in an area increases. As retirees move into a region, the demand for financial, insurance and real estate services may also increase. In the Rocky Mountain region, non-labor income has risen in concert with professional and service sector income in recent decades, while extractive-industry income has fallen in relative importance (Figure 4, next page).

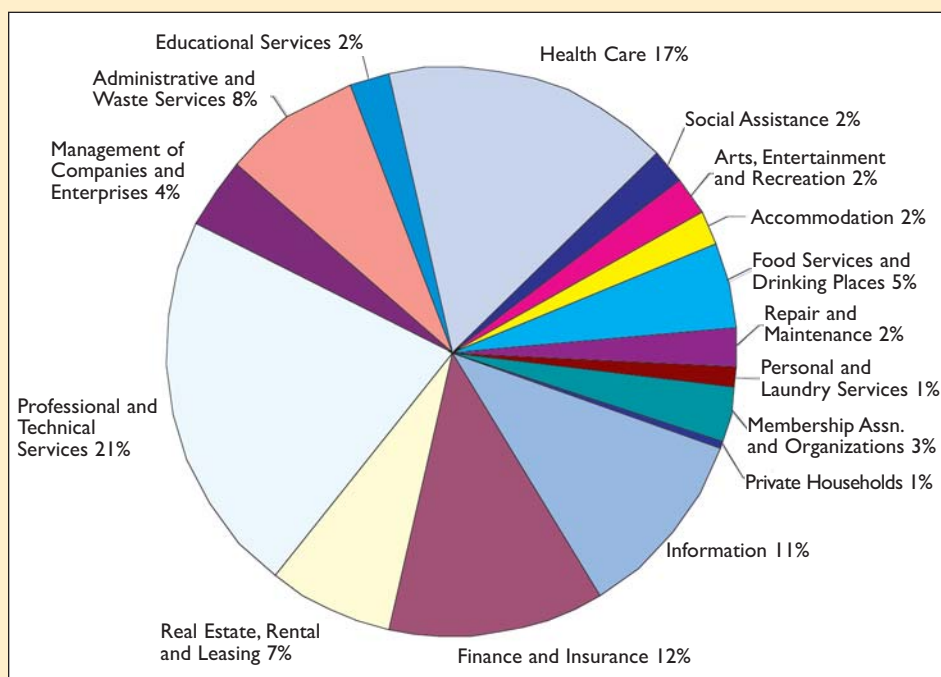
Over the past three decades, advancing technology has played a key role in transforming the economy of the West. Improved technology results in reduced labor requirements, contributing to the downward trend in extractive-industry employment (Johnson 2001). At the same time, developments in communications and information technology have opened up new economic opportunities in the rural West, by mitigating the constraints imposed by remoteness and permitting



FIGURE 3.

Income from Professional and Service Sector Occupations in the Rocky Mountains (2005)

Contrary to common assumptions, the service sector includes a number of high-paying, knowledge-based occupations, not just entry-level jobs. In fact, in the Rocky Mountain States, some of the largest segments of the service sector, such as Information, Professional & Technical Services and Health Care, are also highly paid. Also significant is the fact that the region has a wide variety of professional and service sector occupations, since economic diversity is important for community prosperity and growth.

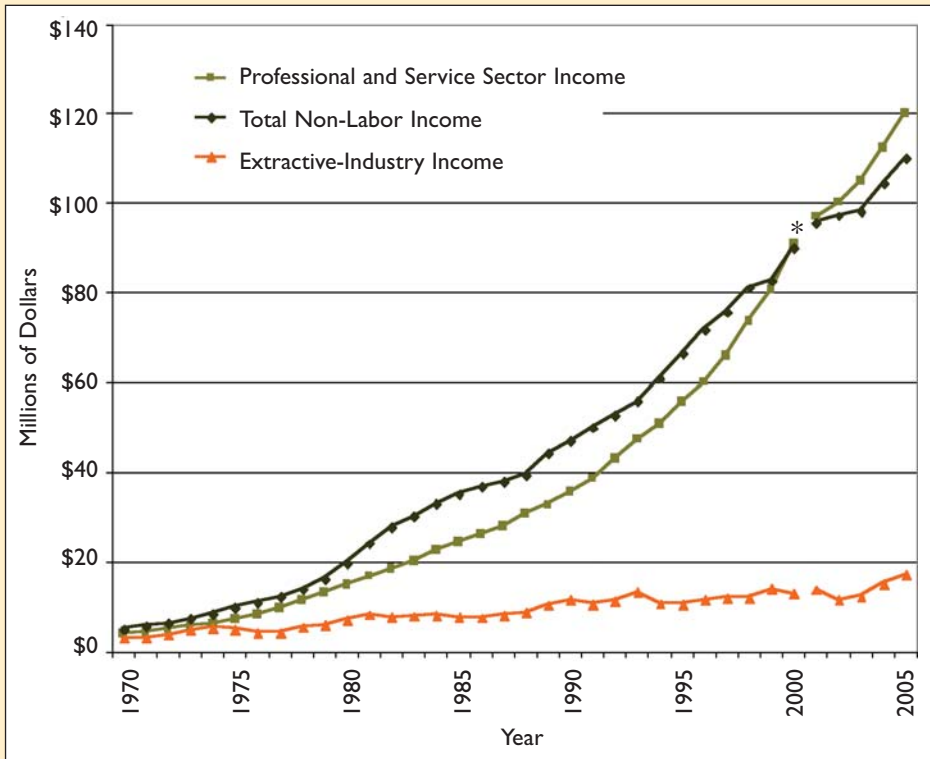


Source: Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce (2005 data are the most recent available).

FIGURE 4.

Trends in Total Personal Income in the Rocky Mountains

While extractive industries have played a minor role in generating income in the Rocky Mountain States, professional and service sector income has been rising along with non-labor income. These trends highlight a shift in the region's economy as well as the need to ensure that public land management protects the natural amenities that draw high-quality workers and diverse businesses to the region.



* In order to show the long-term trends, professional and service sector income and extractive-industry income are based on SIC data for 1970-2000 and NAICS data for 2001-2005 (see Appendix). While not explicitly compatible, both classification systems show similar trends for income from the professional and service sector and extractive industries. The switch in classification systems is represented by the break in the graph.

Source: *Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce (2005 data are the most recent available).*

employment in the professional and service sector previously unavailable for rural residents.

Many high-paying professional occupations such as those in health, educational and legal services are often referred to as “knowledge-based,” defined by Henderson and Abraham (2004) as follows: “Knowledge-based activities emerge from an intangible resource that enables workers to use existing facts and understandings to generate new ideas. These ideas produce innovations that lead to increased productivity, new products and services, and economic growth.”

Knowledge-based industries (such as computer programming, data processing, educational services and even museums) have grown nationwide since 1980, and

Finding a Place to Work and Play in Boise, Idaho

Bill and Ingrid Brudenell moved to Boise in 1980 after a long search for a home with natural beauty, proximity to outdoor recreation and the security of protected lands. The Brudenells wanted to settle in a place where they could be sure that

Bill Brudenell
Production Engineer,
Hewlett Packard

Ingrid Brudenell
Professor of Nursing,
Boise State University

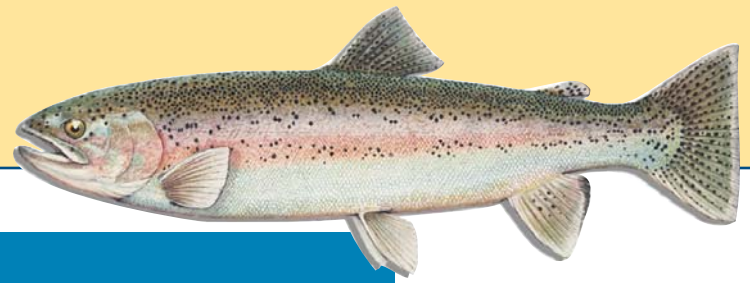
the natural beauty they love so much would not be destroyed.



A life-long nature lover, Bill remembers growing up near the Great Smoky Mountains in Tennessee and being awakened each morning by the singing of the birds. He was disappointed when vast tracts of the Nantahala and Cherokee National Forests were clearcut. “When there aren’t any trees, well, there aren’t any birds,” he says.

The Brudenells lived for a time in Charlotte, North Carolina, but they found that much of the same selling off and destruction of natural lands was occurring there, making it more difficult to access natural areas with room to roam.

Realizing they needed to make a conscious effort to seek out their desired combination of easy access to outdoor recreation and exciting job opportunities, Bill and Ingrid put their heads together and found themselves headed west. They have been very happy in Boise, which has both the kind of rewarding professional work they sought and the effortless access to skiing, hiking, backpacking, mountain biking, fishing and rafting that they needed. With many of Idaho’s great places enjoying protected status, the Brudenells no longer worry about losing access to many of their favorite natural areas and recreation sites.



rural areas can take advantage of this trend by enhancing the factors that contribute to the growth of these industries. Such factors include a high-quality workforce, colleges and universities, transportation and communication infrastructure and a diversified local economy. These factors are interrelated and often depend on the quality of the environment and the availability of public lands and their associated recreational opportunities. Such amenities play a strong role in attracting workers and businesses which serve to diversify economies in the rural Rocky Mountain West (Whitelaw and Niemi 1989; Johnson and Rasker 1993, 1995).

Hunting, Fishing & Recreation

According to the Outdoor Industry Foundation, 162 million Americans participate in non-motorized active outdoor recreation each year (OIF 2006a), spending \$298 billion on gear and recreation services annually (OIF 2006b). This spending spurs other spending in local economies as well as generating local tax revenues—making the total national

TABLE 2.

Hunting, Fishing and Wildlife Watching in the Rocky Mountains (2006)

Wildlife recreation is an important part of the cultural heritage of the Rocky Mountain States and an important source of economic activity in rural communities. Over 4 million people participated in hunting, fishing and wildlife watching in the region, spending over \$7 billion.

	Participation	Expenditures
Colorado	1,593,000	\$2,424,196,000
Idaho	564,000	\$840,267,000
Montana	511,000	\$910,049,000
New Mexico	581,000	\$807,618,000
Utah	794,000	\$1,193,655,000
Wyoming	230,000	\$904,780,000
Rocky Mountain States Total	4,273,000	\$7,080,565,000

Source: U.S. Department of the Interior, U.S. Fish and Wildlife Service and U.S. Department of Commerce, U.S. Census Bureau, 2007.

TOP: Canoeing in the Upper Missouri River Breaks National Monument, Montana.

ABOVE: Rainbow trout are prized by anglers throughout the Rockies, where fishing generated over \$2 billion in spending in 2006.

BELOW: A fisherman on Snowmass Creek in the Maroon Bells-Snowmass Wilderness Area, Colorado.





ABOVE: A local outfitter leads a pack trip into the spectacular ranges of the Absaroka-Beartooth Wilderness Area of south-central Montana.

AT RIGHT: A young camper seizes the day in the San Rafael Swell, Utah.

OPPOSITE PAGE: Bull elk. Hunting and wildlife watching bring over \$4 billion to the Rocky Mountain States' economies.

economic contribution of outdoor recreation over \$730 billion (OIF 2006b). The total economic contribution of non-motorized recreation in just the six-state Rocky Mountain region was over \$22 billion in 2006 (OIF 2007).

Outdoor recreation by residents and tourists alike is an important component of western economies. Many rural communities in the Rocky Mountain region have been revitalized as they have been “discovered” by recreationists. Moab, Utah, for example, was once a dying mining center and is now a top destination for recreation seekers of all sorts. Tourism also leads to migration by new residents who may bring new businesses; one study found that a quarter of the business owners in the Yellowstone National Park region first came to the area as tourists (Snepenger et al. 1995).

An April 2004 report from the Federal Reserve Bank of Kansas City’s Center for the Study of Rural America calls wildlife recreation “rural America’s newest billion-dollar industry” (Henderson 2004). Nationwide, wildlife recreation—hunting, fishing and wildlife watching—generated \$120 billion in spending for local economies, boosting tourism, spurring business growth and contributing to increased property values. Hunters, anglers and wildlife watchers spent over \$7 billion in the six-state Rocky Mountain region alone in 2006 (U.S. Fish and Wildlife Service and U.S. Census Bureau 2007) (Table 2).

As the nation’s population grows, public lands become more and more necessary for providing the open space



and healthy wildlife habitat required for quality hunting, fishing and other outdoor recreation opportunities. The Forest Service has estimated that its recreation and protection programs account for much greater economic benefits than do its resource-extraction programs (Alward et al. 2003). Maintaining habitat for the fish and wildlife sought by anglers and hunters is a wise investment for western communities.

Entrepreneurs

While the previous sections discussed wage earners, this section focuses on the self-employed entrepreneurs in the Rocky Mountains, many of whom work in the professional and service sector and/or recreation-oriented businesses. The Center for the Study of Rural America includes the level of entrepreneurship as a regional asset that indicates economic viability, and notes that entrepreneurs can increase the health of the overall

Profiting from the Beauty of Wilderness in Nampa, Idaho

Tyler Welshimer (right), owner of bicycle repair business Welshimer Wheels, LLC, works on a racer’s mountain bike just prior to the annual White Knob Challenge mountain bike race in the Lost River Mountains of eastern Idaho. The race, which starts on Main Street in Mackay, Idaho, attracts about 130 racers and their families from across the West.

Races such as the White Knob Challenge are an important source of income for Welshimer Wheels and other businesses in Idaho. For several days before and after a bicycle race, hotels, eateries, gas stations and campsites enjoy increased business. “When I officiate at races the motel parking lots are usually flooded with bike-laden cars and there are many ‘no-vacancy’ signs out—I guess I’m not the only one to profit from the beauty of wilderness,” observes Welshimer.

He continues, “Mountain bike races are often held just outside of wilderness areas and in places of spectacular natural beauty. Without protected lands, cyclists would not be drawn to the area, and without cyclists I don’t have bikes to fix.”

Tyler Welshimer
Welshimer Wheels, LLC



TABLE 3.

Non-Labor Income as a Percentage of Total Personal Income (2005)

Non-labor income in the Rocky Mountain region and the United States as a whole consists mainly of retirement and investment income. Income support is a small portion of total non-labor income and an even smaller portion of total personal income, and for most states in the region income support is lower than in the United States overall.

	Investment Income ^a	Retirement Income ^b	Income Support ^c	Other Transfer Payments ^d	Total Non-Labor Income
Colorado	16%	7%	2.8%	0.7%	26%
Idaho	18%	10%	4.2%	1%	33%
Montana	19%	11%	4.4%	1%	36%
New Mexico	15%	10%	6.8%	1.1%	33%
Utah	14%	7%	3.3%	1.07%	26%
Wyoming	23%	9%	3.3%	0.8%	36%
Rocky Mountains	16%	8%	3.7%	0.9%	29%
United States	16%	9%	4.9%	1%	31%

^a Dividends, interest and rent

^b Includes veterans' benefits, military benefits and Medicare

^c Income maintenance benefits (Supplemental security income, Family assistance, Food stamps, Other income maintenance benefits), Public assistance medical benefits and Unemployment insurance compensation

^d Includes federal education and training assistance, settlements between individuals and businesses and transfer payments from non-profit institutions

Source: *Regional Economic Information System, Bureau of Economic Analysis, U.S. Department of Commerce (2005 data are the most recent available).*

economy: “Entrepreneurs create local jobs, wealth, and growth—and are themselves innovative users of other regional assets and resources....Entrepreneurs bolster a region’s quality of life while promoting economic prosperity. Research has found a strong correlation between entrepreneurship and long-term regional employment growth” (Low 2004).

Entrepreneurs in many fields—especially high-technology and knowledge-based fields—are often free to choose their location, and gravitate towards high-amenity areas (Rasker and Glick 1994, Johnson and Rasker 1995, Snepenger et al. 1995, Beyers and Lindahl 1996, Rasker and Hansen 2000, Henderson and Abraham 2004, Low 2004, Low et al. 2005). Recreation- and tourism-oriented businesses are often founded by footloose entrepreneurs seeking to live and work in areas rich in natural amenities and recreation opportunities. Retirees and investors migrating to an area bring with them entrepreneurial opportunities for those who can provide the goods and services they seek.

Entrepreneurs who provide producer services (services sold primarily to other businesses and government) are also expanding in rural areas, and most of these conduct much of their business interregionally or even internationally, bringing outside income into the rural

regions where they are located. Producer services are often high-paying occupations such as computer programming and data processing; engineering and architectural services; management consulting; and insurance, legal, financial and accounting services. Most of these businesses are not location dependent and entrepreneurs in these fields can often choose their location based on the amenities available in many rural areas (Beyers and Lindahl 1996).

Although wage and salary income is still the largest portion of total personal income in the Rocky Mountain States, entrepreneurs’ income has grown slowly but steadily from less than 10 percent of total personal income in 1970 to nearly 12 percent in 2005. Decisions to locate new businesses in rural areas are often made for quality-of-life reasons, providing further evidence of the importance of natural amenities to local economies (Rasker and Glick 1994, Beyers and Lindahl 1996).

Retirees and Non-Labor Income

In the Rocky Mountain States, investment and retirement income makes up nearly one-quarter of total personal income, making it one of the top “industries” in the region and an important contributor



to the economy that must be included in economic impact analyses. Investment and retirement income is by far the largest portion of non-labor income in each of the Rocky Mountain States (Table 3).

Areas with high levels of natural amenities—such as the scenic beauty and abundant recreation opportunities of nearby intact landscapes and Wilderness Areas—attract residents, and many of these residents rely on non-traditional sources of income (Duffy-Deno 1998, McGranahan 1999, Nelson 1999, Rudzitis 1999, Shumway and Otterstrom 2001, Lorah and Southwick 2003). Not bound by their job to any particular

location, retirees can choose a place to live based on the amenities it offers. People who rely on retirement and investment income are concentrated in the coastal and mountain regions of the West, precisely because of the natural amenities these areas possess (Nelson 1999). An influx of retirees to rural communities has been shown to have positive effects on both income and employment (Deller 1995). When a person receives dividends on his or her investments or a retiree receives a pension check, the money represents an influx of income for the entire local economy, and in turn fuels increases in employment and income for many of the other sectors discussed in this report.

Discovering New Economic Springs in Kanab, Utah

“We describe our arrival in southwest Utah 13 years ago as serendipitous. Although we were always drawn to the intimate canyons and vast landscapes, we were somehow surprised to find ourselves living among them. In a sense, the rural West is full of those kinds of unexpected blessings, like when a sudden cloudburst ends a long dry spell.

“Many of our neighbors are struggling through a sort of economic drought—the bust that seems always to be on the heels of the latest boom in extractive industry. Our first year in Kanab, the lumber mill was shut down. It had never been retrofitted to cut the smaller logs of secondary forests, and old growth was getting scarce. You can count the lost jobs and measure the economic impact, but it’s harder to reckon with the family and friends that had to leave the community to make a living elsewhere.

“Meanwhile, our local economy has quietly shifted. Our little shop is a reflection of that—‘We provide unique goods and services to help people discover, experience, understand, and appreciate the natural and cultural wonders of the Colorado Plateau,’ reads our mission statement. We sell outdoor gear, books, and gourmet espresso. Still, it’s a bumpy road for entrepreneurs, and ideas that didn’t work out roll around like tumbleweeds.

“It doesn’t surprise us that so many people are skeptical as they watch the New West evolve. Its development is punctuated with loss and resentment almost as much as with hope and renewal. A flood of change can seem very threatening, even while awash with opportunity.

“Within our community, we’re all searching for common ground, for an identity, for a vision of what our town should be. This is the high desert, and you never really know when it’s going to rain again.”

— Susan Hand and Charlie Neumann, owners

Willow Canyon Outdoor



The preceding sections of this report have presented some key indicators for the western economy in the 21st Century. These indicators should also be included in the socioeconomic impact analysis for land management planning in order to ensure that the decisions affecting our public lands are based on an analysis that accurately reflects the West's economy. This section makes some specific recommendations that citizens in western communities and public land managers can use to improve the land management planning process. An Appendix (pages 26-28) provides further information about some of the sources of the types of data called for here.

Improve the Socioeconomic Impact Analysis in Public Land Management Plans

The National Environmental Policy Act (NEPA) requires federal agencies to take a “hard look” at the impacts of a proposed action such as oil and gas development. These impacts include ecological, aesthetic, historic, cultural, economic and social impacts. Such impact analysis requires high-quality data on both the current conditions and the potential outcomes of land management actions. Federal agencies cannot evaluate the consequences of proposed decisions or determine how best to avoid or mitigate negative impacts without adequate data and analysis.

By using high-quality data, applying sound scientific methods and examining the key indicators described in this report, we believe that public land management agencies can better fulfill their obligations to evaluate the direct, indirect and cumulative socioeconomic impacts of various alternative decisions. In this section, we provide both general recommendations on the scope of the socioeconomic impact analysis and specific inquiries to be made in this analysis.

RECOMMENDATION 1. The socioeconomic impact analysis for public land management planning should include an analysis and discussion of both the current status of and historic trends in jobs and in personal income—including trends in retirement and investment income, the professional and service sector, jobs and income from hunting, fishing, recreation and tourism and entrepreneurial income.

In general, it is inappropriate to examine a region's economy solely at a single point in time because economies are dynamic. Trend analysis will show long-term patterns in income and employment that may be masked when looking at only one point in time. Trend analysis can help guide resource management by showing the likely future situation in an area and



pointing out historic periods of economic downturn. It may be instructive to look at other variables during these downturns to see if there are correlations between land management activities and economic activity. Looking at trends in employment and income is important to understanding the overall direction in which an area's economy is moving.

The analysis of regional economic impacts must include an analysis of all sources of income, including entrepreneurial and non-labor income. The analysis should also examine the role that amenities, including recreation opportunities and environmental quality, currently play in attracting and retaining entrepreneurs and non-labor income to the area. Finally, the analysis should examine the potential impacts that public land management alternatives will have on the level and trend of entrepreneurial endeavors and investment and

ABOVE: Spring skiing in Mt. Naomi Wilderness Area, Utah.



ABOVE: Protected public lands like the Pike-San Isabel National Forest in Colorado help ensure that streams like this one retain their high water quality.

OPPOSITE PAGE, TOP: Serrate Ridge and Scree Lake, Boulder White Clouds Wilderness Area, Idaho.

OPPOSITE PAGE, BOTTOM: Agave flower, New Mexico.

retirement income in the area. A full accounting of all sources of income is necessary to understand the important role that entrepreneurs and retirement and investment income play in the regional economy. An economic impact analysis that excludes these sources of income is inadequate and misleading.

RECOMMENDATION 2. The economic impact analysis for public land management plans should include an analysis and discussion of the indirect role protected public lands play in the regional economy in attracting retirees and entrepreneurs, including those in knowledge-based businesses, service sector businesses, recreation and tourism businesses and other sectors.

Public wildlands often define the character of an area and represent an important component of the quality of life for local residents and future generations. Their protection enables the lifestyles of western communities to continue. The socioeconomic analysis also must account for these economic benefits.

As discussed above, a growing number of economists are recognizing that protecting amenities and the

natural environment are key in attracting new residents and businesses to western communities, and that therefore the environment is the engine propelling the regional economy. Researchers have long known that a community's ability to attract and retain a high-quality workforce is key to its prosperity. The natural environment, including the amenities found on or near protected public lands, has been found to be important in attracting such workers and firms. Given these findings, the economic impact analysis of management alternatives for public lands should fully consider the indirect role of these lands in attracting and retaining recreational and non-recreational businesses and retirees, as well as their role in encouraging entrepreneurial efforts.

The potential impacts that public land management alternatives will have on non-extractive industries and on the ability of proprietors to start and grow businesses (especially if extractive activities are accelerated on public lands in the area) should be assessed, including the potential impacts of public land management alternatives on the overall makeup of the economy of the area, as well as the factors that have attracted new businesses to the area.

Brewing Success in Fort Collins, Colorado

New Belgium Brewing has been committed to sustainable business practices since its inception in 1991. Water is a key ingredient of beer, and water conservation is also an important environmental concern in the western United States. As brewers, New Belgium takes that seriously. New Belgium relies on clean water for its great-tasting beers. That is part of the reason they take it upon themselves to ensure that the watershed in which they reside remains healthy and clear.

New Belgium practices the three "R's" of environmental stewardship—reduce, reuse, recycle. Motion sensors on the lights throughout the building and low-water landscaping reduce energy and water use. New Belgium reuses heat for the brewing process, cleaning chemicals, water and much more. Recycling at New Belgium takes on many forms, from turning "waste" products into something new and useful (like spent grain to cattle feed), to supporting the recycling market in creative ways (like turning keg caps into table surfaces). New Belgium also buys recycled whenever possible.

New Belgium's founders chose the location for their business based on its access and proximity to Colorado's natural beauty. As a business based on ecological responsibility, made up of people concerned about conservation and sustainability, New Belgium recognizes that they rely on a healthy environment to make their delicious brews, and that without protected lands and waters, it may be much more difficult to produce the quality product they now make.

Jeff Lebesch and Kim Jordan
Founders, New Belgium Brewing





RECOMMENDATION 3. The socioeconomic analysis must account for the economic importance of the recreation, hunting and fishing that occurs on public land. The recreation opportunities provided by Wilderness-quality public lands yield direct economic benefits to local communities. The socioeconomic analysis must include an analysis of the income and jobs associated with recreation, hunting and fishing under each alternative.

The impact analysis should utilize data on participation in all recreation activities (hunting, fishing, hiking, camping, backpacking, biking, skiing, wildlife watching, boating, ORV use, etc.), as well as data on expenditures by recreation visitors in the region. If these are not readily available they should be collected. These data should be used to analyze the economic impact of expenditures by recreationists, hunters and anglers on area businesses and local economies. Also, the analysis should examine the role of lodging taxes, sales taxes and property taxes in the local economy. Finally, the potential impact of public land management

alternatives on recreation, hunting and fishing businesses should be examined.

RECOMMENDATION 4. The socioeconomic analysis of oil and gas drilling proposals must be based on the oil and gas resources that are economically recoverable, not the resources that are only technically recoverable. The economic analysis of recoverable resources should fully account for the hidden costs to communities and the environment associated with drilling (Morton et al. 2004).

Recent energy-driven land management plans have consistently exaggerated the energy potential of public lands by ignoring the observable economic costs of drilling and production. Such oversight



will also exaggerate the importance of the oil and gas industry in the regional economy. In addition, oil and gas drilling is associated with hidden costs—increased road maintenance and law enforcement costs, increased air and water pollution, declining property values, etc.—that must be internalized in the socioeconomic analysis completed in support of decisions affecting public land. For more details on these recommendations see Morton et al. (2004).

Plan for Amenity Development

Protecting public lands can also lead to development, and managing this development is important to ensure the protection of natural amenities. While amenity development may be a desirable alternative to the boom and bust of an extractive industry-based economy, it does—like any development—have economic and ecological costs (Hansen et al. 2002, Rasker et al. 2004). Ironically, some of these costs are similar to the hidden costs associated with oil and gas drilling. For example, negative ecological effects of amenity development can include loss of native species, changes in natural disturbance regimes (such as wildfires) and the spread of invasive species (Hansen et al. 2002). In addition, areas that grow too quickly, regardless of the drivers of this growth, can experience rising housing costs (Morton 2000, Rasker et al. 2004). This can sometimes squeeze long-time residents out of the area, diminishing the social amenities that drew new residents to the area in the first place. Community planners must prepare for these possibilities and develop strategies to ensure that an “amenity boom” doesn’t have the same negative impacts as an oil and gas boom.

The Sonoran Institute (2007) succinctly states the challenges faced by growing communities in the Rockies:

Ranches and open space are giving way to subdivisions. Homes and jobs are often far apart, and streets are gridlocked. Many rural communities outgrow their small town character. Retirees also look south of the border for affordable, resort-style living. Sources of energy and water are strained.

Communities that take an active role in planning for amenity-driven growth are better able to face these challenges and find a balance between growth and

Building a Wilderness Business in Choteau, Montana

Gene Sentz first hiked into Montana’s Rocky Mountain Front more than 40 years ago. A retired teacher who still works as a mountain guide and mule packer out of Choteau, Montana, Sentz

Gene Sentz *Wilderness Guide*



has long known that protected, pristine places provide both a high quality of life and solid economic opportunities.

Reflecting on the Front, Sentz says: “I knew I’d found heaven. The discovery was confirmed when I landed a seasonal job in the mountains and rode horseback into the Bob Marshall Wilderness. The ‘Front’ has been my home ever since.

“Today more and more Americans are attracted by, and have come to treasure, our national wildlands in the West,” continues Sentz. “The intrinsic values of these precious public lands naturally cause citizens to want to live and work near them.”

Sentz feels extremely fortunate that the niche he’s carved out for his business, guiding hunters and summer guests along the peaks and prairies that make up the Front, enables him to experience some of his favorite wild places daily: “The splendid alpine scenery, unbeatable wildlife resource and unbroken habitat of this special place are the qualities that drew me here to begin with.”

He adds, “The more we experience our public lands, the more we want to keep them free from misuse. We learn to love them like part of ourselves.”

maintaining their quality of life (Howe et al. 1997). It is also important for communities to make sure that the broadest spectrum of residents participate in the

planning process, and that the process is based on a sound understanding of local resources and utilizes the assets and human capital already existing in the community. Successful communities also take an active role in protecting local amenities by purchasing open space and implementing other strategies, such as conservation easements, which complement the existing management of local public lands. Another land management planning strategy that can help to ensure that the ecological values and amenities of open space and wildlands are protected include integrating private and public land management (Hansen et al. 2002). By employing such strategies, communities can slow down the pace and scale of amenity-based development, ensuring that scenic beauty, small-town character and a sense of community are not sacrificed in the name of growth.

The Rocky Mountain region can capitalize on its wealth of natural amenities and still retain the high quality of life that residents treasure by maintaining a diverse economy (including a diverse service sector), maintaining affordable housing, developing carefully planned growth guided by zoning and protecting open space (including agricultural lands and ranches).

Slow the Pace of Oil and Gas Drilling

Much of our discussion of the threats to economically important natural amenities has centered on oil and gas drilling. Economic diversity is the key to sustaining healthy communities over the long term, and the oil and gas industry can be a part of a diverse mix of industries in the Rockies. However, when drilling takes place at the rapid pace and over the large expanses of land as seen in recent years, our natural amenities suffer, leaving western communities more vulnerable to the inevitable downturns in the oil and gas industry.

By slowing the pace of oil and gas development, the upheaval and loss of economic diversity can be minimized (Haeefe and Morton 2007). While some places are simply too wild to drill and should be protected, in areas where drilling is appropriate we recommend phased development of oil and gas resources. Phased development involves incrementally opening an area for development, limiting the total area developed and/or limiting the percent of the area disturbed at any one time. Phased development

BELOW: Air pollution from oil and gas operations (such as this compressor station) near Pinedale, Wyoming, has resulted in declining visibility in the nearby Bridger Wilderness Area and Yellowstone National Park.



can also involve: 1) limiting the number of drilling permits that will be granted; 2) limiting the number of rigs permitted to operate in an area at one time; and 3) developing one area at a time, only moving to a new area once the first area is fully restored to baseline conditions.

Collecting baseline data and monitoring socioeconomic and environmental impacts are essential components of phased development. Oil and gas drilling would be initiated at a small scale and expanded only if the monitoring data show no significant environmental or socioeconomic impacts, and show that disturbed areas have been successfully restored to prior conditions. Implementing phased development can help moderate the boom and bust impacts of oil and gas drilling on communities, protect the other values associated with public lands and protect the natural amenities that are the backbone of the western economy.

Extending the period over which the development takes place will allow communities to better absorb the social and economic impacts of oil and gas development. The potential influx of new residents will be dampened. At the same time it may be more likely that local residents will have time to acquire the skills necessary to take advantage of the employment that drilling and

Conclusion

The Rocky Mountain region is one of the fastest growing in the country. This growth is fueled in part by an abundance of protected public lands and the natural amenities they provide. These trends are likely to continue and even intensify in the future. The current boom in oil and gas drilling, however, is threatening the long-term health of the West's regional and local economies. We hope that this report and the recommendations contained within will provide citizens, communities and decision makers with better information for balancing the extraction, recreation and amenity values of our public lands in the Rocky Mountains.

production may bring. This may reduce many of the negative social impacts of rapid oil and gas drilling and reduce the added costs to communities. Revenue to the local government will be spread out over a longer time, allowing for a longer, more predictable and stable revenue stream (Haeefe and Morton 2007).

Getting Inspired to Make a Difference in Paonia, Colorado

Chaco was founded in 1989 in the small western-Colorado town of Paonia. After rafting the Gunnison River, which flows through town, river guide and custom footwear maker Mark Paigen realized that Paonia's mild climate and slow pace of life made it a great place to live and build a business. He set up shop near the banks of the Gunnison and set out to create a great-fitting river sandal that would outlast the competition—one that could be repaired rather than thrown into a landfill.

Now, Chaco employs 143 people, distributes its products in 21 countries, and continues to cultivate a business model and corporate culture inspired by its beautiful natural setting. Chaco donates 10 percent of its profits to organizations dedicated to caring for people and the planet, for example, and pays its employees to bike to work, volunteer their time and advance their education. In a town like Paonia, where bike paths glide past pleasant scenery and opportunities to get involved in the community abound, it's easy for employees to make a difference in these ways.

With a keen understanding of what's at stake, Chaco has watched with concern as the Rocky Mountain region has become ground zero for rapid oil and gas development. In response, the company has become involved in efforts to find a path away from fossil fuels. This year, Chaco purchased 500 megawatt-hours of wind-powered Green Certificates to match 100 percent of the company's electrical usage and reduce its carbon dioxide emissions by nearly 700,000 pounds.



Chaco
Casual Footwear Manufacturer

End Notes

¹ Wildlands on federal public lands include National Parks, designated Wilderness Areas, Wilderness Study Areas, Citizen-Proposed Wilderness Areas, Roadless Areas, National Monuments, National Wildlife Refuges and public land in the Bureau of Land Management's National Landscape Conservation System.

² See for example: "Silt couple selling 110-acre ranch," *Grand Junction Daily Sentinel*, 26 February 2007; "Boom hits county roads," *Casper Star-Tribune*, 13 December 2006; "Poachers making a killing in West's oil, gas fields," *USA Today*, 15 February 2007; and "Boomtown Blues," *The New Yorker*, 5 February 2007.

³ It should be noted that while many communities in the Rockies do receive a great deal of income from oil and gas royalties and other taxes, these revenues should be considered in their proper context—compared with the many costs that oil and gas drilling imposes on communities. When these costs are considered, revenue from oil and gas drilling will be less important to the overall economy even in these communities.

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Page 16	Willow Canyon Outdoor by Allen Gilbert
Page 17	Skiier by Pete Morton
Page 18	Stream by Mike Knowles; Jeff and Kim courtesy New Belgium Brewing
Page 19	Scree Lake by John McCarthy/TWS; Agave by Susan Solarz/TWS
Page 20	Courtesy Gene Sentz
Page 21	Compressor station by Pete Morton
Page 22	Courtesy Chaco
Page 28	Salida by Michelle Haefele
Inside back	Pronghorn by Pete Morton
Back	Campers courtesy Mark Good/WildMontana.org; Mountain goat courtesy USFWS; Hikers by Pete Morton

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Sources of Data

High-quality data are important for thorough and accurate assessments of a community's economy and the potential impacts of public land management alternatives. This section presents several sources of data at both the state and national levels that are available for both land managers and community residents.

Economic and Demographic Data

Data are available for several economic indicators by county from the U.S. Department of Commerce, Bureau of Economic Analysis, and the U.S. Department of Labor, Bureau of Labor Statistics. The U.S. Census Bureau also tracks economic trends along with demographic trends, most by county as well. Economic profiles showing these and other trends for selected states and counties are available at The Wilderness Society's website, www.wilderness.org.

Selected National Level Economic and Demographic Data Sources:

Bureau of Economic Analysis (U.S. Department of Commerce):
<http://www.bea.doc.gov>

Data on income, farm income, transfer payments and employment for states, counties and regions. Annual data, 1969-2000 (Standard Industry Classification) and 2001-forward (North American Industry Classification System).

Bureau of Labor Statistics (U.S. Department of Labor): <http://www.bls.gov>

Data on income, wages and salaries, employment and unemployment rates by industry, for counties, states and regions. Monthly data, 1990-2005.

Census Bureau (U.S. Department of Commerce): <http://www.census.gov>

Data on population, demographics and businesses for states and counties.

Regional Asset Indicators, Federal Reserve Bank of Kansas City:
http://www.kc.frb.org/RuralCenter/Indicators/Indicators_main.htm

Indicators for every county in the United States covering entrepreneurship, wealth, creative workers, amenities and other attributes.

U.S. Department of Agriculture, Economic Research Service:
<http://www.ers.usda.gov/Data/>

Data on natural amenities, the creative workforce, the level of urbanization and other attributes for every county in the United States.

The Sonoran Institute Economic Profile System: <http://www.sonoran.org>

Generates detailed economic profiles, including trends in employment and income, farm income, economic resilience and demographics for states, counties or groups of counties. The companion, Economic Profile System—Community (EPSC), will generate profiles to reflect just the rural or urban areas of a county.

Rasker et al. (2003) show trends in income and employment for the entire western United States, using output from the Economic Profile System.

See the EPS users manual for more information: Sonoran Institute. 2004. *Economic Profile System Users Manual*. Sonoran Institute, Tucson, AZ. Available from http://www.sonoran.org/programs/socioeconomics/si_se_manual.html.

Selected State Economic and Demographic Data Sources:

Colorado Economic and Demographic Information System:
<http://www.dola.state.co.us/is/cedishom.htm>

State of Idaho, Division of Financial Management: <http://dfm.idaho.gov/>

Montana Census and Economic Information Center (CEIC):
<http://ceic.commerce.state.mt.us/>

New Mexico Labor Market Information: http://www.dol.state.nm.us/dol_lmif.html

New Mexico Economic Development Data Center:
<http://www1.edd.state.nm.us/index.php?/data/C31/>

Utah Governor's Office of Planning and Development, Demographic and Economic Analysis: <http://www.governor.utah.gov/ideal/>

Wyoming Department of Administration and Information, Economic Analysis Division: <http://leadiv.state.wy.us/>

Recreation Data

Data on recreation use in the area where a land management plan is being developed are critical to making an informed decision. Surveys of users at recreation areas can be utilized to obtain information on the levels and types of recreation use. Information on users' expenditures in the area is also important to learn the overall economic impact of public lands recreation. Federal land management agencies collect some data on recreation use of public lands. The Bureau of Land Management's Recreation Information Management System (RIMS) and the USDA Forests Service's National Visitor Use Monitoring System (NVUMS) are two examples.

The Outdoor Industry Foundation has also done research on active recreation participation (OIF 2006a) and on the economic impacts of this participation (OIF 2006b). These and other reports are available from <http://www.outdoorindustryfoundation.org/resources.research.html>.

Other information may be obtained through surveys of local residents and recreation visitors, and by using existing data on the recreation and tourism revenues to local businesses and the value of these activities to participants. The lack of complete visitation data does not justify ignoring the jobs and income from recreation. Furthermore, the Data Quality Act requires use of the best available, reliable data on all impacts and affected sectors of the economy.

Several examples of research on recreation use, values to participants and expenditures are available (a very limited sample includes: Fix and Loomis 1997, Chakraborty and Keith 2000, Loomis 2000, Cordell and Tarrant 2002, Kaval and Loomis 2003). Rosenberger and Loomis (2001) present a detailed bibliography of recreation valuation studies and present methods by which analysts can transfer estimates of the value of recreation in one area to other similar areas.

Data on Hunting, Fishing and Wildlife Watching:

The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation:
<http://www.census.gov/prod/www/abs/fishing.html>

Data at the state level on participation in and expenditures for wildlife-associated recreation from the U.S. Department of the Interior, Fish and Wildlife Service and U.S. Department of Commerce, Census Bureau.

The link above contains detailed reports for each state from the 2001 report. A more recent (2007) preliminary national summary is available from http://library.fws.gov/nat_survey2006.pdf.

Colorado Division of Wildlife: <http://wildlife.state.co.us/index.asp>

Idaho Fish and Game: <http://fishandgame.idaho.gov/>

Montana Fish, Wildlife, and Parks: <http://fwp.state.mt.us/default.html>

New Mexico Game and Fish: <http://www.wildlife.state.nm.us/index.htm>

Utah Division of Wildlife Resources: <http://wildlife.utah.gov/index.php>

Wyoming Game and Fish: <http://gf.state.wy.us/>

Industry Classification Using SIC and NAICS

Over the years there have been changes in the way that government agencies classify various industries. Income and employment data from the Bureau of Economic Analysis and the Bureau of Labor Statistics for 1969-2000 are classified according to the Standard Industry Classification system (SIC), while the most recent data (2001 and forward) are classified by the North American Industry Classification System (NAICS). NAICS was developed jointly by the United States, Canada and Mexico in order to make statistics comparable across all three countries.

NAICS provides greater detail for the service and professional sectors, which are of growing importance in the rural West and indeed all over the country. This classification scheme also includes some emerging industries such as “information,” which includes the growing Internet and information phenomenon. The Bureau of Economic Analysis’s Regional Economic Information System (REIS) uses SIC to classify industries and the Sonoran Institute’s Economic Profile System uses SIC data from the REIS in order to show trend analyses, along with NAICS data.

We have used both SIC and NAICS data to show long-term trends in this report. In Figure 2, Farming and Ranching includes the following SIC categories for 1970-2000:

- Farm proprietors’ income
- Farm earnings
- Agricultural services
- Fishing

The NAICS categories included for 2001-2005 are:

- Farm proprietors’ income
- Farm earnings
- Fishing, hunting and trapping
- Agricultural and forestry support activities

Also in Figure 2, the Timber Industry includes the following SIC categories (1970-2000):

- Forestry
- Lumber and wood product manufacturing
- Paper and allied products manufacturing

The NAICS categories included for 2001-2005 are:

- Forestry and logging
- Wood product manufacturing
- Paper manufacturing

In Figure 4, Professional & Service Sector Income includes the following SIC categories (1970-2000):

- Eating and drinking places
- Finance, insurance and real estate
- Services

The NAICS categories included for 2001-2005 are:

- Finance and insurance
- Real estate and rental and leasing
- Professional and technical services
- Management of companies and enterprises
- Administrative and waste services
- Educational services
- Health care and social assistance
- Arts, entertainment and recreation
- Accommodation
- Food services and drinking places
- Other services, except public administration

Also in Figure 4, Extractive-Industry Income includes the following SIC categories (1970-2000):

- Farm proprietors’ income
- Farm earnings
- Agricultural services, forestry, fishing
- Mining
- Lumber and wood products manufacturing
- Paper and allied products manufacturing

The NAICS categories included for 2001-2005 are:

- Farm proprietors’ income
- Farm earnings
- Forestry, fishing, related activities
- Mining
- Wood product manufacturing
- Paper manufacturing

Total Non-Labor Income consists of transfer payments plus dividends, interest and rent. (There is no difference in non-labor income between the two classification systems; a break was included in this line in order to avoid obscuring the break in the Professional and Service Sector Income line.)

Despite incompatibilities between these classification systems, one can certainly look at a general picture of the economy over time by using both sets of data. This analysis should be applied to all the segments of the economy to see the long-term trends in both extractive and other industries along with non-labor income.

Protected Public Lands

In 1964 Congress passed the Wilderness Act which allowed for certain areas of public lands to be protected from development as part of a National Wilderness Preservation System. Described by Aldo Leopold (1949) as “...a resource which can shrink but not grow,” designated Wilderness comprises 107 million acres nationwide.

Wilderness Areas are designated by Congress, and defined by the Wilderness Act as places “where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.” Designation is aimed at ensuring that these lands are preserved in their natural condition. Wilderness Areas offer outstanding opportunities for solitude or a primitive and unconfined type of recreation; such areas may also contain ecological, geological or other features that have scientific, scenic or historical value.

Other types of protected public wildlands include National Parks, National Monuments, National Conservation Areas, Wilderness Study Areas, Citizen-Proposed Wilderness Areas, Forest Service Roadless Areas, National Wild and Scenic Rivers, National Scenic Trails and National Historic Trails. While many of us are familiar with National Parks, some of the other designations are less well known. These are defined below.

National Monuments are established by the president (under the authority of the Antiquities Act of 1906) or Congress to protect objects of scientific and historical interest that are located on federal land.

National Conservation Areas are designated by Congress to provide for the conservation, use, enjoyment and enhancement of certain natural, recreational, paleontological and other resources, including fish and wildlife habitat.

Wilderness Study Areas are designated by the managing agency (for example, the Bureau of Land Management or the Forest Service) as having potential wilderness characteristics, thus making it worthy of consideration by Congress for Wilderness designation.

Continued on next page

Citizen-Proposed Wilderness Areas also have wilderness characteristics that have been identified through on-the-ground inventories conducted by citizens, who consider the areas to be worthy of Congressional designation as Wilderness and have brought them to the attention of the federal land management agency.

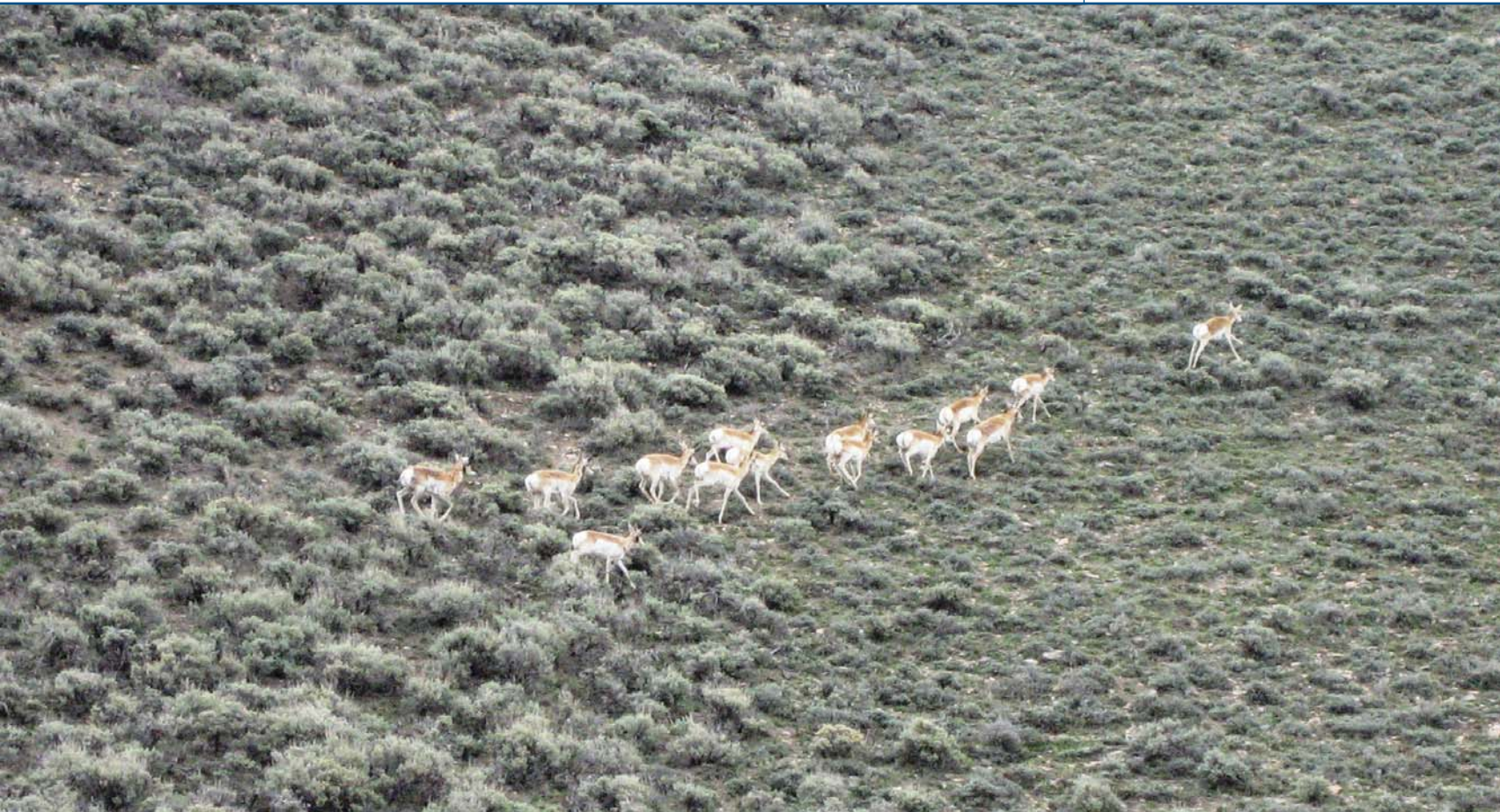
Forest Service Roadless Areas represent additional wild lands in the National Forests which have wilderness characteristics and are also expected to merit Congressional designation as Wilderness.

National Wild and Scenic Rivers are designated by Congress, under the authority of the Wild and Scenic Rivers Act, to protect remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values and to preserve the river or river section in its free-flowing condition.

National Scenic Trails and National Historic Trails are designated by Congress under the National Trails System Act, and offer exceptional outdoor recreation along trails that have scenic, historical, natural or cultural values. Designation protects the routes and their artifacts for public use and enjoyment.



ABOVE: Salida, Colorado was named one of America's best towns by Outside (August, 2004), in part because of the access to abundant outdoor recreation on nearby public lands.



THIS PAGE: Wildlife — like these pronghorn in Wyoming's Upper Green River Valley — are an important factor in attracting economic activity throughout the West.

BACK COVER, TOP: Public lands in the Rockies provide many places for family camping, such as alongside this Montana river.

MIDDLE: Mountain goats are found only in North America and are the largest animals to inhabit the high alpine regions of the Rockies.

BOTTOM: Breaking camp in Utah's canyon country.



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