

Chapter 5 PUBLIC CONSERVATION LANDS AND RURAL ECONOMIC GROWTH

INTRODUCTION

The economic structure of rural communities across the United States is typically thought of as one that is dependent on agricultural production or resource extraction. However, the natural amenities supplied by conservation lands in rural areas can also be an important supporter of service-oriented industries related to outdoor leisure and recreation activities. Publically owned conservation lands can play a major role in rural areas through the provision of natural amenities that facilitate engagement in numerous outdoor recreation activities, such as fishing, hunting, bird-watching, hiking, and boating. The conservation lands found in many rural areas can also serve as an attractant to households specifically looking for access to the natural amenities they offer and their contribution to overall quality of life. Combined with technological advances that have made it less necessary for businesses to be located in central city areas, publicly conserved lands and their influence on quality of life are increasing becoming a factor in the location decisions of businesses as well as serving as a tool for recruiting qualified employees.

As the largest federal land management agency in the United States, the U.S.

Department of the Interior (Interior) has the ability to play a role in shaping the economic and demographic profile of many rural communities through the diverse collection of conservation lands managed by its bureaus. For example,

- The U.S. Fish and Wildlife Service's (FWS) National Wildlife Refuge System of public lands and waters set aside to conserve America's fish, wildlife and plants spans more than 150 million acres,

In a nutshell

- ❖ Publically owned conservation lands can play a major role in rural areas through the provision of natural amenities that facilitate engagement in numerous outdoor recreation activities, such as fishing, hunting, bird-watching, hiking, and boating.
- ❖ Public lands in rural areas can serve as an attractant to households specifically looking for access to the natural amenities they offer and their contribution to overall quality of life.
- ❖ As the largest federal land management agency in the United States, Interior has the ability to play a role in shaping the economic and demographic profile of many rural communities through the diverse collection of conservation lands managed by its bureaus.
- ❖ Empirical research suggests that the environmental benefits of land conservation in rural areas do not come at the expense of diminished employment and economic growth. Additional analysis is warranted to better understand how the economic profiles of rural areas are affected over time from policies that change the landscape of conservation lands in surrounding areas.

555 national wildlife refuges (NWR) and other units of the Refuge System, plus 38 wetland management districts.²¹

- The National Park Service (NPS) manages over 397 units in the National Park system including 125 historic parks or sites, 75 monuments, 58 national parks, 25 battlefields or military parks, 29 memorials, 18 preserves, 18 recreation areas, 15 rivers and riverways, 10 seashores, four parkways, four lakeshores, three trails, and two reserves covering over 84 million total acres.²²
- The Bureau of Land Management's (BLM) National Landscape Conservation System (NLCS) includes over 886 federally recognized areas and approximately 27 million acres of national monuments, national conservation areas, wilderness areas, wilderness study areas, wild and scenic rivers, national scenic and historic trails, and conservation lands of the California desert.²³ BLM also manages many other lands for conservation purposes.

This chapter discusses some of the different ways public land conservation efforts can influence rural communities. Information specific to Interior's land conservation activities in rural communities is presented along with information from the literature analyzing the effects of broader land conservation efforts on the economic and social structures of rural areas. The remainder of the chapter proceeds as follows. The next section highlights some of the economic contributions Interior's conservation lands have on rural communities by providing state level estimates of jobs supported in rural areas from recreation visitation to Interior lands. A broader discussion of the literature related to how public land conservation affects rural county economic growth is then presented followed by preliminary information from a forthcoming analysis of Interior's conservation lands in the rural United States. Case studies with information on the economic contributions of select Interior recreation sites located in rural areas are provided next. The chapter ends with some concluding remarks.

CONTRIBUTIONS OF INTERIOR'S CONSERVATION LANDS IN RURAL COMMUNITIES

Public lands (through recreation visits, natural resource management activities, and amenity values) can help support a stable work-force that is important to the economic health of the communities and regions where these activities take place. While it is difficult to fully quantify the many ways Interior contributes to rural communities, one way to illustrate the role Interior plays in many rural areas of the United States is to look at estimates of employment associated with recreational use at Interior sites. The information presented below shows the number of jobs supported in rural areas by visitation to Interior recreation sites. Additionally, case studies are presented to highlight how specific National Parks, National Wildlife Refuges, and BLM recreation sites can play a role in rural communities throughout the country.

The estimation of economic contributions to rural communities from recreational use at Interior sites relied on a common approach for identifying rural areas by using the Office of Management and Budget's (OMB) official metro-non-metro classification status for all U.S. counties and county equivalents. According to the latest available OMB metro or non-metro status of counties that is based on 2000 Census data, there are 2,052 non-metro counties, which contain 75 percent of the Nation's land, and are

²¹ Source: <http://www.fws.gov/refuges/>

²² Source: http://www.nps.gov/news/upload/NPS-Overview-2011_5-20.pdf

²³ Source: http://www.blm.gov/wo/st/en/prog/blm_special_areas/NLCS.html

home to 17 percent (49 million) of the U.S. population. For this analysis, it was assumed that rural counties correspond to OMB's official non-metro county designation.

In order to approximate the economic contribution of recreation at Interior sites in rural areas, state-level contribution estimates were apportioned by county using visitation data, and estimates for counties classified as rural were summed for each state.²⁴ First, the number of recreation visits was estimated at the county level, where it was assumed total recreation visits to a site were equally divided across each county associated with the site (e.g., if three counties were associated with a particular site, then each county was assumed to represent one-third of the total visitation to that site). County level estimates of recreation visits were summed over all counties within a state to determine total state recreation visits. County level estimates of recreation visits were also summed over counties identified as rural to determine total state recreation visits in rural counties. The ratio of total state recreation visits in rural counties to total state recreation visits was then applied to the state level estimates of economic contributions to determine the state level economic contributions associated with rural counties. This methodology was applied separately for visitation and state level economic contribution estimates generated for recreation sites managed by the BLM, FWS, and NPS.²⁵

The estimated employment and output contributions associated with visitors to Interior's recreation sites vary across the rural areas of the United States, where Interior-supported jobs can have a major contribution in isolated rural locations. The analysis conducted indicates the following:

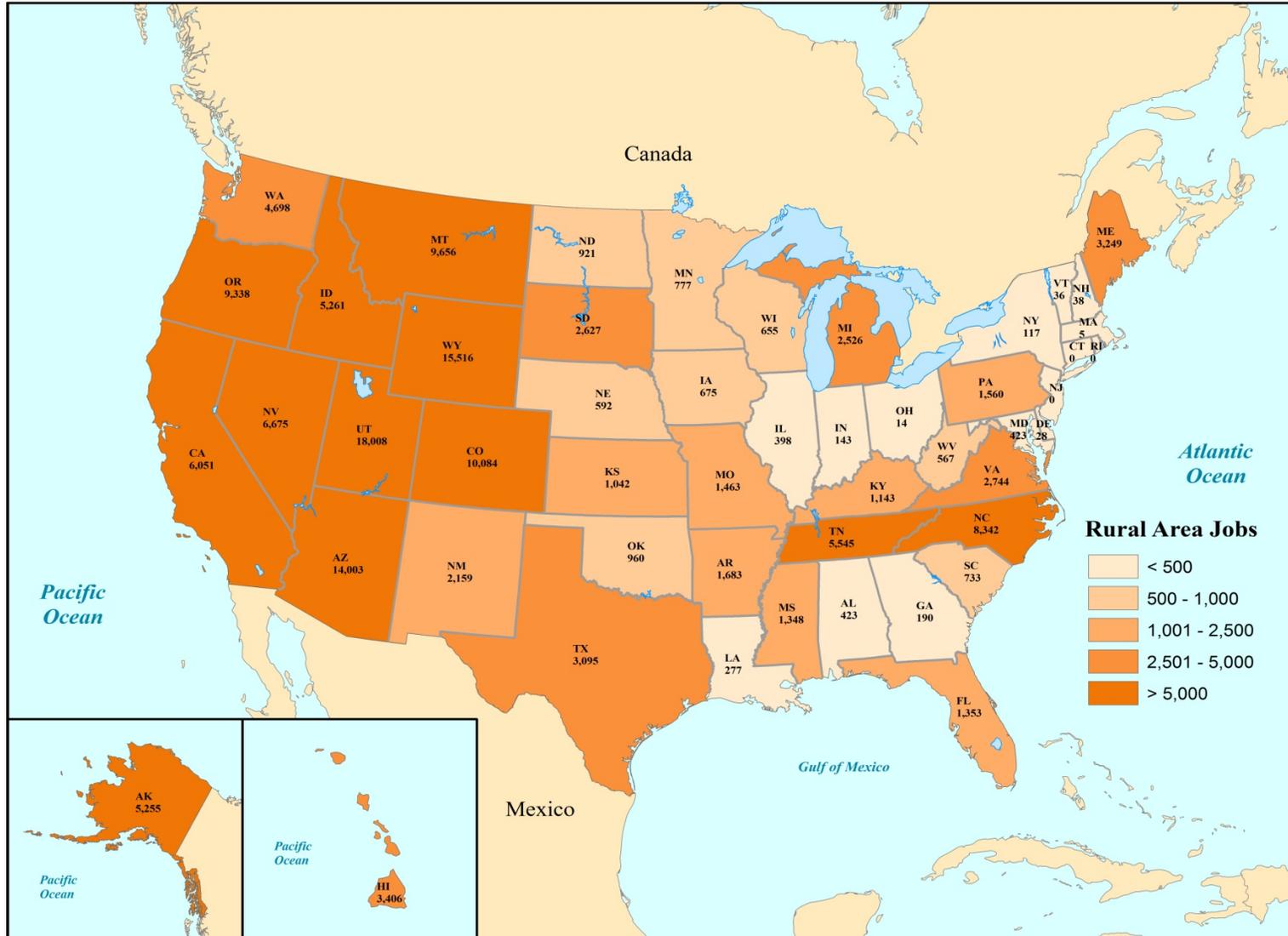
- Visitation to Interior sites supports thousands of jobs in rural areas of Utah (18,008 jobs); Wyoming (15,516 jobs); Arizona (14,003 jobs); Tennessee (5,545 jobs); and Colorado (10,084 jobs).
- Visitation to Interior sites also supports a significant number of rural jobs in states where most counties are rural, including Montana (9,656 jobs); Nevada (6,675 jobs); Washington (4,698 jobs); and Idaho (5,261 jobs).
- Interior's sites support rural jobs in States where the majority of the population is rural: Vermont (36 jobs); Maine (3,248 jobs); West Virginia (567 jobs); and Mississippi (1,348 jobs).
- Interior's sites support rural jobs in states with large rural populations: Texas (3,095 jobs); North Carolina (8,342 jobs); Pennsylvania (1,560 jobs); Michigan (2,526 jobs); New York (117 jobs); and Georgia (190 jobs).

Figure 5-1 shows the jobs supported by FY 2011 recreation and tourism on Interior-managed lands in areas classified as rural, with the most recreation-related employment occurring in the rural areas of Utah, Wyoming, Arizona, and Colorado. The top five and eight of the top ten states in terms of recreation jobs supported in rural areas are located in the western United States.

²⁴ Ideally, economic contributions in rural counties would be estimated using county level IMPLAN data and additional information/data on the recreation visit patterns for Interior managed sites to determine county level recreation visits. In the absence of county level data, national level IMPLAN data were apportioned at the county level to approximate rural economic contributions.

²⁵ The percentage of Bureau of Reclamation recreation in rural areas was estimated based on PILT acreage due to the absence of site-specific visitation data.

Figure 5-1. Jobs in Rural Areas Supported by Visitors to Interior Recreation Sites



EFFECTS OF CONSERVATION ON THE GROWTH OF RURAL COMMUNITIES

Rural areas can offer a variety of characteristics that are attractive to many segments of the population. The economic structure of rural communities is often viewed as one that is dependent on agricultural or resource extraction activities and the industries that directly or indirectly support them. With the population's continued interest in outdoor recreation and desire for access to natural amenities, rural communities are now becoming increasingly intertwined with service-oriented sectors supporting natural resource dependent recreation and leisure activities. Conservation lands found in many rural areas can also serve as an attractant to households and businesses looking for the natural amenities offered and their contribution to overall quality of life. Proximity and access to such areas can also serve as a valuable tool for businesses to recruit employees. However, there has been considerable debate about the importance of conservation lands to rural communities. Opponents to land conservation policies argue that placing areas in a protected status hinders local economies by keeping potentially valuable resources out of development or productive use. Land conservation proponents emphasize the importance of the recreational activities supported, the natural amenities offered to local residents, and the overall suite of ecosystem services provided the lands (e.g., clean air, clean water, and flood protection).

The previous section of this chapter described economic contributions from expenditures associated with visitation to Interior-managed recreation sites. While this approach does provide one indication of how areas surrounding Interior's lands may be affected, it is limited in that it does not provide insight into the multiple ways land conservation can influence the social and economic structure of rural communities. However, developing an understanding of the many ways land conservation can affect rural communities is complicated by the fact that the amenity attributes provided by land conservation are latent non-market inputs into the production process of local economies (Deller et al., 2001 and Marcouiller 1998). Areas once viewed as a source of production of raw materials from extraction activities are now being viewed as valuable for their recreational opportunities or the scenic vistas offered to nearby homeowners (Deller et al., 2001). As such, it is important to capture the non-market attributes provided from land conservation to understand how land conservation affects the economic structure and growth of rural communities. The extent these various non-market attributes play a role, their identification could be important to consider in the development of policy (Deller et al., 2001).

One way the natural amenities and recreational opportunities provided from land conservation can affect the economic structure of a rural community is to serve as a base for tourism. Rural economies are affected by tourists from the injection of new dollars they bring for local businesses, supporting local tax bases, and creating increased demands for locally available land, labor and capital (English, Marcouiller, and Cordell 2000). In particular, the tourist expenditures associated with the recreational use of protected lands creates demands for goods and services that support jobs and incomes for the residents of local communities in rural areas (English, Marcouiller and Cordell 2000; Johnson and Moore 1993; English and Bergstrom 1994). While a tourism sector has not necessarily been clearly defined in terms of a sector of the overall economy, most of the expenditures made by tourists are typically associated with the following economic sectors: lodging (including hotels, motels campgrounds, and inns), eating/drinking (restaurants and bars), retail (grocery stores, gas stations, and gift shops), and recreation services (ski areas, golf courses, and amusement parks) (English, Marcouiller and Cordell 2000). As such, rural communities with sizable areas of protected conservation lands nearby can have a large portion of the

economic activity in these sectors influenced by the visitors to the conserved lands (English, Marcouiller and Cordell 2000).

While economic activity of rural areas can be heavily dependent on the amenities and recreational opportunities nearby conservation lands offer, one criticism is that growth or changes in overall employment levels and incomes of these communities are lower when compared to other rural areas without such protected lands. Furthermore, in areas of heavy federal land ownership that enable resource extraction activities to occur, changes in land management policies that place more restrictions on such activities are typically met with strong opposition from members of the local community and industry (Duffy-Deno 1998). In general, concerns about additional land conservation efforts are commonly centered on the apparent tradeoffs that need to be made between jobs and the environment (Lewis, Hunt and Plantinga 2002).

A considerable amount of empirical research has been conducted investigating the many issues surrounding the relationship between natural amenities, including public land conservation efforts, and changes in the economic structure of local communities. Studies have varied in terms of the geographic scope, where many have focused on rural areas, and the way in which natural amenities and land conservation efforts are taken in to account.

Deller et al., (2001) and Deller and Lledo (2007) applied the principal components method to compress a range of indicator variables into separate measures of local amenities to determine their effect on changes in income, population, and employment in rural counties of the U.S. Local amenity measures were developed associated with climate, built recreational environment, land, water, and winter. Rural county population, employment, and income growth rates were found to be positively influenced by the built recreational environment amenity measure in Deller et al (2001), while Deller and Lledo (2007) only found this to hold for population and employment growth with no effect on income growth.²⁶ The land amenity measure, designed to describe the terrain and land resources with a county, was only found to have a positive relationship with employment and population growth rates in rural counties with no effect on income growth in Deller et al., (2001).²⁷ In contrast, Deller and Lledo (2007) found no relationship. Although these two studies do not find consistent positive relationships for the measures of built recreational environment and land index measures, the results do suggest that rural county population, employment, and income growth rates are not negatively influenced by public land conservation efforts and land management activities associated with recreational use.

While the analysis Deller et al., (2001) and Deller and Lledo (2007) focused on rural counties, local amenities were accounted for using broad measures of different amenity types that were essentially a linear representation of many variables. This limits the ability to isolate the effect of certain types of conservation lands that may be of particular interest. For example, the designation of federal wilderness areas has been controversial, particularly in western portions of the U.S. Opponents of federal wilderness designations commonly argue the use restrictions imposed will hurt local economies due to the access limitations on federal lands by extractive industries, while proponents say local amenity values are

²⁶ The developed recreational infrastructure index is dependent on the availability of parks, tennis courts, golf courses, and other such factors, where Deller et al., (2001) suggests the index may be measuring a “certain type of higher end resort-type community”.

²⁷ The land index measure was designed to “capture a region’s land resources, such as the percentage of acres included in federal wilderness areas, forestland, farmland, and state park land” (Deller et al., 2001).

enhanced and attract people and businesses, thereby offsetting any negative effects on extractive industries (Duffy-Deno 1998). Similarly, opponents to additional conservation of forest areas argue that a reduction in the land available for timber production will harm local economies and lead to out-migration, but proponents highlight the benefits from increased access to public areas for recreational activities (Lewis, Hunt and Plantinga 2002).

An analysis by Duffy-Deno (1998) that more narrowly focused on the effect of federal wilderness designations on rural county growth in the intermountain western United States found that Federally owned land in a county designated as a wilderness or a wilderness study area (measured as a percentage of county land area) was found to have no direct or indirect effect on population density or total employment density growth rates between 1980 and 1990. No evidence of county-level resource based employment being negatively affected was also reported. Lewis, Hunt and Plantinga (2002, 2003) examined the effect public lands had on changes in employment, migration, and wages for non-metro counties in the Northern Forest Region, where a county's share of public conservation lands was found to have no effect on employment or wage growth and a small positive influence on net migration rates in the 1990s. Additionally, Lorah and Southwick (2003) observed positive correlations between protected federal lands (defined as wilderness areas, national parks, national monuments and roadless areas) and population, income, and employment growth in rural counties of the western United States. In contrast, Eichman et al., (2010) found the Northwest Forest Plan's reallocation of federal land used for timber to conservation had a negative effect on employment growth rates in rural counties after 1994, but was partially offset by its positive influence on net-migration.

Overall, prior empirical research suggests a lack of consensus on the extent public land conservation affects rural county employment, population, and income growth rates. While support is not found for the notion that policies for additional public land conservation necessarily lead to an economic boon to rural communities, the results do consistently counter the argument that public land conservation harms rural economies. In general, policies that change the use of public lands from extractive or resource production to more of a conservation focus may simply result in shifts in the type of economic sectors supporting a local community, such that losses in one or more sectors are offset by gains in other sectors of the local economy over time. Furthermore, the effects on rural communities or a rural area's ability to adjust may also vary geographically and depend on the inter-relationships between rural communities and the surrounding areas. Additional analysis of these factors would provide a valuable contribution to the overall understanding of how rural communities are impacted by public land conservation. Finally, beyond quantifying any employment, income, and population growth effects, analysis of the broader market and non-market economic effects of public land conservation efforts is important to understanding the full scope of their contribution on local communities.

INTERIOR'S CONSERVATION LANDS AND RURAL COUNTIES

As the largest federal land management agency in the United States, Interior has the ability to play a role in shaping the economic and demographic profile of many rural communities through the diverse collection of conservation lands managed by its bureaus. With the eventual goal of conducting a more formal analysis comparable to the studies described in the previous section, a preliminary assessment of U.S. Census and Bureau of Labor Statistics (BLS) data for rural counties and information on Interior's network of conservation lands is presented. For this preliminary assessment, Interior conservation lands

are defined as lands managed by the National Park Service; the FWS’s management of NWR, wetland management district and waterfowl production area lands; and BLM’s management of lands under the NLCS.

The identification of rural counties was based on information from the U.S. Department of Agriculture (USDA) Economic Research Service (ERS). The ERS developed a classification scheme that distinguishes metropolitan (metro) counties by the population size of their metro area, and nonmetropolitan (nonmetro) counties by the degree of urbanization and adjacency to a metro area or areas. The starting point of the ERS classification scheme is the grouping of all U.S. counties according to their official metro-nonmetro status as determined by the Office of Management and Budget (OMB). The ERS subdivided the metro category into three metro groupings, while the nonmetro category was subdivided into six nonmetro groupings. Overall, the ERS classification scheme results in a nine-part county codification.²⁸ The ERS explains that the codes allow county data to be broken up into finer residential groups beyond a simple metro-nonmetro dichotomy, which can be useful for analysis of nonmetro areas related to the degree of rurality and metro proximity.²⁹ Table 5-1 provides the definitions for the latest rural-urban continuum codes developed by the ERS.³⁰

Table 5-1. USDA Rural-Urban Continuum Code Definitions

Code	Definition
<u>Metro counties</u>	
1	Counties in metro areas of 1 million population or more
2	Counties in metro areas of 250,000 to 1 million population
3	Counties in metro areas of fewer than 250,000 population
<u>Nonmetro counties</u>	
4	Urban population of 20,000 or more, adjacent to a metro area
5	Urban population of 20,000 or more, not adjacent to a metro area
6	Urban population of 2,500 to 19,999, adjacent to a metro area
7	Urban population of 2,500 to 19,999, not adjacent to a metro area
8	Completely rural or less than 2,500 urban population, adjacent to a metro area
9	Completely rural or less than 2,500 urban population, not adjacent to a metro area

²⁸ Metro counties are distinguished by population size of the Metropolitan Statistical Area of which they are part. Nonmetro counties are classified according to the aggregate size of their urban population. Within the three urban size categories, nonmetro counties are further identified by whether or not they have some functional adjacency to a metro area or areas. A nonmetro county is defined as adjacent if it physically adjoins one or more metro areas, and has at least 2 percent of its employed labor force commuting to central metro counties. Nonmetro counties that do not meet these criteria are classed as nonadjacent.

²⁹ Source: <http://www.ers.usda.gov/Briefing/Rurality/RuralUrbCon>

³⁰ The latest version of the ERS rural-urban continuum codes were published in 2003 and are based on OMB’s official metro-nonmetro status determination announcement from June 2003 and 2000 Census data.

Table 5-6 provides information on population, per-capita income, median household income, employment, and unemployment rates for rural counties in the United States that contain some portion of Interior conservation lands. As stated previously, Interior conservation lands are defined as lands managed by the National Park Service; the FWS's management of NWR, wetland management district and waterfowl production area lands; and BLM's management of lands under the NLCS. Using the USDA rural-urban continuum codes, "rural" counties are defined in three ways.

- A rural county is defined as a county with a rural-urban continuum code equal to 4, 5, 6, 7, 8 or 9 (i.e., OMB's official designation of nonmetro status);
- A rural county is defined as a county with a rural-urban continuum code equal to 6, 7, 8 or 9; and
- A rural county is defined as a county with a rural-urban continuum code equal to 8 or 9.

Defining rural counties in these three ways was done simply as a form of sensitivity analysis based on different measurements for county rurality. The information presented in Table 5-6 should not be interpreted as implying Interior-managed conservation lands are the cause of any differences observed or that the addition of lands will lead to greater differences between counties with/without Interior conservation lands. Several unobserved factors could have an influence on the information presented below. The collection of additional data and the use of regression analysis are needed to properly determine the effect Interior-managed conservation lands have on rural counties.

Using the broadest classification scheme for rural counties, as defined by OMB's official designation of metro-nonmetro county status, those with Interior-managed conservation lands were found to have slightly higher population, per-capita income, median household income and employment levels; and marginally lower unemployment rates when compared to rural counties without Interior-managed conservation lands (see Table 5-6). In addition, counties with Interior-managed conservation lands also fared slightly better when looking at changes from 2000 for population, per-capita income, household income, and employment levels.

The second definition of rural counties defines a rural county in a more restrictive fashion using the ERS rural-urban continuum codes. In this instance, a rural county is defined as a county a rural-urban continuum code equal to 6 (urban population of 2,500 to 19,999, adjacent to a metro area), 7 (urban population of 2,500 to 19,999, not adjacent to a metro area), 8 (completely rural or less than 2,500 urban population, adjacent to a metro area) or 9 (completely rural or less than 2,500 urban population, not adjacent to a metro area). In general, the second definition of rural county places a tighter limit on county population levels as compared to the first definition that was based on OMB's official metro-nonmetro county status designation.

Based on the second definition of rural county, those with Interior-managed conservation lands were found to have slightly lower total populations as compared to counties without Interior-managed conservation lands. Consistent with the broadest definition, rural counties with Interior-managed conservation lands were also found to have slightly higher per-capita incomes, median household incomes, and employment levels and lower unemployment rates. When looking at changes from 2000, rural counties with Interior-managed conservation lands exhibited slightly larger increases in population, per-capita incomes, and median household incomes. All rural counties were found to have decreases in

employment levels, but those with Interior-managed conservation lands exhibit smaller decreases compared to counties without.

The third definition of rural county generated from the ERS rural-urban continuum codes defines rural county as a county with a rural-urban continuum code equal to 8 (completely rural or less than 2,500 urban population, adjacent to a metro area) or 9 (completely rural or less than 2,500 urban population, not adjacent to a metro area). This definition is the most restrictive in terms of population of the three used. As shown in Table 5-2, rural counties with Interior-managed conservation lands on average had populations of 7,699, almost 300 people fewer than rural counties without Interior-managed conservation lands. However, since 2000 rural counties with Interior-managed conservation lands grew by an average of 107 people compared to 32 people for counties without. Similar to the other two definitions for rural counties, per-capita incomes, median household incomes and employment levels were all slightly higher in rural counties with Interior-managed conservation lands compared to counties without. Since 2000, slightly higher increases in per-capita incomes and median household incomes were also found for rural counties with Interior-managed lands. Average unemployment rates for counties with Interior-managed lands (8.0%) were lower compared to counties without (8.4%) and the average decrease in employment since 2000 was also less severe in rural counties with Interior-managed conservation lands.

Table 5-2. Characteristics of Rural Counties with Interior-Managed Conservation Lands

Year 2010	Rural Counties		
	Counties with Interior Conservation Lands (average of counties)	Counties without Interior Conservation Lands (average of counties)	All Rural Counties (average of counties)
Rural County defined as Rural-Urban Continuum Code = 4, 5, 6, 7, 8 or 9			
Population	26,288	23,947	24,862
Change from 2000	1,414	859	1,075
Per-capita Income	\$21,366	\$20,130	\$20,613
Change from 2000	\$4,868	\$4,126	\$4,415
Median Income	\$40,482	\$38,226	\$39,107
Change from 2000	\$7,723	\$6,668	\$7,079
Employment	11,451	10,239	10,711
Change from 2000	42	-308	-172
Unemployment Rate	9.1%	9.2%	9.2%
Rural County defined as Rural-Urban Continuum Code = 6, 7, 8 or 9			
Population	17,015	17,278	17,178
Change from 2000	566	425	479
Per-capita Income	\$21,149	\$19,987	\$20,430
Change from 2000	\$4,949	\$4,208	\$4,491
Median Income	\$39,928	\$37,739	\$38,574
Change from 2000	\$7,863	\$6,762	\$7,182
Employment	7,355	7,328	7,338
Change from 2000	-99	-279	-210
Unemployment Rate	8.9%	9.1%	9.1%
Rural County defined as Rural-Urban Continuum Code = 8 or 9			
Population	7,699	7,995	7,875
Change from 2000	107	32	63
Per-capita Income	\$21,687	\$20,286	\$20,852
Change from 2000	\$5,618	\$4,738	\$5,093
Median Income	\$39,833	\$36,894	\$38,082
Change from 2000	\$8,687	\$7,137	\$7,763
Employment	3,390	3,353	3,368
Change from 2000	-59	-163	-121
Unemployment Rate	8.0%	8.4%	8.2%

RURAL AREA RECREATION CASE STUDIES

As shown in Figure 5-1, the expenditures associated with recreation activities at Interior-managed sites can provide a significant economic contribution to rural communities. In some particularly economically distressed rural areas where jobs are scarce, Interior-managed lands help provide a stable source of jobs and income.

The recreation case studies presented below, as well as additional examples in Appendix 4, provide a snapshot of the differing levels of economic support that recreational use at Interior-managed sites provide to selected rural communities. Areas where economic contributions are highlighted include the rural areas around Crater Lake National Park in Oregon, Great Sand Dunes National Park and Preserve in Colorado, Crab Orchard National Wildlife Refuge in Illinois, and Arches National Park in Utah. For context, the case studies profile some of the characteristics of the local area, including local area population and labor force, and annual visits to the site.

Crater Lake National Park (OR)

Crater Lake National Park is located in Klamath County, Oregon. This rural county has population of around 66,000 (Census, 2010), a labor force of 30,457 and an unemployment rate of 11.7 percent in April 2012. In 2010, Crater Lake National Park attracted 448,319 visits, and visitors spent an estimated \$34.1 million in the local area. Of this total, \$33.1 million came from non-local visitors. Total visitor spending contributed \$39.7 million in total output and supported 556 jobs. Crater Lake National Park helps provide a much-needed stream of income to a rural area facing continued economic hardship.



Crater Lake National Park (NPS)

Table 5-3. Crater Lake NP Totals (2010)

Visits (2010)	Area Unemployment Rate (April 2012)	Visitor Spending (\$ millions)	Total Output (\$ millions)	Estimated Total Jobs Supported (jobs)
448,319	11.7% (p)	\$34.1	\$39.7	556

Source: NPS; Bureau of Labor Statistics; (p) preliminary.

Great Sand Dunes National Park and Preserve (CO)

Great Sand Dunes National Park and Preserve is located in south central Colorado within or adjacent to the rural counties of Alamosa, Custer, Huerfano, and Saguache. The combined population of the four counties is about 34,000 (Census, 2010), with a combined labor force of 17,161 and a combined unemployment rate of 9.2 percent in April 2012. The National Park and Preserve attracted nearly 283,284 visitors in 2010, and visitors spent an estimated \$10.2 million. Of this total, \$9.6 million came



Great Sand Dunes NPP (NPS/Patrick Myers)

from non-local visitors. Total visitor spending contributed an estimated \$9.8 million in total output³¹ and supported 149 jobs in the local economy. Great Sand Dunes is illustrative of Interior’s contribution on a small rural community. Though the area population is only 34,000, Interior lands provided an important source of jobs and revenue.

Table 5-4. Great Sand Dunes NPP Totals (2010)

Visits (2010)	Area Unemployment Rate (April 2012)	Visitor Spending (\$ millions)	Total Output ³¹ (\$ millions)	Estimated Total Jobs Supported (jobs)
283,284	9.2% (p)	\$10.2	\$9.8	149

Source: NPS; Bureau of Labor Statistics; (p) preliminary.

Crab Orchard National Wildlife Refuge (IL)

Located west of Marion, Illinois, on the northern edge of the Ozark foothills, Crab Orchard National Wildlife Refuge is one of the largest refuges in the Great Lakes/Big Rivers Region. Total population of Williamson County where the refuge is located is 66,357 (Census, 2010). Established in 1947, the 43,890-acre Refuge includes three man-made lakes totaling 8,700 surface acres. The 4,050-acre Crab Orchard Wilderness, the first wilderness area designated in the State of Illinois, is within the Refuge. Crab Orchard National Wildlife Refuge received 714,918 total visitors in 2011, of which the refuge estimated there were 11,404 waterfowl hunting visits, 2,788 upland game hunting visits, 6,305 big game hunting visits and 170,634 fishing visits. Refuge visitors spent nearly \$7.9 million in 2011, contributing a total of \$15.0 million to the local economy and supporting 150 jobs.



Crab Orchard National Wildlife Refuge (USFWS)

³¹ Total output is less than visitor spending for Great Sand Dunes NPP. Estimation of total output is based on direct sales. This represents only a portion of visitor spending, as most of the manufacturing share of retail purchases (groceries, gas, sporting goods, souvenirs) is not included. We assume that most of the producer price of retail purchases immediately leaks out of the region to cover the cost of goods sold. Sales figures for retail and wholesale trade are the margins on retail purchases (Stynes, D.J., 2011). Depending on the magnitude of the difference between visitor spending and direct sales after accounting for this adjustment, running the estimate of direct sales through IMPLAN can lead to an estimate of total output that is lower than visitor spending.

Table 5-5. Crab Orchard National Wildlife Refuge Totals (2011)

Visits (2011)	Area Unemployment Rate (April 2012)	Visitor Spending (\$ millions)	Total Output (\$ millions)	Estimated Total Jobs Supported (jobs)
714,918	7.5% (p)	\$7.9	\$15.0	150

Source: FWS; Bureau of Labor Statistics; (p) preliminary.

Moab Utah

DOI lands provide significant recreational opportunities and related economic contribution in and around Grand County, Utah. Grand County has a population of around 9,225 (Census, 2010). The county had a labor force of 5,473 and an unemployment rate of 7.7 percent in April 2012. Arches National Park is located 5 miles north of Moab, Utah and encompasses 76,546 acres. The National Park attracted over a million visitors in 2010, and visitors spent an estimated \$105.1 million. All of these visitors were non-local. Visitor expenditures contributed \$105.9 million in total output to the local economy and supported 1,659 jobs.



The BLM Moab Field Office manages 1.8 million acres in this area. In 2010, BLM lands around Moab attracted over 1.2 million visits. Non-local visitors spent an estimated \$169.3 and supported 2,447 local jobs in 2010.

Arches National Park (NPS)

Table 5-6. Moab Utah Totals (2010)

	Visits (2010)	Area Unemployment Rate (April 2012)	Visitor Spending (\$ millions)	Total Output (\$ millions)	Estimated Total Jobs Supported (jobs)
NPS	1,014,405	7.7% (p)	\$105.1	\$105.9	1,659
BLM	1,258,456	7.7% (p)	\$169.3	na	2,447

Source: NPS; BLM; Bureau of Labor Statistics; (p) preliminary

CONCLUSION

As the largest federal land management agency in the United States, Interior has the ability to play a role in shaping the economic and demographic profile of many rural communities with its wide range of land management responsibilities. At times these management responsibilities can be in conflict with each other, where arguments for and against certain management actions are commonly expressed according to an apparent need to evaluate the tradeoffs between jobs and the environment. Furthermore, in areas of heavy federal land ownership that enable resource extraction activities to occur, changes in land management policies that place more restrictions on such activities are typically met with strong opposition from members of the local community and industry (Duffy-Deno 1998). Such concerns are of

particular interest to rural areas given their inherently greater reliance on fewer economic sectors as compared to urban areas.

In general, the empirical research suggests that the environmental benefits of land conservation in rural areas do not come at the expense of diminished employment and economic growth. While policies for public land conservation may not lead to an economic boon for rural communities, the research does consistently show that public land conservation does not harm rural economies. Policies that change the use of public lands from extractive or resource production to more of a conservation focus may simply result in shifts in the type of economic sectors supporting a local community, such that losses in one or more sectors are offset by gains in other sectors of the local economy. Furthermore, a rural area's ability to transition may also vary geographically and depend on the inter-relationships between rural communities and the surrounding areas. Additional analysis is warranted to better understand how the economic profiles of rural areas are affected over time from policies that change the landscape of conservation lands in surrounding areas. These issues are important to evaluate in regards to policies that both lead to additional land conservation as well as in those situations where conservation lands are being considered for more intensive resource uses. Finally, beyond quantifying any employment, income, and population growth effects, analysis of the broader market and non-market economic effects of public land conservation efforts is important to understanding the full scope of their contribution to local communities.

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