

Rio Grande National Forest – Assessment 6 Social, Cultural and Economic Conditions



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Introduction

The Rio Grande National Forest surrounds the San Luis Valley and its diverse landscapes provide habitat for fish and wildlife, forest products, forage for grazing and cultural and recreational opportunities. The Forest contains the headwaters of the Rio Grande, four wilderness areas and hundreds of miles of open roads and trails which are used for hiking, horseback riding, mountain biking and motorized recreation. These amenities are tremendously valued by area communities, within the San Luis Valley area and across the nation.

This assessment follows direction outlined in FSH 1909.12 Land Management Planning Handbook, Chapter 10 – The Assessment; Section 13.2 – Assessing Social, Cultural and Economic Conditions (01/30/2015).

Information Sources and Gaps

Sources of data for this assessment include various publicly available data from state and federal sources (as cited throughout. This includes, but is not limited to, the U.S. Department of Commerce Census Bureau, U.S. Department of Agriculture National Agricultural Statistical Service, State of Colorado’s Division of Local Government and the San Luis Valley Council of Governments. In addition, information sources include descriptions of relationships between communities and Rio Grande National Forest resources obtained from forest staff. The public engagement effort, in support of this assessment, was also a valuable source of information informing the assessment of social, cultural, and economic conditions.

Existing Forest Plan Direction

Forest wide Desired Conditions (Under Administrative, Rural Development on page I-6) includes language stating: “Recognizing the economic dependency of rural communities on National Forest System lands and resources, Forest managers cooperate with local rural communities to develop sustainable enterprises that contribute to the general economic and social vitality of the area. Forest managers also give sufficient advance notice to rural communities about potential changes that may affect local economies.”

Under Regional Objective 3 (Provide for multiple uses and sustainability of National Forests and Grasslands in an environmentally acceptable manner) Forestwide Objective 3.2 states “Emphasize long-term sustainable production of resources for economies, communities, and people” on page II-3. Under All objectives under Regional objective 8 (Promote rural development opportunities) relate to social and economic interests (page II-6):

- Objective 8.1. Be a leader in working with rural people and communities including American Indian tribes, to develop opportunities and enterprises that contribute to their economic and social vitality”.
- Objective 8.2. Recognize the nature and extent of local economic dependencies on National Forest activities. Give special attention to resource programs that help diversify rural economies.
- Objective 8.3. Coordinate with communities in achieving local goals. Participate with and give appropriate assistance to development groups. Be a predictable partner by giving sufficient advance notice about potential changes that may affect local economies.
- Objective 8.4. Use human-resource programs to achieve employment opportunities, while meeting natural-resource objectives.

Chapter 3, of the existing forest plan standards and guides, contains language pertaining to sawtimber utilization called economic standards. These are considered, in the section on Existing Forest Plan Direction, relating to the timber resource as described in the timber subsection of Assessment 8.

Scale of Analysis (Area of Influence)

Many communities surrounded by the forest and other nearby communities have longstanding social and economic ties to the natural and cultural resources of the Rio Grande National Forest. Since these communities may be affected by forest management decisions on the Rio Grande National Forest, it is important to examine existing socioeconomic conditions of a broader region in order to establish a baseline in which potential effects can be examined. In addition, this information will be used to help craft management alternatives. To more effectively examine the linkages between Forest Service lands and the local communities they serve, the geographic scope of this analysis has been expanded beyond Rio Grande National Forest boundaries to encompass a broader social and economic study area.

Communities within Alamosa, Archuleta, Chaffee, Conejos, Costilla, Fremont, Gunnison, Hinsdale, Huerfano, La Plata, Mineral, Montrose, Park, Rio Grande, Saguache, San Juan, Rio Arriba (NM), and Taos (NM) Counties were recognized as having the strongest social and economic ties to the Forest. This group of counties includes those that contain forest land (Alamosa, Archuleta, Conejos, Hinsdale, Mineral, Saguache and San Juan counties) and those that do not. Social, cultural and economic ties to these counties may be stronger within these core counties while other ties to communities, individuals and businesses exist beyond these counties. For example, timber and grazing uses are connected to individuals and permittees outside the core set of counties; for example in Gunnison, La Plata and Rio Arriba counties. In addition, recreation visitors to the forest come from outside the region and spend dollars outside the core set of counties before they reach the Rio Grande National Forest; for example, in Chaffee, Park and Fremont counties. These relationships result in social, cultural and economic ties that extend beyond the immediate vicinity of the forest's core set of counties. The set of eighteen counties are grouped as the study area since they are most likely to be affected by changes in forest management due to their reliance on forest resources to sustain the social, cultural, and economic well-being of their communities.

Tribal communities also have strong social and economic ties to the Rio Grande National Forest, but lie outside of these counties because they were removed from what are now Forest lands to reservations in Arizona, Colorado, New Mexico and Utah. Please see Assessment 12 for a more in depth analysis of these communities and their connections to the Rio Grande National Forest.

The following sections will examine trends and current conditions related to the social and economic environment within the counties mentioned above, including: population and demographic changes, potential environmental justice populations, and employment and income conditions. To ensure large scale impacts are addressed without masking changes in smaller regions, this analysis uses a multidimensional approach to analyze trends at the state, aggregated counties forming the social and economic area of influence (referred to as the study area), and individual county levels.

Population Demographics

This section highlights population and demographic trends in the area surrounding the Rio Grande National Forest. Population is an important consideration in managing natural resources. In particular, population structure (size, composition, density, etc.) and population dynamics (how the structure changes over time) are essential to describing the consequences of forest management on the social environment (Seesholtz et al. 2004).

Population Growth

Population growth can be an indicator of a region’s desirability to live and work. As displayed in Table 1, the rapid population growth in Colorado and the eighteen-county study area over the last thirty years suggests that this area is highly desirable to current and prospective residents. While the total U.S. population grew by 55 percent between 1970 and 2013, the state’s population increased by 137 percent and total population within the study area increased by 94 percent (U.S. Department of Commerce 2014).

Growth within the eighteen-county study area exceeded the nation but not the state, over the last forty years, growing by 2 percent on annual average. While the population of the eighteen-county study area grew overall, the rate of growth varied considerably between counties included in the study area. Over this forty year period population growth was greatest in Park, Archuleta and Hinsdale counties, while the population of Huerfano, Mineral and San Juan counties experienced decreases. On an annual average these counties grew by 14, 8 and 7 percent, respectively, while Huerfano, Mineral and San Juan counties decreased by less than 1 percent annually (U.S. Department of Commerce 2014).

Table 1. Population and change

| | 1970 | 2013 | Change |
|-----------------------|--------------------|--------------------|--------------------|
| United States | 203,798,722 | 316,128,839 | 55 percent |
| Colorado | 2,223,979 | 5,268,367 | 137 percent |
| 18 County Area | 170,740 | 330,691 | 94 percent |
| Alamosa | 11,502 | 16,253 | 41 percent |
| Archuleta | 2,687 | 12,194 | 354 percent |
| Chaffee | 10,273 | 18,510 | 80 percent |
| Conejos | 7,839 | 8,277 | 6 percent |
| Costilla | 3,074 | 3,518 | 14 percent |
| Fremont | 22,122 | 46,451 | 110 percent |
| Gunnison | 7,705 | 15,507 | 101 percent |
| Hinsdale | 202 | 813 | 302 percent |
| Huerfano | 6,534 | 6,519 | 0 percent |
| La Plata | 19,327 | 53,284 | 176 percent |
| Mineral | 789 | 721 | -9 percent |
| Montrose | 18,360 | 40,713 | 122 percent |
| Park | 2,229 | 16,121 | 623 percent |
| Rio Grande | 10,459 | 11,803 | 13 percent |
| Saguache | 3,843 | 6,208 | 62 percent |
| San Juan | 825 | 692 | -16 percent |
| Rio Arriba | 25,308 | 40,072 | 58 percent |
| Taos | 17,662 | 33,035 | 87 percent |

Source: U.S. Department of Commerce 2014.

Areas characterized as having high levels of natural amenities (unique land and water features, mild temperatures, scenic quality, and outdoor recreation opportunities) experience greater population growth than areas with fewer natural amenities (Rudzitis and Johansen 2000, Johnson and Beale 1994, Johnson and Beale 1998, McGranahan 1999, Hunter et al. 2005, Frenz et al. 2004), and this growth occurs increasingly at the boundaries of public lands (Radeloff et al. 2001). In recent years communities

surrounding the Rio Grande National Forest have become increasingly attractive to new residents because of their proximity to open spaces, natural settings and easy access to year round recreational opportunities. As a steward of Colorado’s public lands, a portion of population growth in this region can be attributed to the scenic beauty and outdoor recreation supported by the Rio Grande National Forest.

Changes in a region’s population can be attributed in part to natural increases (births minus deaths) and in part to migration (international and domestic), which can affect the availability of area housing, public services and jobs. Between 2000 and 2013 migration and natural change were responsible for equal portions of the population change within the state (both 50 percent) while natural change was responsible for a larger portion of population change within the study area than migration (56 percent and 49 percent, respectively) (U.S. Department of Commerce, 2014b).

Future population projections suggest that migration will likely play an increasing role in population changes as state and county populations grow. As shown in Table 2 Archuleta, Chaffee, La Plata, Montrose and Park counties are projected to grow faster than the state and the U.S. population (U.S. Department of Commerce 2012, State of Colorado 2013). These forecasts show that study area growth is anticipated to remain concentrated in communities which offer residents access to recreation, open space and wildlands provided by the Rio Grande National Forest.

Table 2. Population projections 2015-2030

| | 2015 | 2020 | 2025 | 2030 | Change from 2015 |
|----------------------|--------------------|--------------------|--------------------|--------------------|-------------------|
| United States | 321,363,000 | 333,896,000 | 346,407,000 | 358,471,000 | 16 percent |
| Colorado | 285,574 | 322,441 | 358,947 | 392,429 | 37 percent |
| Alamosa | 17,076 | 18,815 | 20,597 | 22,460 | 32 percent |
| Archuleta | 14,366 | 17,147 | 20,211 | 23,464 | 63 percent |
| Chaffee | 19,832 | 22,982 | 25,573 | 27,589 | 39 percent |
| Conejos | 8,671 | 9,056 | 9,412 | 9,699 | 12 percent |
| Costilla | 3,661 | 3,811 | 3,948 | 4,057 | 11 percent |
| Fremont | 51,117 | 56,261 | 61,379 | 66,287 | 30 percent |
| Gunnison | 16,414 | 17,786 | 18,998 | 20,048 | 22 percent |
| Hinsdale | 951 | 1,043 | 1,146 | 1,243 | 31 percent |
| Huerfano | 7,345 | 8,352 | 9,303 | 9,979 | 36 percent |
| La Plata | 57,901 | 65,698 | 72,961 | 79,762 | 38 percent |
| Mineral | 779 | 857 | 927 | 949 | 22 percent |
| Montrose | 47,618 | 54,806 | 62,140 | 69,179 | 45 percent |
| Park | 19,714 | 24,100 | 29,285 | 33,404 | 69 percent |
| Rio Grande | 12,683 | 13,675 | 14,461 | 15,211 | 20 percent |
| Saguache | 6,703 | 7,311 | 7,850 | 8,325 | 24 percent |
| San Juan | 743 | 741 | 756 | 773 | 4 percent |
| New Mexico | 2,208,450 | 2,351,724 | 2,487,227 | 2,613,332 | 18 percent |
| Rio Arriba | 40,780 | 41,026 | 41,058 | 40,872 | 0.2 percent |
| Taos | 35,012 | 36,769 | 38,183 | 39,221 | 12 percent |
| 18 County Study | 361,366 | 400,236 | 438,188 | 472,522 | 12 percent |

Source: U.S. Department of Commerce 2012, State of Colorado 2013 and University of New Mexico 2012.

Population Density

Population density provides perspective on urbanization, availability of open space, socioeconomic diversity, and civic infrastructure (Horne and Haynes 1999). In general, more densely populated areas tend to be more urban, diverse, and offer more access to public infrastructure. In contrast, less densely populated areas provide greater access to open spaces and wildlands, which may offer natural amenity values to residents and visitors. Table 3 displays per capita use of land for housing (residential acres/person) at the county, state, and national levels (Theobald 2013). Per capita use of land for housing is a measure of the pattern of development (i.e., denser or more sprawling). Change in development is measured between 2000 and 2010. Areas with negative values of change in residential acres/person were more densely developed in 2010 than in 2000. Large positive values of change indicate that an area was substantially more sprawling in 2010 than it was in 2000 (Table 3).

Colorado has fewer residential acres per person than the nation indicating that residential areas are more densely populated. In contrast, almost all counties in the study area have twice the residential acres per person than the nation which reflects the sprawling and more rural feel of residential areas in the Rio Grande National Forest study area. Rates of change, over the period from 2000 to 2010, indicate almost all county-residential areas became more sprawling while San Juan County became denser. These rates of change exceeded the state’s increase (13 percent) indicating study area counties experienced increases in the exurban feel of residential areas as compared the to the state as a whole (Theobald 2013).

Table 3. Population density

| | Residential Acres/Person, 2010 | Change in Residential Acres/Person, 2000-2010 |
|-----------------------|---|--|
| United States | 0.69 | 2 percent |
| Colorado | 0.44 | 13 percent |
| 18 County Area | 1.71 | 30 percent |
| Alamosa | 0.85 | 17 percent |
| Archuleta | 2.63 | 19 percent |
| Chaffee | 1.48 | 42 percent |
| Conejos | 1.69 | 39 percent |
| Costilla | 4.14 | 100 percent |
| Fremont | 1.04 | 38 percent |
| Gunnison | 1.60 | 50 percent |
| Hinsdale | 2.47 | 52 percent |
| Huerfano | 1.44 | 70 percent |
| La Plata | 1.94 | 19 percent |
| Mineral | 5.13 | 55 percent |
| Montrose | 1.50 | 16 percent |
| Park | 3.92 | 21 percent |
| Rio Grande | 1.19 | 49 percent |
| Saguache | 1.52 | 73 percent |
| San Juan | 0.94 | -2 percent |
| Rio Arriba | 1.40 | 36 percent |
| Taos | 2.06 | 20 percent |

Source: (Theobald, 2013)

Population projections indicate that the San Luis Valley and the region surrounding the Rio Grande National Forest will continue to grow through 2030 (Table 2). These population projections reflect continued urban, suburban, and exurban development, enabling counties surrounding the Rio Grande National Forest to become more densely populated. Growth within these counties is unlikely to be distributed evenly among local communities and can cause some areas to become more urban while others become increasingly more decentralized or exurban.

Growing populations and development will place greater demand on forest resources and may affect the perceived aesthetics and uses associated with Rio Grande National Forest lands. Forest management can expect to be tasked with maintaining the quality of visitors’ experiences while providing forest products and cultural and recreational experiences to a greater number of people.

As populations grow, conflicts between local residents and forest visitors may increase. While living close to public lands may provide residents with amenities such as convenient access to recreation and wildlife viewing, increased forest congestion causes disamenities such as crowds, litter, and noise (Garber-Yonts 2004; Bolitzer and Netusil 2000; Moore et al. 1992). Increased population of residential areas surrounding the Rio Grande National Forest also increases the study area’s need for infrastructure and may place greater pressure on the Forest to provide utility right-of-ways. These pressures may threaten the forest’s role in contributing to sense of place and the quality of life in surrounding communities (Stedman 2003).

Age

The age of the population surrounding the forest is relevant since age may affect community values and uses of the Rio Grande National Forest. In 2013 the median age in the United States was estimated to be 37.3 and 36.1 in Colorado (U.S. Department of Commerce 2013). Apart from Alamosa and Gunnison counties, the population of the eighteen-county study area is older than Colorado and the U.S. population. Table 4 lists median ages within study area counties.

Table 4. Median age, 2009-2013

| | Median Age | | Median Age |
|----------------------|-------------|------------|------------|
| United States | 37.3 | Huerfano | 52.6 |
| Colorado | 36.1 | La Plata | 38.3 |
| Alamosa | 31.3 | Mineral | 60.8 |
| Archuleta | 47.8 | Montrose | 42.8 |
| Chaffee | 47.8 | Park | 47.5 |
| Conejos | 38.2 | Rio Grande | 41.4 |
| Costilla | 49.5 | Saguache | 44.6 |
| Fremont | 43.4 | San Juan | 43.2 |
| Gunnison | 34.1 | Rio Arriba | 39.5 |
| Hinsdale | 56.5 | Taos | 45.8 |

Source: U.S. Department of Commerce 2013

In general the United States is growing older. In 2013 there were 41.9 million Americans 65 years or older. Though many aging American’s spend their retirement years in the homes and communities where they’ve raised families and worked, trends indicate that a sizable share of Americans 65+ have been moving to amenity rich places which are characterized as having warmer average temperatures and lower rates of crime and taxes (Clark and Davies 1990, Conway and Houtenville 1998, McGranahan 1999, Serow 2003).

Colorado and New Mexico have gained attention in recent years as a retirement destination. Over the period from 2009 to 2013 more than 22,000 people, 65 years or older, moved to CO and more than 9,000 moved to New Mexico from another state or country. In-migration by older populations accounted for 12 percent of all new Colorado residents and 14 percent of all New Mexico residents over this five year period (U.S. Department of Commerce, 2013b). As shown by Table 5, the five years between 2009 and 2013 brought large numbers of retirees to counties surrounding the Rio Grande National Forest as well. While Montrose County welcomed the greatest number of new residents 65 years and older; the forest gateway county of Rio Grande saw a large number of new residents in this age category as well. As a steward of the natural and cultural amenities which make this area an attractive retirement destination, the Rio Grande National Forest can be attributed with attracting a share of migrating retirees and retirement income to the eighteen-county study area. As populations surrounding the forest grow older, community values and uses associated with the Rio Grande National Forest may change. In general, older forest users demand more leisurely recreational experiences and have a greater need for easily accessible facilities than younger forest users.

Table 5. Migration of individuals 65+, 2009-2013

| | Moved from different Colorado County | Moved from a different state | Moved from abroad |
|------------|--------------------------------------|------------------------------|-------------------|
| Alamosa | 47 | 24 | - |
| Archuleta | 4 | 31 | 13 |
| Chaffee | 116 | 77 | - |
| Conejos | 37 | 1 | - |
| Costilla | - | 9 | 20 |
| Fremont | 351 | 77 | 34 |
| Gunnison | 3 | 166 | - |
| Hinsdale | 9 | 25 | - |
| Huerfano | 52 | 31 | - |
| La Plata | 96 | 378 | 6 |
| Mineral | - | - | - |
| Montrose | 336 | 634 | 31 |
| Park | 54 | 56 | - |
| Rio Grande | 67 | 67 | - |
| Saguache | 13 | 15 | - |
| San Juan | - | - | - |
| Rio Arriba | 53 | 53 | - |
| Taos | 123 | 141 | - |

Source: U.S. Department of Commerce, 2013b

Educational Attainment

Levels of formal education can be an important indicator of the social and economic opportunities and ability of an area to adapt to change. Table 6 lists the percentage of the adult population with at least a high school diploma and a bachelor's degree.

Table 6. Educational attainment, percent of persons age 25+

| | High School Diploma + | Bachelor's Degree + |
|----------------------|------------------------------|----------------------------|
| United States | 86.0 percent | 28.8 percent |
| Colorado | 90.2 percent | 37.0 percent |
| Alamosa | 84.7 percent | 24.2 percent |
| Archuleta | 91.7 percent | 32.9 percent |
| Chaffee | 91.1 percent | 33.9 percent |
| Conejos | 82.6 percent | 19.1 percent |
| Costilla | 76.5 percent | 19.5 percent |
| Fremont | 84.1 percent | 15.6 percent |
| Gunnison | 93.3 percent | 54.5 percent |
| Hinsdale | 93.8 percent | 42.2 percent |
| Huerfano | 84.7 percent | 28.0 percent |
| La Plata | 94.2 percent | 41.4 percent |
| Mineral | 96.5 percent | 39.3 percent |
| Montrose | 85.7 percent | 24.5 percent |
| Park | 95.6 percent | 32.0 percent |
| Rio Grande | 84.1 percent | 20.3 percent |
| Saguache | 78.0 percent | 23.8 percent |
| San Juan | 94.4 percent | 24.8 percent |
| Rio Arriba | 79.2 percent | 16.4 percent |
| Taos | 87.5 percent | 29.5 percent |

Source: U.S. Department of Commerce, 2013c

Educational attainment in Colorado is higher than the U.S. population: 90 percent hold a high school diploma and 37 percent have a bachelor’s degree or higher while 86 percent of U.S. residents 25 or older have completed high school and 29 percent have obtained at least an undergraduate degree. Educational attainment is low in the rural counties of Costilla, Saguache and Rio Arriba counties where less than 80 percent of residents over the age of 25 have high school diplomas and a small percent hold a Bachelor’s degree or higher. Low educational attainment in rural areas is not uncommon. Since rural communities generally offer few opportunities for educational or occupational advancement they often struggle to retain and attract educated and highly skilled individuals. Frequently residents interested in pursuing advanced education move from these rural communities to more economically advanced areas which support greater educational opportunities. The out-migration of talented and educated residents is often referred to as “brain drain.”

Institutions for higher education are located in Alamosa, Gunnison and La Plata counties, with several two-year and four-year schools. The presence of so many highly educated adults may be self-reinforcing as a highly educated population tends to be a signal that an area provides economic and cultural opportunities, attracting additional college educated adults to the area. This process leads to further economic development and job creation. In contrast, areas with low levels of educational attainment tend to have lower levels of human capital, which reduce the area’s ability to capitalize on economic change (Florida 2002).

Racial and Ethnic Composition

Colorado’s population tends to be less racially diverse than the general U.S. population. While 74 percent of the country’s population identifies themselves as white; whites account for 84 percent of the state’s population. Minority populations make up larger shares of the population within the eighteen-county study area. Shares of Native Americans and those identifying with some other race alone make up larger shares than the state and nation. As shown by Table 7, there is considerable variation in the racial composition of individual study area counties: Huerfano, La Plata, Rio Arriba and Taos counties contained shares greater than the state and nation of individuals identifying as American Indian alone. In addition, many other counties contained shares greater than the state and nation of those identifying with some other race alone and two or more races (U.S. Department of Commerce 2013d).

Table 7. Racial composition, 2009-2013 by percentage

| | White alone | Black or African American alone | American Indian alone | Asian alone | Native Hawaiian & Other Pacific Is. alone | Some other race alone | Two or more races |
|-----------------------|-------------|---------------------------------|-----------------------|-------------|---|-----------------------|-------------------|
| United States | 74.0 | 12.6 | 0.8 | 4.9 | 0.2 | 4.7 | 2.8 |
| Colorado | 84.0 | 4.0 | 1.0 | 2.8 | 0.1 | 4.7 | 3.4 |
| 18 County Area | 83.1 | 1.4 | 4.3 | 0.7 | 0.1 | 7.4 | 3.0 |
| Alamosa | 81.9 | 1.4 | 1.6 | 2.1 | 0.1 | 7.9 | 5.1 |
| Archuleta | 88.3 | 0.5 | 2.4 | 0.5 | 0.0 | 6.0 | 2.3 |
| Chaffee | 94.4 | 2.2 | 1.2 | 0.4 | 0.0 | 0.8 | 0.9 |
| Conejos | 85.1 | 0.1 | 0.7 | 0.1 | 0.0 | 5.3 | 8.7 |
| Costilla | 83.1 | 0.0 | 1.0 | 0.6 | 0.0 | 3.6 | 11.7 |
| Fremont | 85.7 | 6.4 | 1.9 | 0.9 | 0.2 | 2.7 | 2.1 |
| Gunnison | 95.5 | 0.6 | 0.4 | 0.8 | 0.0 | 1.1 | 1.6 |
| Hinsdale | 98.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 |
| Huerfano | 76.2 | 1.4 | 6.4 | 0.8 | 0.0 | 5.4 | 9.8 |
| La Plata | 87.9 | 0.5 | 6.0 | 0.7 | 0.1 | 2.8 | 2.0 |
| Mineral | 95.5 | 0.8 | 0.8 | 0.3 | 0.0 | 2.0 | 0.7 |
| Montrose | 91.0 | 0.5 | 1.0 | 0.4 | 0.1 | 3.9 | 3.1 |
| Park | 96.1 | 0.0 | 0.7 | 1.0 | 0.5 | 0.1 | 1.6 |
| Rio Grande | 80.4 | 0.5 | 2.6 | 0.2 | 0.2 | 13.1 | 3.0 |
| Saguache | 82.3 | 0.3 | 1.6 | 0.5 | 0.0 | 10.0 | 5.3 |
| San Juan | 92.0 | 0.0 | 0.8 | 1.4 | 0.0 | 3.8 | 2.1 |
| Rio Arriba | 69.4 | 0.4 | 15.1 | 0.2 | 0.0 | 13.2 | 1.7 |
| Taos | 60.5 | 0.5 | 5.5 | 0.7 | 0.0 | 28.4 | 4.3 |

Source: U.S. Department of Commerce 2013d

Many Americans identify with, and are proud of, the ethnic and cultural heritage from which they descend. Although Americans may appear to look white, black, Asian, or belonging to some other racial group, they often continue to speak the native language and follow cultural traditions from the regions where their families originated. In 2013 about 17 percent of Americans and 21 percent of Colorado residents described their family ancestry as being Hispanic, Latin, or Spanish. Hispanic cultures are more predominate in the 18 County study area and in individual counties where Alamosa, Conejos, Costilla,

Huerfano, Rio Grande, Saguache, Rio Arriba and Taos counties had residents who identified as being Hispanic or Latino (U.S. Department of Commerce 2013d).

Table 8. Hispanic or Latino composition, 2009-2013

| | Hispanic or Latino (of any race) |
|-----------------------|-------------------------------------|
| United States | 16.6 percent |
| Colorado | 20.8 percent |
| 18 County Area | 29.7 percent |
| Alamosa | 45.6 percent |
| Archuleta | 18.0 percent |
| Chaffee | 9.8 percent |
| Conejos | 55.0 percent |
| Costilla | 65.1 percent |
| Fremont | 12.6 percent |
| Gunnison | 8.5 percent |
| Hinsdale | 2.6 percent |
| Huerfano | 35.2 percent |
| La Plata | 12.1 percent |
| Mineral | 2.9 percent |
| Montrose | 19.9 percent |
| Park | 5.0 percent |
| Rio Grande | 43.3 percent |
| Saguache | 40.3 percent |
| San Juan | 19.4 percent |
| Rio Arriba | 71.4 percent |
| Taos | 56.1 percent |

Source: U.S. Department of Commerce 2013d

Employment and Income

The previous section discussed demographics and population trends in counties surrounding the Rio Grande National Forest relative to the state and nation. The following section will focus on economic conditions within the study area to further develop a baseline for use in development of management alternatives and examination of potential effects.

Employment and Specialization

Total employment in the eighteen-county study area increased from 167,107 to 180,384 jobs between 2001 and 2013. In general these industries are identified as being either services related or non-services related.¹ Between 2001 and 2013 employment in non-services related sectors declined by 4 percent while

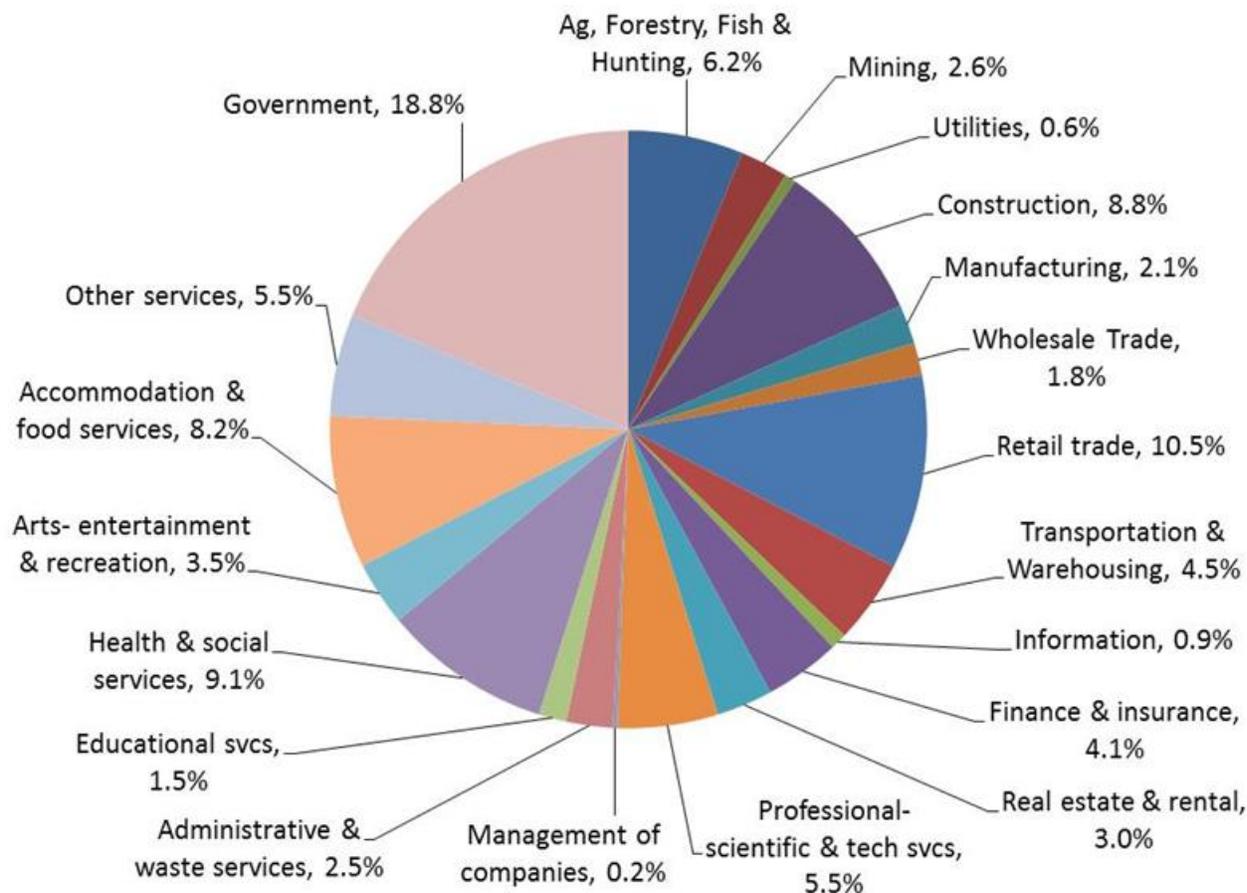
¹ Services related sectors include: Utilities, Wholesale Trade, Retail Trade, Transportation & Warehousing Information, Finance & Insurance, Real Estate & Rental & Leasing, Professional, Scientific, & Tech., Mgmt. of Companies & Enterprises, Administrative & Waste Services, Educational Services, Health Care & Social Assistance, Arts, Entertainment, & Recreation, Accommodation & Food Services, and Other Services (except public

employment in services related sectors increased by 11 percent. In 2001 services related sectors supported 59 percent of regional employment, with services related employment growing to 61 percent of total employment in the eighteen counties surrounding the Rio Grande National Forest by 2013 (U.S. Department of Commerce 2014). Though job creation is perceived as desirable, services related industries generally pay lower wages than those in non-services sectors. Study area jobs in service related sectors paid on average 29 percent less than jobs in non-services related fields (U.S. Department of Labor 2014). Although increases in services related employment relative to non-services employment may have a negative effect on wages in the region, employment in the service sector may play an important role in increasing labor participation of the area's minority or underserved populations. In general, services related sectors provide greater labor force participation for women and minority racial groups than industries in the non-service sector.

The local economy examined in the analysis of the Rio Grande National Forest is diverse and supports employment in more than 260 industries (IMPLAN 2012). Economic diversity generally promotes stability and offers greater employment opportunities. Highly specialized economies (i.e., those that depend on a few industries for the bulk of employment and income) are prone to cyclical fluctuations and offer more limited job opportunities. Assessing employment by sector helps identify industries which are important to the local economy surrounding the Rio Grande National Forest. Figure 1 shows local employment in aggregated sectors as a share of total employment (IMPLAN 2012). In 2012 the government (19 percent), retail trade (11 percent), and health and social services (9 percent) sectors were the largest employers within the eighteen-county study area. A portion of employment in many industries can be directly or indirectly attributed to the Rio Grande National Forest but not all employment in Figure 1 is attributable to the Rio Grande National Forest; employment contributions provided by the Rio Grande National Forest are discussed below in the Forest Contributions section.

Employment specialization can be examined using the ratio of the percent employment in each industry in the region of interest (eighteen-county study area) to the percent of employment in that industry for a larger reference region (the states of Colorado and New Mexico). For a given industry, when the percent employment in the analysis region is greater than in the reference region, local employment specialization exists in that industry (USDA Forest Service 1998). Applying this criterion to 2012 employment data for the Rio Grande National Forest study area reveals that the region is specialized with respect to agriculture, forestry, fish and hunting (3.2), utilities (2), transportation and warehousing (1.7), construction (1.5), arts- entertainment and recreation (1.4), mining (1.2), government and non-North American Industry Classification System (1.2), other services (1.1), retail trade (1.1), and accommodation and food services (1.1).

administration), while Non-services related sectors consist of the following sectors: Mining (includes fossil fuels), Construction, Manufacturing, Agriculture, and Forestry, Fishing, and related activities.



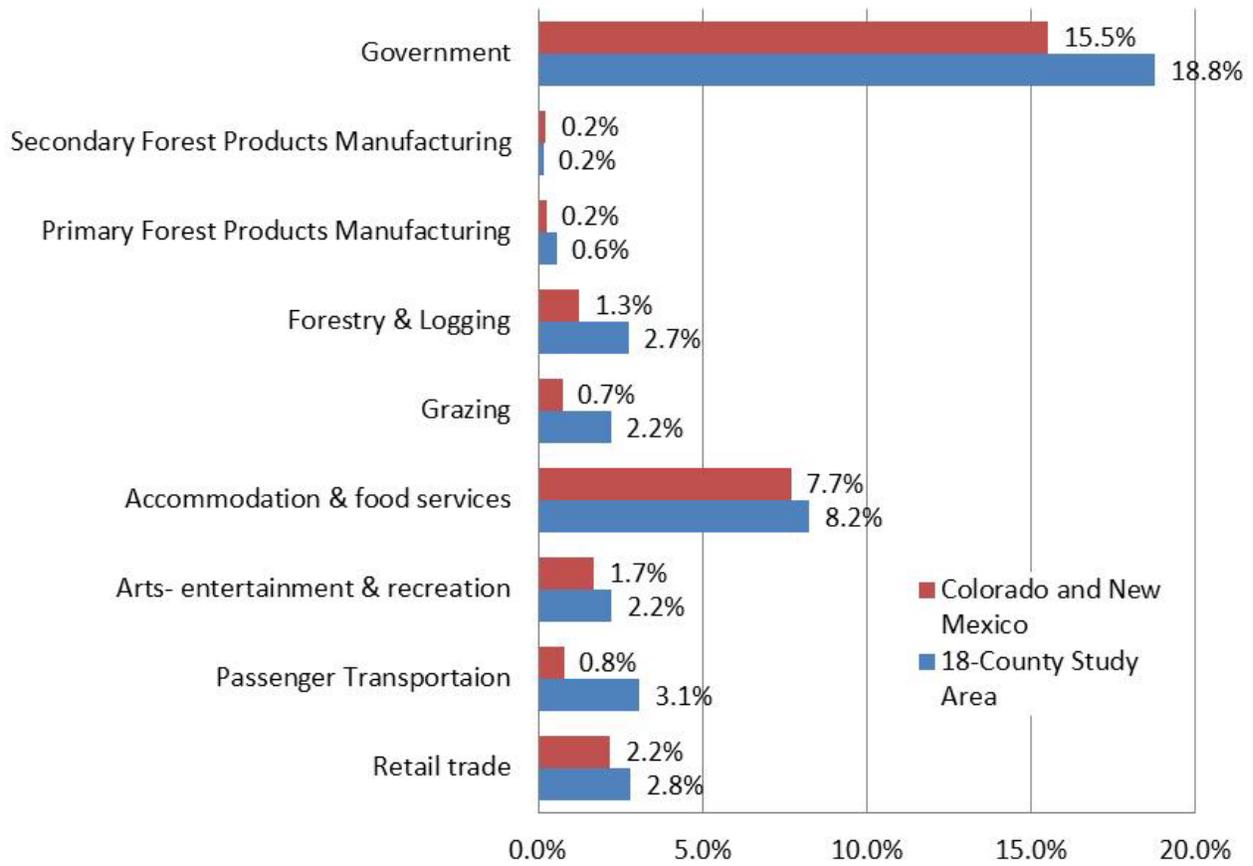
Source: IMPLAN 2012

Figure 1. Employment by industry, 2012

Employment specialization is of particular interest when specialization occurs in sectors related to forest management. A portion of employment in the sectors shown in Figure 2 can be attributed to forest management, timber production², grazing³ and recreation on the Rio Grande National Forest. The government sector includes all federal, State and local employment, while a portion of employment in the accommodations and food services, arts, entertainment and recreation, retail trade, and passenger transportation sectors is specifically attributed to tourism and recreation (Marcouiller and Xia 2008). Relative to the states of Colorado and New Mexico, the eighteen-county study area is specialized in all sectors related to forest management apart from primary and secondary forest products manufacturing. Specialization in the forest management related sectors highlights the importance of government, forestry and logging, grazing, and tourism and recreation to the local economy. For a more detailed discussion of the Rio Grande National Forest employment contributions see the section on Forest Contributions below.

² Sectors related to timber include: Forestry & Logging (IMPLAN sectors 15, 16, 19, 335), Primary Forest Products Manufacturing (IMPLAN sectors 31, 95, 96, 98, 105), and Secondary Forest Products Manufacturing (IMPLAN sectors 97, 99, 100, 102, 106, 107, 108, 109, 110, 111, 112, 295, 297, 301, 302) (BBER 2010).

³ Sectors related to grazing include: Cattle ranching and farming (IMPLAN sectors 11) and Animal production, except cattle and poultry and eggs (IMPLAN sectors 14).

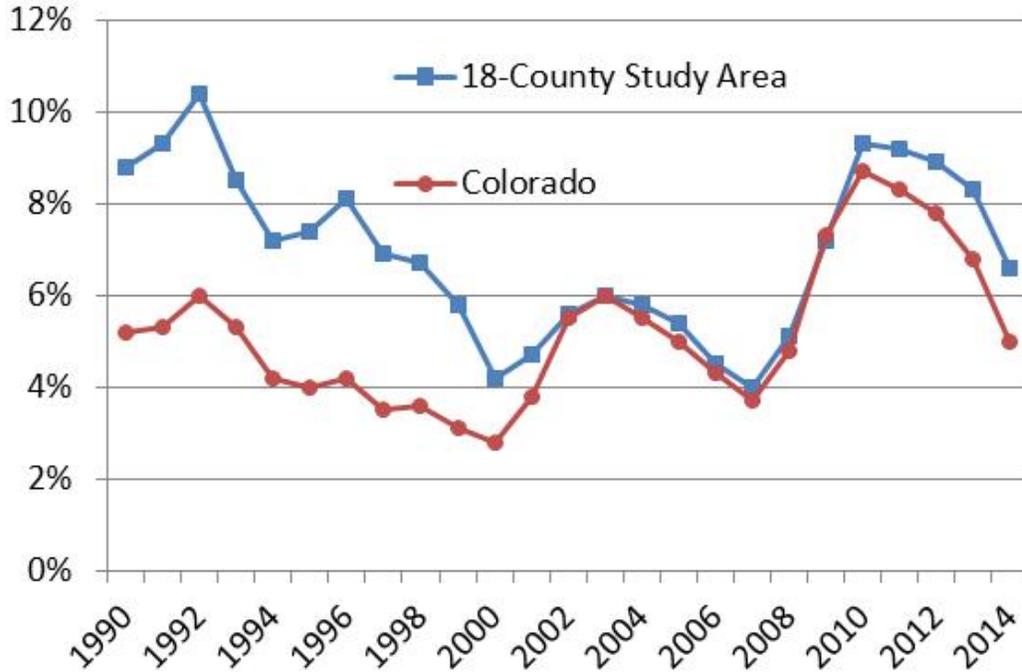


Source: IMPLAN 2012

Figure 2. 2012 State and study area employment distribution for forest related sectors

Unemployment

Unemployment rates measure the percent of the local work force that is jobless but actively seeking employment. Though public officials strive for full-employment, structural unemployment (mismatch between labor skills and available jobs within a region) and frictional unemployment (people moving or transitioning employment) cause rates to persist even in times of economic prosperity. The existence of structural and frictional unemployment implies that there is an inherent “natural” rate of unemployment. The natural rate of unemployment is believed to fall somewhere between 5 and 6 percent and allows workers to move between jobs and industries without signaling broad economic distress. Figure 3 provides the annual unemployment rate of the study area relative to the state and nation between 1990 and 2011.



Source: U.S. Department of Commerce, 2014d

Figure 3. Unemployment 1990-2014

Historically unemployment in the eighteen-county study area has closely mirrored the state of Colorado and generally remains higher than statewide trends (Figure 3). The economic downturn in 2007 caused unemployment across the U.S. to rise, hitting Colorado and the region surrounding the Rio Grande National Forest relatively hard. Since the high of 9.3 percent in 2007, unemployment in the eighteen-county study area has dropped to 6.6 in 2014 (U.S. Department of Commerce 2014d).

Personal Income

Personal income provides a measure of all sources of income (wages, investment income, retirement, etc.) within the Rio Grande National Forest study area. High personal income may be a signal of greater job opportunities, highly skilled residents, greater economic resiliency, and well-developed infrastructure within a community; while low personal income is often a reflection of the poor economic conditions and relatively few economic opportunities available within a community. Total personal income in the study area exceeded \$11.8 billion dollars in 2013. Personal income in the study area has grown less rapidly than total personal income across the state. Between 1970 and 2013 total personal income in Colorado grew by 331 percent while total personal income within the eighteen-county study area grew by 307 percent (adjusted for inflation and reported in 2014 dollars) (U.S. Department of Commerce 2014e).

There are two major sources of personal income: (1) labor earnings or income earned through employment and (2) non-labor income (discussed below). Labor earning’s share of total personal income decreased from 69 percent in 1970 to 54 percent in 2013 (U.S. Department of Commerce 2014e). Although wages can fluctuate between counties and across industries, average annual wage in the Rio Grande National Forest study area were below those of the state and the nation in 2013. In 2013 the average annual wage in the eighteen-county study area was 35,451, and ranged from \$42,978 in La Plata County to \$24,473 in San Juan County (Table 9). Average annual wages in the services sectors were less

than non-services in all individual counties apart from Rio Grande and Saguache counties which lacked the presence of higher paying non-services employment.

Table 9. Average annual wages, 2013 (2014 dollars)

| | All Sectors | Services | Non-Services |
|-----------------------|-----------------|-----------------|-----------------|
| United States | \$50,601 | \$48,620 | \$59,298 |
| Colorado | \$51,678 | \$50,113 | \$61,821 |
| 18 County Area | \$35,451 | \$31,049 | \$43,539 |
| Alamosa | \$33,933 | \$32,428 | \$33,509 |
| Archuleta | \$31,315 | \$28,730 | \$29,050 |
| Chaffee | \$31,949 | \$26,729 | \$42,317 |
| Conejos | \$29,228 | \$28,163 | \$32,090 |
| Costilla | \$26,891 | \$24,379 | \$38,393 |
| Fremont | \$36,330 | \$26,653 | \$44,086 |
| Gunnison | \$35,258 | \$26,877 | \$56,773 |
| Hinsdale | \$25,828 | \$20,458 | \$35,168 |
| Huerfano | \$28,364 | \$27,923 | \$31,286 |
| La Plata | \$42,978 | \$37,645 | \$54,880 |
| Mineral | \$28,789 | \$26,210 | \$53,694 |
| Montrose | \$36,137 | \$32,314 | \$39,386 |
| Park | \$33,018 | \$32,088 | \$36,903 |
| Rio Grande | \$31,305 | \$30,340 | \$29,157 |
| Saguache | \$30,218 | \$31,137 | \$29,434 |
| San Juan | \$24,473 | \$18,386 | \$33,906 |
| Rio Arriba | \$31,918 | \$30,518 | \$34,536 |
| Taos | \$30,188 | \$26,309 | \$44,888 |

Source: U.S. Department of Labor, 2014b

Using the same criterion utilized above to examine employment specialization⁴, labor earnings in the eighteen-county study area were specialized in transportation and warehousing (3.5), agriculture, forestry, fish and hunting (3.4), utilities (1.8), government and non-North American Industry Classification System (1.3), retail trade (1.3), construction (1.3), mining (1.3), arts- entertainment and recreation (1.2), accommodation and food services (1.2), other services (1.1), and health and social services (1.1) (IMPLAN 2012). Income specialization in these sectors provides further evidence of the linkages between the Rio Grande National Forest and local economies. While management expenditures support income for local Forest Service employees, uses on the forest, such as grazing and forest product use, and natural and cultural amenities provide recreation and tourism spending which generates income in related industries. In this manner, a portion of local income specialization can be linked to the Rio Grande National Forest.

⁴ Employment specialization can be examined using the ratio of the percent employment in each industry in the region of interest (eighteen-county study area) to the percent of employment in that industry for a larger reference region (the states of Colorado and New Mexico). For a given industry, when the percent employment in the analysis region is greater than in the reference region, local employment specialization exists in that industry (USDA Forest Service 1998).

While the local economy surrounding the Rio Grande National Forest contains many counties with lower paying service jobs (Table 9), the unique natural and cultural amenities of the forest may provide additional benefits to individuals which help offset these low wages. Living in close proximity to the Rio Grande National Forest provides residents with greater access to open spaces, wildlands and a wide range of recreational opportunities. While local residents may forego higher paying jobs in areas with fewer natural amenities, they gain personal enjoyment from the outdoor experiences they have on the Rio Grande National Forest. Natural amenities, often provided by public lands, have been found to influence population and employment changes in amenity rich communities (Knapp and Graves 1989, Clark and Hunter 1992, Treyz et al. 1993, Mueser and Graves 1995, McGranahan 1999, Lewis et al. 2002). As a steward of Colorado’s unique natural and cultural amenities, the Rio Grande National Forest increases the attractiveness of local communities and increases regional well-being.

Non-labor Income

Personal income also includes non-labor income individuals receive from sources other than an employer. In general there are four categories of non-labor income: (1) investment income (dividends, interest, and rent payments), age-related transfer payments (social security and medicare), hardship-related transfer payments (medicaid and other medical assistance, income maintenance or “welfare” and unemployment compensation) and other transfer payments (veterans benefits, education and training assistance and all other payments including workers’ compensation). Non-labor income’s share of total personal income has grown in recent years. In 1970 non-labor income accounted for 31 percent of total personal income within the eighteen-county study area and by 2013 non-labor income had grown to represent more than 46 percent of total personal income (U.S. Department of Commerce 2014e).

Non-labor income’s increasing share of regional total personal income can be attributed to increases in both investment income and transfer payments. Between 1970 and 2013 investment income as a share of total personal income within the study area grew from 16.5 percent to 24.2 percent while transfer payments increased from 14.7 percent to 22.3 percent. As shown in Table 10, there was variation in the forms of non-labor income and their share of total personal income across counties in the study area. Investment income accounted for the largest share of total personal income in individual counties and age-related transfer payments was second in all counties, apart from Alamosa County where hardship-related transfer payments were slightly greater than age-related transfer payments in 2013 (U.S. Department of Commerce. 2014f).

Table 10. Non-labor income as a share of total personal income, 2013

| | Total Personal Income (\$1000) | Non-Labor Income Share | Percent of Total Personal Income | | | |
|-----------------------|--------------------------------|------------------------|----------------------------------|-------------------------------|------------------------------------|-------------------------|
| | | | Investment Income | Age Related Transfer Payments | Hardship Related Transfer Payments | Other Transfer Payments |
| United States | \$14,377,849,832 | 36 percent | 19 percent | 10 percent | 6 percent | 2 percent |
| Colorado | \$251,021,871 | 34 percent | 21 percent | 7 percent | 4 percent | 2 percent |
| 18 County Area | \$11,840,783 | 46 percent | 24 percent | 13 percent | 7 percent | 3 percent |
| Alamosa | \$590,902 | 40 percent | 18 percent | 9 percent | 10 percent | 4 percent |
| Archuleta | \$436,873 | 54 percent | 32 percent | 15 percent | 4 percent | 2 percent |
| Chaffee | \$674,433 | 55 percent | 33 percent | 16 percent | 4 percent | 2 percent |
| Conejos | \$224,975 | 50 percent | 18 percent | 16 percent | 13 percent | 3 percent |
| Costilla | \$116,929 | 51 percent | 18 percent | 18 percent | 12 percent | na |
| Fremont | \$1,410,354 | 50 percent | 21 percent | 17 percent | 8 percent | 3 percent |

| | Total Personal Income (\$1000) | Non-Labor Income Share | Percent of Total Personal Income | | | |
|------------|--------------------------------|------------------------|----------------------------------|-------------------------------|------------------------------------|-------------------------|
| | | | Investment Income | Age Related Transfer Payments | Hardship Related Transfer Payments | Other Transfer Payments |
| Gunnison | \$584,481 | 45 percent | 33 percent | 7 percent | 3 percent | 2 percent |
| Hinsdale | \$39,915 | 66 percent | 52 percent | 11 percent | 2 percent | na |
| Huerfano | \$220,317 | 65 percent | 27 percent | 21 percent | 13 percent | 5 percent |
| La Plata | \$2,524,559 | 39 percent | 27 percent | 7 percent | 3 percent | 2 percent |
| Mineral | \$40,918 | 59 percent | 44 percent | 12 percent | 2 percent | na |
| Montrose | \$1,354,671 | 47 percent | 24 percent | 15 percent | 7 percent | 2 percent |
| Park | \$616,425 | 38 percent | 23 percent | 11 percent | 3 percent | 2 percent |
| Rio Grande | \$483,205 | 46 percent | 22 percent | 13 percent | 9 percent | 2 percent |
| Saguache | \$190,992 | 41 percent | 20 percent | 11 percent | 8 percent | 2 percent |
| San Juan | \$24,553 | 47 percent | 32 percent | 10 percent | 4 percent | na |
| Rio Arriba | \$1,225,690 | 47 percent | 15 percent | 15 percent | 14 percent | 3 percent |
| Taos | \$1,080,591 | 53 percent | 24 percent | 16 percent | 11 percent | 3 percent |

Source: U.S. Department of Commerce. 2014f

As discussed earlier in the demographics section, the population surrounding the Rio Grande National Forest is slightly older than the general population and the region’s median age is likely to continue to rise. As the region’s baby boom population grows, age related transfer payments as a share of income from non-labor sources is likely to rise. Since communities with more retired residents are typically less dependent on employment as a source of income, communities with aging populations may be more resilient to economic downturns (Allen et al. 2009). Rural county population change, the development of rural recreation and retirement-destination areas are all related to natural amenities (Knapp and Graves 1989, Clark and Hunter 1992; Treyz et al. 1993, Mueser and Graves 1995, McGranahan 1999, Lewis et al. 2002). As a steward of natural amenities the Rio Grande National Forest can be attributed with attracting a portion of retirees and age-related non-labor income to the region; thus the Rio Grande National Forest may play a role fostering a more resilient economy.

Poverty

Poverty is an important indicator of both economic and social well-being. Individuals with low incomes are more vulnerable to hardships and may depend on public land in unique ways. Following the Office of Management and Budget’s Directive 14, the Census Bureau uses a set of income thresholds that vary by family size and composition to detect who is poor. If the total income for a family or an individual falls below the relevant poverty threshold, then the household members are classified as being “below the poverty level.”

Relative to the general U.S. population and Colorado, and the eighteen-county study area had a higher share of residents and families living below the poverty line in 2013 (Table 11). Poverty rates were higher than the study area, state and the nation in Alamosa, Conejos, Costilla, Fremont, Gunnison, Huerfano, Rio Grande, Saguache, Rio Arriba and Taos counties (U.S. Department of Commerce 2013d). In some cases low income individuals tend to rely more heavily on natural resources and depend more directly on national forest system lands for sustenance and home heating (Atencio 2004). Since these individuals will be more vulnerable to changes in the management of local resources, it is important for the Rio Grande National Forest to understand how these forest users may be affected by management of their forest uses.

Table 11. Poverty rates, 2013

| | People Below Poverty | Families below poverty |
|-----------------------|-----------------------------|-------------------------------|
| United States | 15 percent | 11 percent |
| Colorado | 13 percent | 9 percent |
| 18 County Area | 17 percent | 12 percent |
| Alamosa | 26 percent | 18 percent |
| Archuleta | 10 percent | 8 percent |
| Chaffee | 8 percent | 6 percent |
| Conejos | 19 percent | 16 percent |
| Costilla | 22 percent | 18 percent |
| Fremont | 18 percent | 14 percent |
| Gunnison | 18 percent | 7 percent |
| Hinsdale | 5 percent | 3 percent |
| Huerfano | 21 percent | 15 percent |
| La Plata | 11 percent | 7 percent |
| Mineral | 6 percent | 1 percent |
| Montrose | 16 percent | 12 percent |
| Park | 9 percent | 6 percent |
| Rio Grande | 19 percent | 14 percent |
| Saguache | 25 percent | 19 percent |
| San Juan | 17 percent | 10 percent |
| Rio Arriba | 21 percent | 15 percent |
| Taos | 25 percent | 19 percent |

Source: U.S. Department of Commerce, 2013d

History and Cultural Identity

Southern Colorado was home to many native cultures long before the Europeans reached the Americas. Land now administered by the Rio Grande National Forest has been supporting social and cultural traditions for thousands of years. Native American Paleo-Indian cultures were the first known inhabitants of the area approximately 12,000 years ago. Groups from the Archaic Stage, as well as later Ute, Jicarilla Apache, Navajo, and Puebloan groups, followed and lived by hunting game and gathering plants found in the area (USDA Forest Service 2015). For a more in depth analysis of the aboriginal history and use of the analysis area please see the Cultural and Historical Context within Assessment 13: Cultural and Historic Uses.

The Spanish began exploring the San Luis Valley area during the late 1500s. In an attempt to settle the area, Mexico established numerous land grants within the Spanish territory, including the Conejos Land Grant. The valley remained largely unsettled until the area became the territory of the United States under the Treaty of Guadalupe in 1848. The first permanent settlement in Colorado, known as San Luis de la Culebra, was established in 1851 on the Rio Culebra River on the Sangre de Cristo Grant. To protect the early settlers in the valley, Fort Massachusetts was established, north of San Luis, in 1852, and later Fort Garland was created in 1858 due to the inefficacy of Fort Massachusetts. La Loma de San Jose, near present Del Norte, was first inhabited by Hispanic families in 1859 that left the Santa Fe area. Irrigation ditches were constructed and farms established. More extensive farming activities began in the 1880s near

Hooper and the area near Monte Vista where large-scale irrigation systems were built (USDA Forest Service 2015).

Gold and silver were discovered near Summitville in 1870 which began the mining rush to the area. Other mining settlements followed at Bonanza, Creede, and along the Sangre de Cristo Mountains. Del Norte, one of Colorado's earliest cities, established in 1872, served as a supply point and gateway to the San Juan mining camps. In 1891, an Act of Congress authorized the establishment of timber reserves in order to conserve the nation's timber, range and water resources. Portions of these established reserves were combined to form the Forest in 1908 (USDA Forest Service 2015). For more information on the Rio Grande National Forest's role in area history see Assessment 13 on Cultural and Historic Resources.

During the remainder of the twentieth century, the San Luis Valley, and areas around the forest, have seen variation in population change. Between 1950 and 1970 Conejos, Costilla, Rio Grande and Saguache counties experienced decreases in population. However, since 1970 the area has experienced an increase in population as people moved to the area given its alluring cultural and natural setting. The area provides an escape to many; for example, communities spiritually connected to the Rio Grande National Forest, the outdoors and area cultural significance have increased in size. Others from throughout the nation find escape and benefit from many unique amenities and activities provided by the Rio Grande National Forest.

Cultural identity of the area is influenced by a mix of Anglo, Hispanic and Native American cultures. The longstanding histories of these groups have created strong cultural identities and traditions unique to the communities within the San Luis Valley and landscape surrounding the Rio Grande National Forest. For example, Crestone contains a thriving spiritual community while Creede identifies with a heritage connected to mining and more recently outdoor recreation. Throughout the area surrounding the Rio Grande National Forest, the merging of Native American, Hispanic, and Anglo histories provides a diversity of cultural traditions and identities in the area. While these groups historically may have clashed and culturally identified as disparate groups, over time the lines between them have sometimes become less discernible. Cultural identity continues to diversify as new settlers move in, attracted by unique natural and cultural amenities; often provided by the Rio Grande National Forest. The interests and concerns of these communities are not distinguished by ethnic, racial or other physical or geographic characteristic; but rather by their interests relating to forest service management (see discussion of communities of interest below).

Environmental Justice Populations

In 1994, President Clinton issued Executive Order 12898. This order directs federal agencies to focus attention on the human health and environmental conditions in minority and low-income communities. The purpose of EO 12898 is to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects on minority and low-income populations.

Environmental justice is the fair treatment and meaningful involvement of people of all races, cultures, and incomes, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The goal of environmental justice is for federal agencies to identify impacts that are disproportionately high and adverse with respect to minority and low-income populations and identify alternatives that will avoid or mitigate those impacts. According to USDA DR5600-002 (USDA 1997), environmental justice, minority, minority population, low-income, and human health and environmental effects, are defined as follows:

Environmental Justice means that, to the greatest extent practicable and permitted by law, all populations are provided the opportunity to comment before decisions are rendered on, are allowed to

share in the benefits of, are not excluded from, and are not affected in a disproportionately high and adverse manner by, government programs and activities affecting human health or the environment.

Minority means a person who is a member of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic.

Minority Population means any readily identifiable group of minority persons who live in geographic proximity to, and, if circumstances warrant, migrant farm workers and other geographically dispersed/transient persons who will be similarly affected by USDA programs or activities.

Low-Income Population means any readily identifiable group of low-income persons who live in geographic proximity to, and, if circumstances warrant, migrant farm workers and other geographically dispersed/transient persons who will be similarly affected by USDA programs or activities. Low-income populations may be identified using data collected, maintained and analyzed by an agency or from analytical tools such as the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty.

Human Health and Environmental Effects as used in this departmental regulation includes interrelated social and economic effects.

The emphasis of environmental justice is on health effects and/or the benefits of a healthy environment. The Council on Environmental Quality has interpreted health effects with a broad definition: “Such effects may include ecological, cultural, human health, economic or social impacts on minority communities, low-income communities or Indian Tribes ...when those impacts are interrelated to impacts on the natural or physical environment” (Council on Environmental Quality 1997).

Census data presented in previous sections, describing the demographics and economic conditions of communities surrounding the Rio Grande National Forest, indicate that there are concentrations of minority and low-income populations within the study area. Many communities have maintained strong ties to subsistence uses and ancestral lands they rely on for a variety of traditional, cultural, subsistence, forest products, fishing and hunting uses. While communities in the area can be defined in Council on Environmental Quality terms, as meeting classification for determination as environmental justice populations, communities in the San Luis Valley identify with the concept of environmental justice. As a result environmental justice is used in this document to describe a community interested in engagement and consideration of community interests, their resources uses, desires for Rio Grande National Forest management and analysis of contributions to socioeconomic sustainability. Additional communities where these interests exist include Antonito, Capulin, Center, Creede, La Jara, Monte Vista and Saguache as well as communities in other areas (such as Costilla County) with no access to public lands but who travel to use public lands. Forest staff actively work with these groups, such as Conejos County Clean Water in Antonito, to ensure their interests are accurately portrayed throughout future stages of the planning process.

Public Safety

This issue is discussed in Assessment 9 (Recreation) and Assessment 11 (Infrastructure).

Forest Users and Contributions to Socioeconomic Sustainability

National forests are productive assets which contribute to sustaining the viability of national, regional, and local communities. Uses, products, services, and visitor opportunities supported by national forest system lands produce a steady flow of benefits which contribute to the robustness and sustainability of local communities. While robustness implies diversity, sustainability refers to the community's capacity

to maintain a certain level of function within the social, ecological, and economic systems it encompasses. Sustainability is a complex idea focused around intergenerational equity. This concept relates to the maintenance and enhancement of resources in order to meet the needs of current and future generations.

Sustainability is difficult to measure since the concept lacks a universally agreed upon definition. The most widely accepted definition of sustainability was developed by the United Nation's Brundtland Commission and has since been incorporated into the 2012 Planning Rule, where sustainability is defined as the capability to meet the needs of the present generation without compromising the ability of future generations to meet their needs (36 CFR 219.19). The rule's objective states that plans are to guide management so that forests and grasslands are ecologically sustainable and contribute to socioeconomic sustainability, as well as to have the capacity to provide people and communities with ecosystem services and multiple uses that provide a range of social, economic, and ecological benefits for the present and into the future. Consequently a framework for evaluating contributions to socioeconomic sustainability needs to incorporate contributions to beneficiaries of ecosystem services.

For the purposes of examining current social and economic contributions to sustainability, and environmental consequences under the alternatives, criterion 6 of the Montréal Process is used. Criterion #6 and its indicators can be useful for purposes of evaluating socioeconomic sustainability under the 2012 Planning Rule (Ng 2014; Ng and Miller 2014). Criterion 6 deals with the maintenance and enhancement of long-term multiple socio-economic benefits to meet the needs of societies (Montreal Process Working Group 2009). Indicators under criterion 6 are mostly discussed qualitatively for communities of interest and in the Forest Economic Contributions section.

Montreal Process Criterion 6 indicators:

6.1 Production and consumption

- Volume of wood production
- Total and per capita consumption of wood production
- Non-wood forest product produced or collected
- Total and per capita consumption of non-wood forest produced or collected

6.2 Investment in the forest sector

- Investment and expenditure contribution to forest-related research, extension and development, and education

6.3 Employment and community needs

- Employment in the forest sector
- Resilience of forest-dependent communities
- Area of forest used for subsistence purposes

6.4 Recreation and tourism

- Area of forest available and/or managed for public recreation and tourism
- Number of visits attributed to recreation and tourism

6.5 Cultural, social and spiritual needs and values

- Area of forest managed primarily to protect the range of cultural, social and spiritual needs and values

- The importance of forests to people

Montréal Process indicators are incorporated into the discussion below of communities of interest and in the section below on Forest Economic Contributions in order to establish a baseline for evaluation of forest management under the revised Rio Grande National Forest Plan.

Communities Interested in Rio Grande National Forest Management

The long-term viability of communities is dependent upon the social, cultural, and emotional attachments people form with places. Although communities are often thought of in terms of geographical boundaries, communities within the Rio Grande National Forest's eighteen-county study area can be described by their physical place and by their connections to the local landscape. This distinction is best characterized as the difference between communities of place (i.e., people who are bound together because of where they reside, work, visit or otherwise spend a continuous portion of their time) and communities of interest (i.e., people who share a common interest or passion, regardless of their location or degree of interaction) (Patterson et al. 2003). The geographically based community refers to physical or political boundaries and not to the relationships among people who reside within these boundaries. Brown and Duguid describe communities of interest as —communities-of-communities (Brown and Duguid 1991); they provide unique opportunities to explore the linkages between people and public land that may transcend the geographically defined community. The distinction between place and interest is not mutually exclusive; in fact many communities share location and values, beliefs, and attitudes because community members choose to live near like-minded people.

Uses, products, services, and visitor opportunities supported by National Forests produce a steady flow of benefits, or ecosystem services, which contribute to the sustainability of forest dependent communities. While contributions to communities of place can be measured in terms of the economic activity forest resources support in the local economy (discussed in the Forest Economic Contributions section), the social and cultural links between the forest and communities of interest often transcend the boundaries of a physical place. These communities of interest are also beneficiaries of many ecosystem services. People, or *beneficiaries*, derive well-being from the components of nature they enjoy, consume, or use (Boyd and Banzhaf 2007). Thus communities of interest provide a means of examining connections between communities and ecosystem services that transcend geography. Communities of interest are described below as beneficiaries (in terms of the ecosystem goods and services that they benefit from) and other interests outside the scope of ecosystem services not captured in economic considerations discussed in the Forest Economic Contributions section.

While each community of interest may have a unique character and unique priorities related to natural resource use, the forest contributes to the livelihood of these communities by facilitating shared values, beliefs, and attitudes associated with the forest's resources. In this manner, The Rio Grande National Forest can be attributed with contributing to the long-term sustainability of several communities of interest. Social sustainability refers to the maintenance of vibrant communities through the network of relationships, traditions, culture, and activities that connect people to each other and to the land (36 CFR 219.19). Based on public involvement, discussions with forest staff and other input received from the public communities of interest associated with the Rio Grande National Forest were identified. These communities include:

- Cultural community of interest - protection and access to resources
- Educator, student and researcher community of interest
- Government, municipal and residential community of interest

- Non-use values community of interest (those who derive benefits from the existence and bequest values of resources, including wildlife, a diverse ecosystem, viewsheds, carbon sequestration and certain designated areas)
- Recreational community of interest - consumptive, including hunting, fishing and food pickers/gathers
- Recreational community of interest - non-consumptive, including art (writing, painting, photography) connecting with history and wildlife viewing
- Forest products community of interest
- Environmental justice and subsistence community of interest

A description of each community of interest is provided below. Relevant components of socioeconomic sustainability are also included for each group, consistent with definitions and requirements under the 2012 Planning Rule, applied within the Montréal Process framework described above.

Cultural communities of interest- protection and access to resources

The Rio Grande National Forest has been supporting cultural traditions for thousands of years and its landscapes serve as a reminder of traditions shared across generations. The historic features and landscape features that hold these memories help people form attachments to places by providing an understanding of their place in the natural, spiritual and cultural environment. Assessment 13 on Cultural and Historic Resources acknowledges that “cultural and historic resources within the plan area represent the processes and events important to the identity and history of local and tribal communities. Contemporary uses of resources and places within the plan area by American Indian, Hispanic and Anglo-American traditional communities are critical to maintaining the cultural identity of these communities.” For more in-depth analysis of tribal communities of interest please see Assessment 12: Areas of Tribal Importance.

Public input in support of this assessment highlighted the forest’s cultural and heritage importance based on a diverse set of uses. The forest is generally perceived as an important part of the culture and heritage of area communities and attributed with protecting a number of sites of cultural and historic importance. Many stakeholders believe that forest management of these sites increases public awareness of and access to opportunities to learn and interpret their cultural and historic significance. By preserving and facilitating the interpretation of these resources the Rio Grande National Forest ensures that the cultural legacy and heritage values supported by Rio Grande National Forest lands will be passed on to present and future generations.

Contributions to sustainability for this community are measured by employment from forest uses, qualitative assessment of resilience of forest-dependent communities, areas of forest available for subsistence purposes (indicators under Criterion 6.3 Employment and community needs) areas of forest managed to protect cultural, social and spiritual needs/values and qualitative assessment of the importance of forests to people (indicators under Criterion 6.5 Cultural, social and spiritual needs and values). As described above, the Rio Grande National Forest is vitally important to this community and contributes to their resilience as a forest-dependent community. Ecologists have found that ecosystem resiliency is strongly correlated with ecological diversity. Social scientists have adapted these findings to develop the premise that more diverse communities generally adapt to and integrate change more rapidly and successfully than their less diverse counterparts. Community or socioeconomic resiliency relates to humans’ ability to adapt to social and economic changes. Beckley et al. (2002) define community resiliency as: “the capacity of humans to change their behavior, redefine economic relationships, and alter social institutions so that economic viability is maintained and social stresses are minimized.”

Rio Grande National Forest management contributes to socioeconomic sustainability through access to cultural sites and management of special interest areas. Other sites with heritage importance are discussed in Assessment 13 on Cultural and Historic Resources. While the Rio Grande National Forest contributes to the range of cultural, social and spiritual needs and values of this community there are unknown relationships and gaps in information. Assessment 13 acknowledges that there is still much that we don't know about forest uses of traditional Hispano communities and how we should manage the special interest areas (Fremont Historic Area, the Wagon Wheel Gap Experimental Station, the Bachelor Loop Historic Area and the Baca Mountain Tract) designated for cultural values.

Educator, student and researcher community of interest

Educators, students and researchers depend upon a variety of goods and services from the Rio Grande National Forest such as water resources, wilderness, unique ecosystems, archaeological sites and habitats to understand, communicate and educate. For example, the Rio Grande National Forest is highly valued by a large community interested in natural plant and animal communities in a remote setting. Public input in support of this assessment indicated that the Rio Grande National Forest was significant to them because it provided lands important to endangered species, migratory birds and to other unique animal and plant populations.

Contributions to sustainability for this community are measured by qualitative assessment of contribution to forest-related research, extension and development, and education (indicators under Criterion 6.2 Investment in the forest sector). The Rio Grande National Forest contributes to opportunities for forest-related research, extension and development, and education by providing the opportunities described above to understand, communicate and educate. By managing remote landscapes, habitats (see Assessments 1, 3, 5 and 8) and areas suitable for wilderness designation the Rio Grande National Forest contributes to sustaining communities' interests for current generations and providing opportunities to pass knowledge down to future generations. Protection, enhancement and access to these goods and services support their livelihoods. The need for this contribution is increasing in demand with anticipated increases in population within the eighteen-county study area.

Government, municipal and residential community of interest

Local governments, municipalities and residential members of the community depend upon a variety of goods and services from the Rio Grande National Forest. Specific interests and benefits include water quality, water quantity, storage, flood control, property values near natural amenities on the forest, opportunity for placement of infrastructure, and reduced risk of erosion, fire and pest infestation from properly managed ecosystems.

Contributions to sustainability for this community are measured by employment from forest uses, qualitative assessment of resilience of forest-dependent communities, areas of forest available for subsistence purposes (indicators under Criterion 6.3 Employment and community needs). The Rio Grande National Forest contributes to the resilience of local governments, municipalities and residents by providing the benefits described above. This need for this contribution to sustainability is increasing in demand as the region surrounding the Rio Grande National Forest grows. Increased population in areas surrounding the Rio Grande National Forest increases the region's need for infrastructure and places greater pressure on forest management to provide utility right-a-ways to meet the region's growing infrastructure needs. In addition, as populations grow, conflicts between local residents and forest visitors may increase.

Local governments are supported by receipt-sharing of federal land payments (see Payments to States and Counties portion of Forest Economic Contributions section below). The payment in lieu of taxes (PILT) program may or may not continue to be funded, and Congress could initiate new discretionary or non-

discretionary federal land payment programs over the next twenty years. State and county federal land payments, are essential to balancing tight local budgets. As these revenues are invested in the maintenance and improvement of local infrastructure and public services, they contribute to the sustainability and health of local communities by supporting a portion of the valuable services these local governments provide. Although not directly managed by the forest but rather allocated by Congress, numerous counties in the immediate planning area of the San Luis Valley commented during the assessment phase about the importance of preserving these funding streams.

Non-Use Values community of interest

Non-use values are a type of non-market value specific to those who derive benefits from the existence and bequest values of resources, including wildlife, plant species, water bodies, landscapes, historical sites, and recreational trails. Non-market values can be broken down into two categories, use and non-use values. The use-value of a non-market good is the value individuals receive from the direct use of natural resource or non-market good. Within the Rio Grande National Forest use-values exists for recreational activities such as hunting, hiking, and wildlife viewing. The use of non-market goods often requires consumption of associated market goods, such as food, gas and lodging expenditures incurred by forest visitors.

Non-use values of a non-market good reflect the value of an asset beyond its current use. These can be described as existence, option and bequest values. Existence values are the amount society is willing to pay to guarantee that an asset simply exists. An existence value for the Rio Grande National Forest might be the value of knowing that undisturbed native plant habitat exists or the value associated with undeveloped scenic landscapes. In addition to implicit existence values, society's willingness to pay to preserve resources for future use attaches additional non-use values. The potential benefits people would receive from future use are referred to as option values when future use is expected to occur within the same generation and bequest values when preservation allows future generations to benefit from the resource use. Within the Rio Grande National Forest bequest and option values might exist for wildlife, plant species, water bodies, landscapes, historical sites, and recreational trails.

While non-use values may exist for many of the Rio Grande National Forest's natural resources, it is difficult to quantify and monetize. Since the methodologies for measuring these values can be controversial and difficult to apply, non-market goods tend to be undervalued. While it is not feasible to estimate non-market values during the planning process, it is important that forest management recognizes the value of forest resources include both market and non-market values. Many of these non-market values are discussed in other resource sections of the assessment (conditions, trends and stressors associated with habitat in Assessments 1 through 5).

Contributions to sustainability for this community are measured by areas of forest managed to protect cultural, social and spiritual needs/values and qualitative assessment of the importance of forests to people (indicators under Criterion 6.5 Cultural, social and spiritual needs and values). As described above, the Rio Grande National Forest is vitally important to this community and contributes to their sense of the importance of forests. In addition, the Rio Grande National Forest contributes to the range of cultural, social and spiritual needs imbedded in non-use values held by this community. In this manner contributions to their well-being and sustainability are maintained. For example, current management of unique habitats and wilderness contributes to the well-being of this community. For more in-depth analysis of non-use values to tribal communities please see Assessment 12: Areas of Tribal Importance.

Recreational community of interest - consumptive, including hunting, fishing and plant/material gathering

Information received from the public, supporting the assessment, revealed that recreationists highly valued the Rio Grande National Forest because of the opportunities for hunting, fishing and recreational food and material gathering (such as firewood and mushroom collection). Members of the public indicated they had developed strong personal and cultural connections with the forest through years participating in these activities. Often participation in these activities has spanned generations and offers experiences where parents were given the opportunity to teach their children to appreciate and respect nature. Though conflicts arise over competing uses, recreationists generally shared positive attitudes towards Rio Grande National Forest management and credited it as providing a unique and remote opportunity. By supporting unique recreational experiences the Rio Grande National Forest helps cultivate an appreciation for the outdoors that continues to be passed down to younger generations thereby contributing to the longevity of communities who use the forest.

The Rio Grande National Forest is one of the most remote and biologically and ecologically diverse landscapes in Colorado and the West/Southwest. As discussed in the sections on Multiple Uses section the forest provides habitat for many species of fish and wildlife of importance to communities locally and across the nation. According to 2011 National Visitor Use Monitoring data, 5 percent of forest visitors participate in hunting, and 4 percent fished while recreating on the Rio Grande National Forest. National Visitor Use Monitoring data also indicated that hunting and fishing are two of the most popular recreational activities pursued on the Rio Grande National Forest, and were reported to be the primary purpose of 7 percent and 14 percent of annual forest visits respectively.

Contributions to sustainability for this community are discussed in Assessment 9 and measured by: areas of forest available or managed for public recreation and tourism, the number of visits attributed to recreation and tourism (indicators under Criterion 6.4 Recreation and tourism), areas of forest managed to protect cultural, social and spiritual needs/values and qualitative assessment of the importance of forests to people (indicators Criterion 6.5 Cultural, social and spiritual needs and values). As described in Assessment 9, the Rio Grande National Forest is vitally important to this community and contributes to their sense of the importance of forests. Assessment 9 acknowledges that recreation is a critical part of social sustainability, connecting people to nature, providing for outdoor activities that promote long-term physical and mental health, enhancing the American public's understanding of their natural and cultural environments, and catalyzing their participation and stewardship of the natural world. Recreation also contributes to sense of place and contributes to physical and mental health, family cohesion, social integration, civic engagement, child development, work productivity, and promotion of environmental resource stewardship and conservation ethic (see Assessment 9). These contributions to sustainability are not changing however, increased demand for recreational opportunities are anticipated with increases in population and mobility.

Recreational community of interest - non-consumptive, including art (writing, painting, photography) connecting with history and wildlife viewing

Information received from the public, in support of the assessment, revealed that people associated with this community of interest valued the Rio Grande National Forest because of the opportunities for trail running, hiking, biking, riding off-highway vehicles, writing, painting, photography, birding, connecting with history and camping. Some recreationists had developed strong personal bonds with the forest through years of participating in these activities. Several comments highlighted that the forest provided multi-generation experiences where parents were given the opportunity to teach their children to appreciate and respect nature. The Rio Grande National Forest was also attributed with providing people with access to free forms of entertainment, like birding and various other types of wildlife viewing; however Assessment 9 indicates underserved groups on the Rio Grande National Forest include women,

minorities (Hispanics, Native Americans), youth under the age of 16, seniors (people aged 60 and over) and low income families. Though conflicts arise over competing recreational uses, recreationists generally shared positive attitudes towards the Rio Grande National Forest and credited it as providing unique and remote opportunities. By supporting unique recreational experiences the Rio Grande National Forest helps cultivate an appreciation for the outdoors that continues to be passed down to younger generations thereby contributing to the longevity of communities who use the forest.

Public input, in support of this assessment, highlighted a deep appreciation for the forest's remote and wild landscape and scenic beauty. These recreationists take great pleasure in using the Rio Grande National Forest as a source of inspiration for writing, painting, photography or other artistic pursuits. Others use the forest as a refuge away from the people, noise, and pollution of cities and credit the scenic, undeveloped landscapes of the forest with improving their quality of life by providing escape. Others attributed the forest's scenic resources with cultivating mental clarity, spiritual renewal and cultural connection. Others in this community of interest escape to the Rio Grande National Forest because the exploration and quiet enjoyment of its diverse landscapes provides relief from the stress of their daily lives and promotes self-reflection and inner peace.

Wildlife related activities on the Rio Grande National Forest are an important recreation activity that draws visitors to area. According to 2011 National Visitor Use Monitoring data, wildlife related activities accounted for approximately 55 percent of all forest visits each year and nearly 35 percent of forest visitors are estimated to participate in wildlife viewing. Public input, in support of this assessment, indicated that the Rio Grande National Forest was significant to them because it provided critical habitat for terrestrial, aquatic, and avian wildlife (see Assessments 1, 3, 5 and 8).

Contributions to sustainability from non-consumptive recreation opportunities are measured by areas of forest available and/or managed for public recreation and tourism, the number of visits attributed to recreation and tourism (indicators under Criterion 6.4 Recreation and tourism), areas of forest managed to protect cultural, social and spiritual needs/values and qualitative assessment of the importance of forests to people (indicators Criterion 6.5 Cultural, social and spiritual needs and values). The Rio Grande National Forest contributes to the importance of forests to nature enthusiasts, wildlife viewers and visitors seeking inspiration, spiritual or cultural connections; by managing the forest to protect the integrity of its resources so that it can continue to promote the mental, physical, and spiritual health of current and future generations. In addition, specific areas on the Rio Grande National Forest contribute to educational experiences and community sustainability.

Forest products community of interest

Historic harvests exceeded those in recent years, however current timber management provides supply of forest products that contribute to sustaining communities interested in timber. Interest related to commercial timber, and their contributions to socioeconomic sustainability are covered below in the section on Forest Economic Contributions. This section considers contributions to socioeconomic sustainability from other forest products such as firewood, mushrooms and other products.

The Rio Grande National Forest has supported generations of local residents by providing forest products used for home heating, cooking, construction (vegas, latillas and vigas) and other needs (food, crafts, medicine, etc.). A discussion of the culturally significant plant osha (*Ligusticum porteri*) is included in Assessments 12 and 13 covering its importance and issues unique to Rio Grande National Forest management. Information on quantity forest products collected is often tracked through the permitting process administered by the Rio Grande National Forest. Table 12 shows that collection, tracked by the forest, has been variable. While non-permitted collection does occur information is unavailable on trends

of use. Regardless, habitats across the forest contribute to the wellbeing and sustainability of this community through provision of these products.

Table 12. Non-commercial forest products: quantity cut unless specified

| | 2009 | 2010 | 2011 | 2012 | 2013 |
|-------------------------|------|------|------|------|------|
| Christmas trees | | | | | |
| subalpine AF | 437 | 449 | 548 | 553 | 578 |
| subalpine SAF | 431 | 375 | 312 | 349 | 405 |
| Transplants | | | | | |
| Aspen | 167 | 130 | 176 | 96 | 45 |
| combined Softwood | 95 | 139 | 167 | 115 | 144 |
| Bushels of cones | 150 | - | 50 | 100 | |
| Seed | - | 67 | 30 | 300 | |
| Mushrooms | | | 223 | | |
| Herbs | | | 10 | | |

Source: USDA NRM 2013

Firewood has been an important forest product provided by the Rio Grande National Forest. In many areas, fuelwood gathering is a necessity, not a luxury, since people heat their homes and cook with wood-burning stoves (Raisch 2000). Additionally, firewood use can be considered traditional as those with access to electric or gas stoves often prefer cooking with wood (Atencio 2004). In many firewood gathering areas, harvesting wood is considered to be a traditional right that ties people to their ancestral land (Raisch 2000).

The household importance of firewood across the eighteen-county study area is higher in certain areas than others. Data collected between 2009 and 2013 on household heating fuel from the U.S. Census Bureau’s American Community Survey show the degree to which residents in the study area counties depend upon firewood for household heating (Table 13). This data shows that households in all individual counties depend on firewood to a greater degree than either the state of Colorado or New Mexico. Firewood was the largest source of household heating for Saguache and San Juan counties and the second largest in Conejos, Costilla, Hinsdale and Mineral counties in Colorado and Rio Arriba and Taos counties in New Mexico (U.S. Department of Commerce 2013e).

Firewood removed from the forest contributes greatly relative to other Forest Service sources in the area. In fiscal year 2013 there were 8,769 cords of firewood sold on the Rio Grande National Forest. On the San Juan National Forest and the Carson National Forest there were approximately 9,600 and 23,800 cords sold, respectively (Forest Service cut and sold reports for Region 2 and Region 3). Over the period from 2000 to 2013 an average of 6,900 cords were sold from the Rio Grande National Forest.

Table 13. Household heating dependency by percentage of use (U.S. Department of Commerce 2013e)

| | Utility gas | Bottled, tank, or LP gas | Electric | Fuel oil, kerosene etc. | Coal or coke | Wood | Solar energy | Other fuel | No fuel used |
|-----------------------|-------------|--------------------------|-------------|-------------------------|--------------|-------------|--------------|------------|--------------|
| Colorado | 72.7 | 5.0 | 19.1 | 0.1 | 0.1 | 2.0 | 0.1 | 0.5 | 0.3 |
| New Mexico | 67.1 | 9.2 | 15.6 | 0.1 | 0.0 | 6.7 | 0.3 | 0.9 | 0.2 |
| 18 County Area | 70.1 | 6.7 | 17.9 | 0.1 | 0.1 | 3.9 | 0.2 | 0.7 | 0.3 |
| Alamosa | 53.1 | 13.2 | 21.8 | 2.8 | 0.0 | 7.1 | 1.0 | 1.0 | 0.0 |
| Archuleta | 34.4 | 31.5 | 12.9 | 0.3 | 0.3 | 18.2 | 0.9 | 1.4 | 0.0 |
| Chaffee | 51.8 | 23.6 | 11.4 | 0.3 | 0.1 | 11.5 | 0.8 | 0.2 | 0.3 |
| Conejos | 41.3 | 15.2 | 8.1 | 3.0 | 0.0 | 31.5 | 0.0 | 1.0 | 0.0 |
| Costilla | 3.3 | 50.2 | 7.3 | 9.6 | 0.1 | 25.7 | 0.6 | 2.6 | 0.5 |
| Fremont | 66.6 | 13.1 | 10.1 | 0.1 | 0.2 | 8.7 | 0.1 | 1.1 | 0.0 |
| Gunnison | 50.0 | 13.4 | 24.5 | 0.4 | 1.3 | 8.9 | 0.5 | 0.7 | 0.3 |
| Hinsdale | 9.8 | 41.8 | 20.1 | 0.0 | 0.0 | 26.0 | 1.8 | 0.5 | 0.0 |
| Huerfano | 34.1 | 32.0 | 13.4 | 0.2 | 0.8 | 15.4 | 1.1 | 2.5 | 0.5 |
| La Plata | 46.2 | 23.9 | 16.7 | 0.3 | 0.5 | 11.0 | 0.6 | 0.7 | 0.2 |
| Mineral | 4.1 | 42.0 | 22.6 | 0.0 | 0.0 | 31.0 | 0.0 | 0.3 | 0.0 |
| Montrose | 56.9 | 11.4 | 17.0 | 0.1 | 0.5 | 11.8 | 0.2 | 1.9 | 0.2 |
| Park | 33.8 | 32.1 | 6.8 | 0.2 | 0.6 | 23.9 | 0.7 | 1.8 | 0.1 |
| Rio Grande | 41.6 | 22.6 | 15.8 | 0.4 | 0.0 | 18.0 | 0.1 | 1.4 | 0.1 |
| Saguache | 26.2 | 25.3 | 18.5 | 1.0 | 0.0 | 27.0 | 1.6 | 0.4 | 0.0 |
| San Juan | 10.6 | 43.0 | 12.1 | 0.9 | 6.9 | 24.9 | 0.9 | 0.6 | 0.0 |
| Rio Arriba | 54.1 | 17.3 | 6.4 | 0.1 | 0.2 | 19.5 | 0.4 | 1.5 | 0.5 |
| Taos | 45.6 | 16.8 | 3.8 | 0.1 | 0.1 | 29.4 | 2.9 | 1.0 | 0.2 |

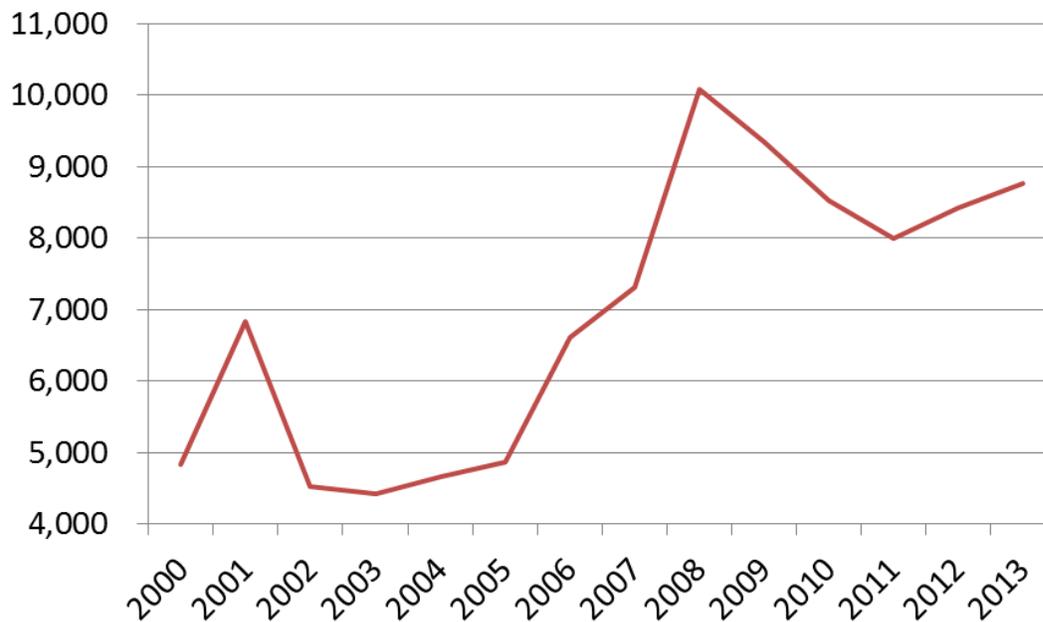


Figure 4. Cords sold from the Rio Grande National Forest

While firewood collected on Rio Grande National Forest land is important for household use, some of this firewood is sold to area distributors (about 6 percent). The sale of firewood to area distributors from the Rio Grande National Forest supports approximately four jobs and \$84,000 in labor income on an average annual basis. This does not include employment as a result of firewood traded or its value for household use described above.

Contributions to socioeconomic sustainability from Rio Grande National Forest Products

Contributions to sustainability from Rio Grande National Forest forest products are measured by volume of wood production, consumption of wood production, non-wood forest product produced or collected, consumption of non-wood forest produced or collected (indicators under Criterion 6.1 Production and consumption), employment from forest uses, qualitative assessment of resilience of forest-dependent communities, areas of forest available for subsistence purposes (indicators under Criterion 6.3 Employment and community needs). As noted above, firewood and other forest products have been an important part of culture, lifestyle and subsistence within area communities and use to play an important role in area communities. Public input, in support of this assessment, noted that the Rio Grande National Forest needs to manage areas to provide firewood and other forest products. By providing firewood and forest products the Rio Grande National Forest contributes to the resiliency of local communities and their socioeconomic sustainability. Future provision of firewood and forest product resources is integral to the viability, and thus sustainability, of study area communities.

Environmental Justice and Subsistence community of interest

The environmental justice and subsistence community of interest maintains longstanding and strong communal ties to the Rio Grande National Forest. While isolation of the area limits population growth and development of the planning area's smaller communities; strong social, cultural, and economic ties to the natural environment have long sustained communities in the San Luis Valley and other parts of the eighteen-county study area. The Rio Grande National Forest has supported generations of local residents through subsistence uses by providing food, water, grazing (see discussion in Forest Contributions section below) and forest products used for home heating, cooking (see firewood discussion in forest economic contributions below) and construction (vegas, latillas and vigas). Communities interested in environmental justice rally around the concept to motivate engagement regarding management of resource uses, potential for disparate and adverse effects from management, and emphasize unique cultural uses and practices on the Rio Grande National Forest.

Contributions to sustainability for this community are measured by volume of wood production, consumption of wood production, non-wood forest product produced or collected, consumption of non-wood forest produced or collected (indicators under Criterion 6.1 Production and consumption), employment from forest uses, qualitative assessment of resilience of forest-dependent communities, areas of forest available for subsistence purposes (indicators under Criterion 6.3 Employment and community needs). By managing the Rio Grande National Forest's ecosystems for ecological integrity, forest management promotes healthy, plant, fish and wildlife populations that contribute to the resilience of these forest-dependent communities. In addition, the public engagement process, required under the 2012 planning rule, facilitates the open and transparent dialogue the Rio Grande National Forest staff is undertaking. These contributions to ecosystems and public engagement are a vital part of this communities needs and thus contribute to their sustainability.

Forest Economic Contributions

The Rio Grande National Forest is managed in accordance with the Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. 528–531) (MUSYA) to sustain the multiple uses of its renewable resources while maintaining the long-term health and productivity of the land. The Rio Grande National Forest's

resources are managed for the long-term social and economic benefit of human communities. Economic contributions associated with managing forest resources can be measured in terms of the jobs and income which they support in forest related industries. In addition to employment and income contributions directly supported by Rio Grande National Forest expenditures and employment, the forest's resources directly contribute to economic activity in the local recreation and tourism, grazing, mining and timber industries which in turn stimulates economic activity in supporting and non-forest related sectors. Employment and labor income generated in these other sectors are known as the secondary, or indirect and induced effects of economic activity supported by the forest. These contributions are discussed below in addition to relevant components of socioeconomic sustainability are also included for each group, consistent with definitions and requirements under the 2012 Planning Rule, applied within the Montréal Process framework described above.

Recreation

Colorado's diverse geography and abundance of natural amenities have played an important role in making the state a retirement, recreational and tourist destination. Significant growth in services-related industries in recent years highlights the growing economic importance of the state's tourism industries and suggests that the economic drivers of the state have shifted from agriculture related industries towards those related to tourism and recreation (Services related sectors increased by 11 percent, in the eighteen-county study area, between 2000 to 2013; as discussed above). According to Colorado's 2014 *State Comprehensive Outdoor Recreation Plan* (SCORP), outdoor recreation is attributed with playing an integral role in Colorado's flourishing tourism industry. Statewide outdoor recreation contributes over \$34.5 billion in annual economic activity and creates 313,000 jobs (State of Colorado 2014). Information collected by the U.S. Wildlife Service indicates that in 2011, state residents and nonresidents spent \$3.0 billion on wildlife recreation in Colorado. Of that total, trip-related expenditures were \$1.2 billion and equipment expenditures totaled \$1.5 billion. The remaining \$186 million was spent on licenses, contributions, land ownership and leasing, and other items (U.S. Department of the Interior et al. 2011). A study commission by Colorado Parks and Wildlife reported that hunting and fishing contributed more than \$1.8 billion in economic activity and supported 21 jobs across the state. Wildlife viewing contributed another \$1.2 billion and supported 12,800 jobs across the state (State of Colorado 2007).

Across the state the forest service hosts 28.8 million visits⁵ (comprised of 30 million site visits) in 2012. This was more than any other provider of outdoor recreation across the state (State of Colorado 2014). While a significant provider of outdoor recreation opportunities the Rio Grande National Forest experienced fewer visits than other Forests in the state, in part due to its remote location (see Recreation section of the assessment). The Rio Grande National Forest supports a wide range of outdoor experiences which attracts thousands of local and non-local visitor's to the forest each year. According to recent results from the National Visitor Use Monitoring program the Rio Grande National Forest supports approximately 685,000 visits (comprised of 874,000 site visits) in 2010. Of these visits 65,000 were wildlife related (hunting, fishing and viewing wildlife) while the rest were visits related to non-wildlife activities. The five most frequently listed primary activities in 2010 were downhill skiing, viewing natural features, hiking/walking, hunting and driving for pleasure (see Recreation assessment section for more information from National Visitor Use Monitoring).

On their way to the planning area, and once they arrive, these visitors spend money on goods and services such as gas, food, lodging, and souvenirs. In contrast to many other resource and land uses, outdoor recreation is not captured by any one industrial sector. Instead, spending associated with recreational visits to these national forest system lands stimulates economic activity in a wide range of economic

⁵ A National Forest Visit is defined as the entry of one person upon a national forest to participate in recreation activities for an unspecified period of time. A National Forest Visit can be composed of multiple Site Visits.

sectors associated with accommodations and food service, arts and entertainment, passenger transportation, and retail trade (Marcouiller and Xia 2008) listed in Table 14.

Rather than measuring economic impacts, the economic analysis for recreation examined the local economic significance of outdoor recreation on the Rio Grande National Forest. While both impact and significance analyses measure the amount of economic activity attributable to outdoor recreation within a defined area, impact analysis only includes spending by visitors who reside outside of the local region since their spending constitutes "new dollars" being injected into the local economy. A significance analysis however, includes the effects of spending by all visitors, both those who reside in the planning area and those who do not. Since much of the spending by local recreationists would likely be shifted to other sectors of the local economy, the results of this analysis do not reflect the loss to the local economy if recreational opportunities on the forest were eliminated. Instead, the significance analysis shows the size and nature of economic activity associated with these recreational experiences to show how important they are to the local economy.

Outdoor recreationists participating in activities on public lands have unique spending profiles. Analyses of expenditures reported by national forest visitors has shown that the primary factor determining the amount of money spent on a recreational visit to public lands was the type of trip taken rather than the specific activity they intended to participate in while visiting (White, Goodding, and Stynes 2013). Based on this assumption, annual average visitation to the Rio Grande National Forest was segmented into local and non-local visits and then by trip type. Trip segments examined in the significance analysis included:

Visitors who reside greater than 50 miles from the Rio Grande National Forest:

- Non-local residents on day trips
- Non-local residents staying overnight on the Forest
- Non-local residents staying overnight off the Forest

Visitors who live within 50 miles of the Rio Grande National Forest:

- Local residents on day trips
- Local residents staying overnight on the Forest
- Local residents staying overnight off the Forest

Expenditures associated with these visits were estimated using national forest visitor spending profiles developed by the U.S. Forest Service from National Visitor Use Monitoring survey responses⁶. Spending profiles for average spending forests (Table 14) were applied to visitation estimates for the planning area (Table 15) in order to quantify visitor spending attributable to recreation on the Rio Grande National Forest. Economic contributions of current recreation use levels, and those anticipated under alternative management actions, were modeled in IMPLAN to estimate the direct, indirect and induced effects of recreation related spending in terms of the employment and income it supports across the eighteen-county study area.

⁶ National average spending profiles are developed for seven trip type segments: day trips and overnight trips involving stays on and off the forest for local and non-local visitors, and visitors whose primary trip purpose was not recreation on the forest. Distinct spending profiles are also estimated for high and low spending areas and for selected recreation activity subgroups.

Table 14. Spending profiles (in 2012 dollars) by trip segments for average spending forests[†]

| Spending Category | Non-Local Segments | | | Local Segments | | | Non-Primary‡ |
|----------------------|--------------------|-----------------|------------------|----------------|-----------------|------------------|--------------|
| | Day | Overnight on NF | Overnight off NF | Day | Overnight on NF | Overnight off NF | |
| Lodging | 0 | 64 | 183 | 0 | 31 | 55 | 136 |
| Restaurant | 16 | 28 | 119 | 5 | 7 | 36 | 95 |
| Groceries | 10 | 60 | 73 | 7 | 72 | 59 | 46 |
| Gas and Oil | 25 | 57 | 76 | 14 | 41 | 43 | 51 |
| Other Transportation | 1 | 2 | 4 | 0 | 0 | 1 | 3 |
| Activities | 4 | 9 | 29 | 2 | 4 | 6 | 18 |
| Admissions/Fees | 5 | 10 | 19 | 2 | 4 | 7 | 12 |
| Souvenirs/Other | 7 | 21 | 46 | 5 | 15 | 21 | 34 |
| Total | 67 | 249 | 550 | 35 | 173 | 228 | 397 |

Source: White, Gooding, and Stynes 2013

* Dollar figures are expressed in 2012 dollars and represent the spending of the entire group on Forest Service lands and within 50 miles of the boundary of Forest Service lands during the trip. Figures have been adjusted to 2012 dollars using the Bureau of Labor Statistics' CPI Inflation Calculator, available online: http://www.bls.gov/data/inflation_calculator.htm. The spending figures depicted in this table are one of three sets of national-level spending averages developed from the National Visitor Use Monitoring data. The shown spending averages are those determined to be most-applicable to the selected forest based on statistical analysis. For more information see "Estimation of National Forest Visitor Spending Averages from National Visitor Use Monitoring: Round 2" by E.M. White, D. B. Gooding, and D. J. Stynes (2013), available online: http://www.fs.fed.us/pnw/pubs/pnw_qtr883.pdf.

Table 15. Annual Rio Grande NF Recreation Visits^b by Trip Segment

| | Non-local Segments | | | Local Segments | | | Non-Primary |
|--|--------------------|-----------------|------------------|----------------|-----------------|------------------|-------------|
| | Day | Overnight on NF | Overnight off NF | Day | Overnight on NF | Overnight off NF | |
| Percent of National Forest Visits ^a | 09 | 11 | 31 | 35 | 3 | 1 | 10 |

Source: White, Gooding, and Stynes 2013

a - A National Forest visit is defined as the entry of one person onto a national forest to participate in recreation activities for an unspecified period of time. A National Forest Visit can be composed of multiple Site Visits.

b - The market segments shown here relate to the type of recreation trip taken. A recreation trip is defined as the duration of time beginning when the visitor left their home and ending when they got back to their home. "Non-local" trips are those where the individual(s) traveled greater than approximately 50 miles from home to the site visited. "Day" trips do not involve an overnight stay outside the home, "overnight on-forest" trips are those with an overnight stay outside the home on National Forest System (NFS) land, and "overnight off-forest" trips are those with an overnight stay outside the home off National Forest System land.

In total spending by recreationists on the forest supports approximately 588 jobs and about \$15.5 million in labor income in the eighteen counties surrounding the National Forest (Table 16). Wildlife related recreation supports 41 of these jobs and \$1.2 million in labor income in the study area. On an annual average basis approximately 461 of these jobs and \$10.5 million of the labor income is supported in the accommodation and food services, arts, entertainment, and recreation, and retail trade sectors (IMPLAN 2012).

Table 16. Total (direct, indirect and induced) employment and labor income from Rio Grande National Forest management

| | Employment (full- and part-time jobs) | Labor Income (thousands of dollars) |
|--------------------------------|--|--|
| Recreation | 588 | \$15,593 |
| Grazing | 185 | \$2,915 |
| Timber | 183 | \$6,865 |
| Minerals | 0 | \$6 |
| Payments to States/Counties | 35 | \$1,380 |
| Forest Service Expenditures | 167 | \$9,820 |
| Total Forest Management | 1,159 | \$36,580 |

Contributions to sustainability from regional economic activity associated with recreation on the forest are measured by employment from forest uses and qualitative assessment of resilience of forest-dependent communities (indicators under Criterion 6.3 Employment and community needs). The tourism and recreation industry has become an increasingly more important sector within the Rio Grande National Forest’s study area. Trends presented suggest that the economic base of nearby communities is shifting towards service businesses that rely, in part, on outdoor recreation. In addition, input from the public indicates the industry is a valued part of the local economy. As depicted in Figure 1, the study area is specialized with respect to recreation related industries (IMPLAN 2012). As a result of its economic importance and continued presence the tourism industry contributes towards the resilience of forest-dependent communities; thus contributions from the Rio Grande National Forest contribute to economic sustainability.

Economic activity attributed to recreation on the Rio Grande National Forest also contributes to long-term viability and resilience of the local economy by attracting new money (money earned outside the local economy and spent by these non-local visitors) into communities surrounding the forest. The injection of non-local dollars through purchases of gas, food, lodging, and concessions opportunities for employment and income would not exist in if the unique opportunities on the Rio Grande National Forest did not exist. By managing visually appealing landscapes and healthy fish and wildlife populations (see Assessments 1, 3, 5 and 8); forest management contributes to economic sustainability by supporting a share of employment and income in the local tourism industry.

Timber

Timber played an important role in Southern Colorado’s history and early economic growth through construction of railroads connecting the area to Denver and the surrounding region (see Assessment 13 description of timber history). In the last few years the timber industry has experienced a decreasing role within the state and the eighteen-county study area. In 1998, timber represented 0.4 percent of total employment in Colorado and New Mexico and by 2013 timber represented 0.2 percent of total employment. Within the study area, timber represented 1 percent of total employment in 1998 and by 2013 timber represented 0.4 percent of total employment. As depicted in Figure 1, the study area is specialized with respect to forestry and logging and primary wood products processing (IMPLAN 2012). See the Multiple Uses section for further discussion of the timber and forest products industry.

In accordance with the Multiple Use Sustained Yield Act, the Rio Grande National Forest is managed to ensure that the forest continues to provide timber. Over the period from 2009 to 2013 there was an average harvest of 7,990 CCF of sawtimber, 205 CCF of poles, 6,103 CCF of firewood (discussed above

in Forest Product Community of Interest), and 1,067 CCF of smaller non-sawtimber products (which include pulpwood and chip and saw) (USDA NRM 2013) (Table 17).

Table 17. Commercial and non-commercial forest products: volume and quantity cut (quantity cut unless CCF specified)

| | 2009 | 2010 | 2011 | 2012 | 2013 |
|------------------------------|-------|-------|-------|-------|-------|
| Sawtimber (CCF) | 9,369 | 9,811 | 7,946 | 7,930 | 4,895 |
| Poles (CCF) | 284 | 88 | 164 | 440 | 49 |
| Firewood (CCF) | 7,284 | 6,908 | 6,603 | 6,342 | 3,381 |
| Non-sawtimber products (CCF) | 1,999 | 523 | 2,084 | 706 | 21 |

Source: USDA NRM 2013

Harvest and processing of commercial forest products from the Rio Grande National Forest directly supports employment in logging and wood manufacturing firms in the study area and indirectly contributes to employment in a number of other industrial sectors. The timber analysis examined economic activity of stumpage flowing through logging companies, sawmills, post and pole operations, and firewood sales. Baseline information on the average annual volume (cubic feet) cut on the Forest was obtained from the Region 9 Cut and Sold Report for the Rio Grande National Forest. The direct effects were estimated using direct response coefficients developed from a national Timber Mill Survey conducted by the University of Montana's Bureau of Business and Economic Research (Table 18). Bureau of Business and Economic Research timber response coefficients are broken into multi-state regions and are considered more accurate than those available from IMPLAN.

Table 18. Keegan timber response coefficients for southeast states

| Industry Sector | Direct Response Coefficients | |
|---|------------------------------|---------------------|
| | Employment ^a | Income ^b |
| Forestry and Logging | 32 | 1,280 |
| Softwood Sawmills | 17 | 425 |
| Energy Small - Processing Roundwood | 2 | 120 |
| Energy Large - Processing Roundwood | 10 | 300 |
| Other Timber Products - Post and Pole | 15 | 450 |
| Other Timber Products - Utility Pole | 14 | 420 |
| Other Timber Products -Log Homes | 100 | 3,000 |
| Other Timber Products -Log Furniture | 125 | 3,750 |
| Facilities Processing Residue From Sawmills | 6 | 210 |

Source: Morgan et. al 2008

a - jobs per MMCF

b - thousands of 2012 dollars per MMCF

Data from the forest shows that 95 percent of the softwood sawtimber volume was processed in the study area. Most of that was processed by sawmills and Other Timber Product categories. Poles were processed by sawmills producing post, poles and utility poles while 6 percent of firewood went to firewood sales. Given the location of sawmills, anticipated to process volume from the Rio Grande National Forest, Bureau of Business and Economic Research direct response coefficients for Four Corners States (Arizona, Colorado, New Mexico and Utah) were used to estimate direct effects associated with timber harvests on

the Rio Grande National Forest (Table 17). Indirect and induced employment and income effects were modeled using IMPLAN. This contribution analysis indicates that the Rio Grande National Forest supports a total of 183 local jobs and about \$6.9 million in labor income across the eighteen-county study area (Table 16). Approximately 62 of these jobs and \$2.5 million of local labor income are supported in the Agriculture and Manufacturing sectors. These sectors include firms which specialize in forestry and logging and forest product processing which are key sectors of the study area; as demonstrated by the area specialization in forest related sectors depicted in Figure 2.

Contributions to sustainability from regional economic activity associated with timber and forest products from the forest are measured by volume of wood production, consumption of wood production, non-wood forest product produced or collected, consumption of non-wood forest produced or collected (indicators under Criterion 6.1 Production and consumption), employment from forest uses, qualitative assessment of resilience of forest-dependent communities, areas of forest available for subsistence purposes (indicators under Criterion 6.3 Employment and community needs). As noted above, the timber industry has been an important part of Colorado's economy and history and is anticipated to continue to play an important role in the local economy. Public input, in support of this assessment, noted that the Rio Grande National Forest needs to manage timber to ensure future forest users can rely on Rio Grande National Forest lands to provide forest products for personal and commercial use. Harvesting the Rio Grande National Forest's timber resources is done to maintain and restore ecosystem characteristics and improves the forests' resistance and resilience to stressors. In this way managing timber resources for ecosystem health increases the ability of area communities to adapt to changes in environment (such as fire, climate change, flood, insect and disease threats, etc.). As a result timber management on the Rio Grande National Forest can be attributed with increasing the resiliency of local communities and contributing to their socioeconomic sustainability. In addition to managing timber resources to improve stand health, management to that ensures commercial and non-commercial products contributes to the continued viability, and thus sustainability, of communities dependent upon timber, firewood and forest products.

Grazing

Historically the remote "unused" characterization of the study area's landscape attracted ranching development. While ranching initially supported the local mining industry, the arrival of railroads supporting the timber industry, connected ranching operations with larger markets outside the area (see Assessment 13 for more detail on grazing history). Today, agriculture continues to play an important economic and social role; area residents identify with the tradition, land-use, and history. The number of cattle and sheep operations decreased across the state from 2007 to 2012 (from 14,685 to 13,970 cattle operations and from 1,600 to 1,509 sheep operations). The most recent USDA Census of Agriculture reports that Montrose and Conejos counties were Colorado's 10th and 24th largest cattle producers containing 2.1 and 1.0 percent of the total state cattle inventory (USDA 2012).

Study area counties in Colorado accounted for 9 percent of the state's 2012 total cattle inventory and at least 13 percent of the state's sheep inventory (at least; since data was not disclosed for several counties in Table 19). Counties in New Mexico accounted for 2 percent of the state's 2012 total cattle inventory and 3 percent of the state's sheep inventory. All counties saw decreases in cattle inventory between census years apart from Archuleta, Gunnison, Montrose, Rio Grande and Saguache counties in Colorado and Rio Arriba and Taos counties in New Mexico. Sheep inventory decreased between census years for all counties apart from Archuleta, Costilla, Park and San Juan counties in Colorado and Taos County in New Mexico (Table 19).

Table 19. Cattle and sheep inventory and change within the 18 county study area

| | Cattle Inventory, including calves | | | Sheep Inventory, including lambs | | |
|-----------------------|------------------------------------|------------------|----------------|----------------------------------|----------------|----------------|
| | 2007 | 2012 | Percent change | 2007 | 2012 | Percent change |
| Colorado | 2,745,253 | 2,630,082 | -4 | 413,450 | 401,376 | -3 |
| New Mexico | 1,525,976 | 1,354,240 | -11 | 126,928 | 89,745 | -29 |
| 18 County Area | 278,669 | 286,912 | 3 | 76,411 | 57,766 | -24 |
| Alamosa | 11,652 | 11,533 | -1 | 2,376 | 2,287 | -4 |
| Archuleta | 6,250 | 13,092 | 109 | 662 | 836 | 26 |
| Chaffee | 7,928 | 6,932 | -13 | (D) | (D) | (D) |
| Conejos | 31,434 | 27,238 | -13 | 8,026 | 3,984 | -50 |
| Costilla | 7,893 | 7,213 | -9 | 383 | 969 | 153 |
| Fremont | 15,337 | 13,636 | -11 | 639 | 103 | -84 |
| Gunnison | 15,350 | 17,526 | 14 | (D) | (D) | (D) |
| Hinsdale | 1,279 | 1,115 | -13 | (D) | (D) | (D) |
| Huerfano | 13,962 | 13,655 | -2 | 105 | 51 | -51 |
| La Plata | 21,708 | 20,707 | -5 | 9,341 | 5,483 | -41 |
| Mineral | 163 | 120 | -26 | 3,966 | (D) | (D) |
| Montrose | 47,338 | 56,083 | 18 | 19,792 | 15,433 | -22 |
| Park | 8,653 | 7,599 | -12 | 52 | 164 | 215 |
| Rio Grande | 14,188 | 14,328 | 1 | 10,005 | 4,548 | -55 |
| Saguache | 20,640 | 21,597 | 5 | 2,229 | 923 | -59 |
| San Juan | 22,382 | 20,733 | -7 | 13,331 | 19,333 | 45 |
| Rio Arriba | 25,361 | 26,164 | 3 | 4,881 | 2,861 | -41 |
| Taos | 7,151 | 7,641 | 7 | 623 | 791 | 27 |

(D) indicates a county where inventory data are not disclosed in order to protect proprietary information of individual operators

Approximately 65 permittees use forage provided by the forest on 89 allotments that support 16,473 cattle and 20,188 sheep. Table 19 depicts approximately 6 percent of the study area cattle inventory and 35 percent of the sheep inventory. Total inventory presented in Table 19 includes dairy cattle and a few counties that may not contain permittees that utilize Rio Grande National Forest forage. Thus these shares are likely an underestimate of overall study area dependency on Rio Grande National Forest forage. Potential animal unit months (AUMs) available under permitted use were 79,890 cattle AUMs and 7,566 sheep AUMs in 2014. For a discussion of current utilization and trends see the range portion of Assessment 8 on multiple uses. Average annual grazing use on the forest supports approximately 185 jobs and \$3 million in labor income on an average annual basis (Table 16). Approximately 142 of these jobs and \$2.5 million of local labor income are supported in the Agriculture sectors. These sectors include grazing operations which are key sector of the study area; as demonstrated by the area specialization in forest related sectors depicted in Figure 2.

In addition to providing employment and labor income Rio Grande National Forest allotments provide an important complement to ranching operations that also occur on BLM and privately leased land. A thin profit margin often separates these livestock producers from negative net earnings. Often, employment outside the ranch augments livestock producer income. Federal grazing land is particularly valuable because of the low grazing fees charged for use of this land. Fees charged for grazing are calculated using

the formula required under grazing regulations found at 43 CFR 4130.81(a)(1) and are considerably less than those charged for private grazing land; and some area ranchers may prefer to use federal grazing land even though additional costs are usually incurred to use these lands.

Contributions to sustainability from grazing on the Rio Grande National Forest are not reflected in indicators under Criterion 6, however contributions do occur. As noted above, grazing has been an important part of Colorado's economy and history and is anticipated to continue to play an important role. Assessment 8 discusses the trends in cattle and sheep grazing occurring on the Rio Grande National Forest. This discussion acknowledges the variability in use with drought and other market forces. This section of the assessment presents the economic contributions to the study area which are complimented by grazing's cultural and traditional importance for area communities. Grazing management on the Rio Grande National Forest can be attributed with contributing to the resiliency of local communities and contributing to their socioeconomic sustainability by fostering these economic and cultural traditions. In addition to managing forage resources to improve vegetative health, management that provides for these contributes support the continued viability, and thus sustainability, of communities dependent upon grazing in the eighteen-county study area.

Mining

Mining has played an important role in the study area's history and early economic growth (see Assessment 13 for details). The forest provides a variety of mineral uses (discusses in Assessment 10 on Energy, Minerals and Geologic Hazards) such as locatable operations (the large Rio Grande silver mine in Creede), saleable mineral material (providing stone, gravel and other material to the public with a permit) and leasable minerals (no current development of oil and gas exists but future projections exist). In addition, recreational mineral collection (panning, dredging, sluice-box and metal detector use) occurs on the forest.

Contributions to sustainability from mineral uses on the Rio Grande National Forest are not reflected in indicators under Criterion 6 however contributions do occur. While the silver mine is not currently in operation it has been in the past and contributed jobs and economic activity to the area. In addition, saleable mineral material is important to residents collecting material for personal use and also provides material for county and state road projects (stone and gravel is often used for road resurfacing projects). In addition, recreational mining and mining history attract visitors to the area. Contributions from these visitors are included in the recreation contributions discussed above.

Payments to States and Counties

Counties in the eighteen-county study area receive payments associated with the Rio Grande National Forest lands they contain. These payments can be categorized into two types: receipt-sharing and per acre federal land payments. Receipt-sharing programs have been administered under the Secure Rural Schools and Community Self-Determination Act (SRSCS) and the Twenty Five Percent Fund Act of 1908. The SRSCS program was recently reauthorized, for 2 years, on April 16th, 2015. In the absence of SRSCS reauthorization, the Twenty Five Percent Fund Act of 1908 mandates that states receive a 25-percent rolling average of revenues earned from timber sales, special use permit fees, grazing fees, and other programs that generate receipts on national forest lands. The payments are paid to Colorado based on a 7-year rolling average of receipts from national forests and paid to counties to help fund schools and roads across the state.

In addition to receipt-sharing, the Payment in Lieu of Taxes program provides payments to counties to offset losses in tax revenues due to the presence of tax-exempt federal land in their jurisdictions. The authorized level of Payment In Lieu of Taxes payments is calculated under a complex formula. No precise dollar figure can be given in advance for each year's Payment In Lieu of Taxes authorized level. Five

factors affect the calculation of a payment to a given county: the number of acres eligible for Payment In Lieu of Taxes payments, the county’s population, payments in prior years from other specified federal land payment programs, state laws directing payments to a particular government purpose, and the Consumer Price Index as calculated by the Bureau of Labor Statistics.

Receipt-sharing and per acre federal land payments received by study area counties can be highly variable. Table 20 demonstrates the degree of variation in Payment In Lieu of Taxes and Secure Rural Schools dependency across study area counties. As shown Saguache County had the highest dependency on Forest Service related payments; depending on these payments for 20 percent of their total county revenue. Conejos County and Rio Arriba County had the second and third highest dependency on forest Service related payments; depending on payments for 15 percent and 12 percent of their total county revenue, respectively.

Table 20. Secure Rural Schools and Payment In Lieu of Taxes payments by county (FY 2014)

| | SRS | PILT | Total County General Revenue | Percent of General County Revenue |
|-----------------------|--------------------|---------------------|------------------------------|-----------------------------------|
| 18 County Area | \$8,558,864 | \$16,266,224 | \$286,000,589 | 9 percent |
| Alamosa | \$21,222 | \$193,906 | \$20,171,762 | 1 percent |
| Archuleta | \$334,011 | \$1,116,786 | \$20,144,050 | 7 percent |
| Chaffee | \$414,968 | \$1,246,037 | \$17,520,324 | 9 percent |
| Conejos | \$521,932 | \$1,114,508 | \$10,639,769 | 15 percent |
| Costilla | \$395 | \$585 | \$10,452,605 | 0 percent |
| Fremont | \$131,579 | \$1,097,117 | \$24,948,915 | 5 percent |
| Gunnison | \$1,123,781 | \$587,617 | \$25,046,708 | 7 percent |
| Hinsdale | \$293,898 | \$140,616 | \$3,655,564 | 12 percent |
| Huerfano | \$152,903 | \$475,752 | \$9,242,814 | 7 percent |
| La Plata | \$225,712 | \$760,455 | \$52,335,165 | 2 percent |
| Mineral | \$206,825 | \$122,539 | \$3,701,768 | 9 percent |
| Montrose | \$369,979 | \$2,266,958 | \$41,014,725 | 6 percent |
| Park | \$538,174 | \$1,526,243 | \$21,590,930 | 10 percent |
| Rio Grande | \$211,527 | \$712,236 | \$11,540,924 | 8 percent |
| Saguache | \$1,274,469 | \$976,053 | \$11,341,540 | 20 percent |
| San Juan | \$177,651 | \$78,489 | \$2,653,026 | 10 percent |
| Rio Arriba | \$1,935,329 | \$2,195,446 | \$34,353,448 | 12 percent |
| Taos | \$624,509 | \$1,654,881 | \$28,607,902 | 8 percent |

Source: USDA and USDI 2014; and State of Colorado Department of Local Affairs 2011

Although rural communities in these counties rely on these funds to balance tight budgets, the Payment In Lieu of Taxes program has reverted back to a discretionary program which is highly susceptible to federal funding shortages. It is fully funded through FY15, but there is a great deal of uncertainty whether and to what degree the Payment in Lieu of Taxes program will be funded in the future. If the program continues to be fully funded, counties in the study area could potentially see an increase in Payment In Lieu of Taxes payments as a result of reduced receipt-sharing payments.

As a result of payments to study are counties from uses on Rio Grande National Forest lands (timber sales, special use permit fees, grazing fees, and other programs) and Payment In Lieu of Taxes payments

35 jobs (direct, indirect and induced) and \$1.4 million in labor income are generated within the eighteen-county study area on an annual average basis (Table 16).

Contributions to socioeconomic sustainability are discussed above under the Government, Municipal and Residential community of interest.

Forest Expenditures and Employment

Management of the Rio Grande National Forest directly contributes to the local economy by employing individuals living within the area and by spending federally appropriated dollars on goods and services to carry out management programs. In recent years expenditures on forest programs and personnel for the Rio Grande National Forest have averaged \$10.9 million a year. Program related expenditures do not include expenditures associated with emergency fire suppression since these cannot be considered consistent contributions to the area economy. On an average annual basis, expenditures associated with the management of the Rio Grande National Forest support 167 jobs (direct, indirect and induced) and approximately \$9.8 million in local labor income in the eighteen-county study area surrounding the Rio Grande National Forest (Table 16).

Summary / Conclusion

The Rio Grande National Forest contributes to communities surrounding the forest diverse by providing diverse landscapes, habitat for native and endangered wildlife, forest products, forage for grazing and cultural and recreational opportunities. As described above, these amenities are tremendously valued by area communities, within the San Luis Valley and other communities surrounding the forest. The eighteen-county study area is specialized in many sectors related to forest management including government, forestry & logging, grazing, and tourism and recreation to the local economy. Cultural identity of the area is influenced by a mix of Anglo, Hispanic and Native American cultures. The longstanding histories of these groups have created strong cultural identities and traditions unique to the communities within the San Luis Valley and landscape surrounding the Rio Grande National Forest. While these groups historically may have clashed and culturally identified as disparate groups, over time the lines between them have sometimes become less discernible. Cultural identity continues to diversify as new settlers move in, attracted by unique natural and cultural amenities; often provided by the Rio Grande National Forest.

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