

Executive Summary

This report provides a socioeconomic assessment of the relationships between the four mountain Ranger Districts (RDs) of the Cibola National Forest (Cibola NF), the 10 counties with boundaries within the Cibola NF, and neighboring communities. This includes Indian Reservations, Pueblo lands and Land Grant communities. This assessment was commissioned by the Southwestern Regional Office of the USDA Forest Service (USDA FS or FS), and serves as a source of information for the development of a revised plan for Cibola NF.

The assessment is based primarily on secondary data sources, including those of the United States Census Bureau, the Bureau of Land Management, the Geological Survey, the Federal Highway Administration, Bureau of Economic Analysis, and the Bureau of Labor Statistics as well as the New Mexico Department of Transportation, the NM Department of Labor, NM Department of Game and Fish, and those plans and other documents produced by county governments. The most important source of data was National Forest Service (FS) records including the Forest Service infrastructure (INFRA) database and their GIS databases. In some cases, specific information was not available in a form appropriate to this analysis, requiring BBER to make estimates, using the best available data. In other cases, data were not available at all and this fact limited the analysis possible. Information sources and analysis methods are thoroughly documented throughout the report.

The Cibola NF consists of scattered “islands” of mountainous terrain that are under FS management. Cibola NF spans 10 New Mexico counties which are widely divergent in their socioeconomic characteristics. The assessment area, which includes Native American and Land Grant communities as well as Albuquerque and rapidly-growing Rio Rancho, is a study in contrasts. The study area includes a dynamic mix of peoples from different socioeconomic circumstances and with different histories and cultural traditions. Depending on their background, people in the assessment area may have differing and often conflicting perspectives on the Cibola NF and how land is used, and may be expected to make different and at times conflicting demands on the resources of the NF.

The Cibola National Forest makes a substantial and significant contribution to the socioeconomic well-being of the assessment area, representing many elements of a superior quality of life. A major finding of this study is that visitor spending in Sandia RD is the largest and most significant contributor to the economic impact of the Cibola NF. Additionally, ranching and FS operations provide important and much needed economic activity in rural areas.

This conclusion is the result of a socioeconomic analysis, based on seven assessment topics: demographics and socioeconomic trends in communities neighboring the Cibola NF, access to the NF, land cover and ownership, NF users and uses, special areas and places, economic impacts, and community relationships. In sum, the findings of these topics are as follows:

Demographic and Socioeconomic Trend:

The population of all counties in the assessment area grew between 1980 and 2000. The assessment area’s population rose from 644,000 to 884,000, increasing 37 percent, slightly below the 40 percent average for the state. Bernalillo County comprised the majority of population in the area and exhibited relatively stable growth of 33 percent, as the population grew by 137,000 during the two decades. Sandoval County, which includes Rio Rancho, topped the list in growth. Many of the fastest growing communities have been in the Albuquerque Metropolitan Statistical Area (MSA) and, in addition to Rio Rancho, include: Bernalillo, Corrales, Estancia, Los Lunas,

Los Ranchos de Albuquerque and Rio Communities¹. This growing population base has one major implication for the FS: **more use**. To complicate matters, in areas with growing residential populations like Bernalillo and Sandoval Counties, homes are being built on private land abutting the national forest. Subdivisions near the forest raise access concerns by either obstructing traditional points of access or by facilitating access to places previously difficult to get to. Homes in or near the Forest also impact the methods and costs of fire management.

Following the national trend, the population in the assessment area counties is aging. In the more rural counties of Catron and Lincoln, this aging process appears to have been accelerated by both the out-migration of the young and the in-migration of those in their retirement years. An older population, with more time on their hands, may seek out the recreational and leisure opportunities of the forest; they also, however, may be willing to volunteer their time on various types of FS projects.

New Mexico was the first state in the United States with a majority minority population. The 10 assessment counties vary considerably in their racial and ethnic composition, with Cibola (40%) and McKinley (75%) counties having very large Native American populations, and Socorro (49%) and Valencia (55%) having large proportion of their population identifying as Hispanic or Latino. Between 1990 and 2000, the Hispanic population in the Cibola NF counties increased their share of the total from 35% to 38%, while the state as a whole increased from 38% to 42%. The Native American population also increased – from 11.7% to 12.3% in the assessment area versus 8% to 9% statewide.

Poverty in the assessment area tracks with race and ethnicity. Native Americans as a group were most likely to be in poverty in 2000, with over one-third of Native Americans living below the federal poverty level. Among Native Americans, poverty is greatest in the rural counties. Nevertheless, even in urban areas their rates of poverty exceed those of other racial and ethnic cohorts. Poverty percentages by race in the assessment area are: White Alone (12%), African Americans (19%), American Indians (37%), Asians (14%), and “Other” (21%). In terms of ethnicity, 20% of Hispanics and 15% of Non-Hispanics were below the federal poverty level.

Access

New Mexico is served by two major interstates, Interstate 40 and Interstate 25. Interstate 40 runs east-west near the Mt. Taylor RD and through the Sandia RD, providing relatively direct access to both areas. Access to the Sandia RD is also available via Route 550 through the town of Placitas from Interstate 25 north of Albuquerque. The other two Ranger Districts are further away from these major interstates, but can still be accessed using other highways and local roads. Governor Richardson's Investment Partnership (GRIP) projects allocated funds to infrastructure improvements on I-40, expanding traffic capacity.

The Albuquerque International Sunport is the largest and busiest airport in New Mexico and is only 24 miles from the Sandia RD. The Sandia RD is the smallest in acreage, but has the most visitors, as it is located next to New Mexico's major population base and easily accessible by air and by interstate, as I-25 and I-40 intersect in Albuquerque.

¹ Rio Communities is an unincorporated settlement and a census-designated place (CDP) in Valencia County, New Mexico east of Belen with a year 2000 population of 4,213. <http://www.city-data.com/city/Rio-Communities-New-Mexico.html>.

Vehicle miles traveled and vehicles per road mile are heaviest in the counties that surround the Sandia RD, particularly Bernalillo county, although vehicle per road mile area also high in Valencia County (624). Total vehicle miles traveled are also high in McKinley County near the Mt. Taylor RD. These measures of traffic density are lowest in the counties touching or surrounding the Magdalena RD and the Mountainair RD.

Population growth in the wildland-urban interface of the Cibola NF raises issues regarding access and right-of-way. Most areas surrounding all four of the RDs are privately owned land. In areas such as Mt. Taylor, access issues are further complicated by tribal and state owned land, interspersed with national forest.

The growing use of Off Highway Vehicles (OHVs), particularly for unmanaged recreation is viewed as one of the four major threats by the USDA FS, providing impetus for the Travel Management Directive, under which all the NFs will have to designate which roads and trails will be open to motorized vehicles.

Land Cover

GIS data show that about 60 percent of the Cibola NF is evergreen forest, encompassing 1,254,520 acres. Shrubland and herbaceous grasslands make up most of the remaining 40 percent. Over half of the forest's shrubland (293,843 acres) is in the Magdalena RD. Herbaceous grassland covers 233,889 acres in the Mountainair RD, accounting for 31.5 percent of Cibola NF's herbaceous grasslands.

Landcover defines land use capabilities, which strongly influence land ownership. The majority of land within the exterior boundary of the National Forests is federally owned. However, there are 797,707 acres of private land in-holdings within the administrative boundary of the National Forest, accounting for 24 percent of the total acreage within this exterior boundary. Frequently, there are parcels of forest land scattered around the boundaries of the forest that are costly and difficult to manage and can pose significant right-of-way issues. Land exchanges are one way to address this issue, allowing the Forest Service to exchange less ideally located land parcels with better suited privately owned parcels to create a more contiguous administrative unit, but such exchanges are often controversial.

Users and Uses

The FS management strategy is guided by the multiple-use mandate.² However, increased usage of essentially limited resources can ultimately give rise to conflict over land use. In the Cibola NF, recreational uses, like hiking, camping, picnicking, skiing, off-highway vehicle (OHV) use, and rock climbing – have increasingly eclipsed the more traditional economic pursuits of grazing, timber, hunting and mining, although these latter uses are critical to the livelihood of people living in communities adjacent to the forest. This Socioeconomic Assessment found recreation to be the primary land use of the Cibola NF³. Another major use is grazing. Twenty-two percent of grazing on public land occurs within the Southwest Region of the NF system. Grazing is the second most substantial commercial activity on the Cibola NF and has a significant economic impact in rural communities. The timber industry is not a major economic force in the area today, nor does it provide many jobs. However, small-diameter wood harvesting is a potential source of

² *Multiple-Use Sustained-Yield Act of 1960*, 16 U.S.C. §§ 528-531, June 12, 1960.

³ Refer to Chapters 4 and 5, and Section 5.1 in this document for a detailed report.

economic development. There may be market potential for small diameter wood products, including fuel wood, heating pellets, mulch, panels, composite products, fence posts, round wood construction, and “character wood” niches.

Native American tribes make ongoing use of FS managed lands for religious and other cultural purposes. The Cibola NF has archaeological resources, cultural lands, and sacred sites that are unequivocally important to tribes.

One of the most public and farthest-reaching multiple-use debates is the use of OHVs. The FS acknowledges that unmanaged recreation, primarily OHV use, is one of the four largest threats facing the National Forest System.

Special Areas, Recreational Sites, and Heritage and Cultural Resources

Special Areas in the Cibola NF include Wilderness areas and inventoried roadless areas (IRAs). Much of the IRAs on the Cibola NF exist within established Wilderness areas such as the Apache Kid Wilderness in the Magdalena RD and the Manzano Mountain Wilderness in the Mountainair RD. Within the Cibola NF, there are 160,000 acres of IRAs where neither road construction nor reconstruction is allowed. These areas comprise 8% of NF System lands in New Mexico, including the Kiowa NG. The legal status of these lands and what may need to be done to protect them has changed with recent court decisions.

The Cibola NF features over 135 developed recreational sites. Developed sites include campgrounds, picnic areas, shooting ranges, visitor centers, and interpreted historical and/or archaeological sites, and are maintained with the help of volunteers.

Within the boundaries of the National Forest, there are numerous areas of cultural significance to the indigenous peoples of the surrounding areas. These places are of importance to Native American tribes and pueblos for their traditional cultural and religious activities. Maintaining the integrity and sanctity of these traditionally significant areas is a challenge for both the Forest Service and the local native peoples.⁴

Economic Impact

Analysis using the IMPLAN regional economic model indicates that visitor spending is by far the largest contributor to economic activity generated by Cibola NF. Ranching and USDA FS operations contribute a much smaller but significant amount. Timber harvesting plays only a minor role. Ranching is an important activity in New Mexico and plays a critical role in the economy and culture of many small rural communities. In small rural communities, the NF can be particularly critical for subsistence activities, like hunting and gathering herbs, as well as providing a source of cash income (e.g., from the sale of firewood or Christmas trees).

Community Relationships

The FS has an extensive history of working with local communities on various projects, ranging from economic development to forest health and sustainability. Partnerships are an indispensable method of managing operations and conducting business. They are a vital means of achieving

4 Russell, J. C., & Adams-Russell, P. A. (2005b). Values, Attitudes and Beliefs Toward National Forest System Lands: The New Mexico Tribal People (Issue Brief). Placerville, CA: Adams-Russell Consulting, September 11, 2005

goals that might not be met by the FS alone. The most common partners are non-governmental organizations, which are typically non-profit organizations such as neighborhood associations and agricultural sustainability groups. One way the FS has been teaming up with community groups is through the Collaborative Forest Restoration Program (CFRP). This program provides cost-share grants to stakeholders for forest restoration projects on public land which are designed through a collaborative process. Cibola NF had the support of over 800 volunteers in 2005.

1 Introduction

1.1 Statement of Purpose

This report provides a socioeconomic assessment of the Cibola National Forest (Cibola NF) and surrounding counties and communities that comprise the assessment area. The report explores relationships and linkages between the USDA Forest Service (USDA FS or FS) managed lands, the visitors and other users of the forest, and the surrounding communities. Specifically, this report contains information and analysis intended to help the FS and the public:

1. Document and assess the current contributions of the Cibola NF to the socioeconomic health and cultural vitality of the communities neighboring the public land.
2. Identify opportunities and strategies to address land use conflicts arising from growing multiple use concerns.
3. Compile information and analyses that would be helpful in developing a forest management and planning framework in one place.

1.2 Sources of Information and Analytical Methods

The Cibola NF is an administrative unit divided into six Ranger Districts. Four of those districts, Mt. Taylor, Magdalena, Mountainair, and Sandia, comprise the Cibola National Forest, and two districts administer four National Grasslands (Kiowa/Rita Blanca, and Black Kettle/McClellan). The assessment area of this report includes only the four mountain Ranger Districts (RDs) of the Cibola NF. The socioeconomic assessment of the four National Grasslands was conducted independently and completed in July of 2005.⁵

Information in this assessment is largely drawn from secondary data sources. Secondary data sources often involve data collected for specific purposes, but the data may be useful for other purposes. Key data sources for this report include:

- Demographic and economic data sets, such as those available from the United States Census Bureau and the Bureau of Economic Analysis;
- Administrative, land management and resource data mostly provided by the FS and the Bureau of Land Management (BLM); and
- Contextual and historical information obtained from archival sources, such as newspapers, internet sites and trade journals.

1.3 Assessment Area and Level of Analysis

The Cibola NF comprises 2,108,552 acres and consists of four Ranger Districts that span ten counties. The Cibola NF is adjacent to or includes lands claimed by several Indian reservations, Pueblo lands, and land grant communities. While the borders of the Cibola NF are not nearby any other national forests, the Cibola NF assessment area shares county coverage with other national forests.

⁵ Mitchell, J., and Cook, J. (2005, September). *Socioeconomic Assessment of the Region 3 National Grasslands*. Bureau of Business and Economic Research, University of New Mexico. Albuquerque, NM.

Sandoval County, for example, hosts sections of two Cibola NF ranger districts as well as parts of the Santa Fe NF. **Figure 1** is a map of the Cibola NF and vicinity. Much of the data used for this report is available only on a county-level. The area includes only New Mexico counties that contain or touch any of the four Ranger Districts of the Cibola NF. The assessment area is comprised of 10 New Mexico counties (41,959 square miles⁶). **Table 1** lists the counties in the assessment area and shows the acreage within FS boundaries and that managed by the FS within each of the counties.⁷

⁶ 26,853,702 acres

⁷ See USDA FS Website http://www.fs.fed.us/land/staff/lar/definitions_of_terms.htm for terminology.

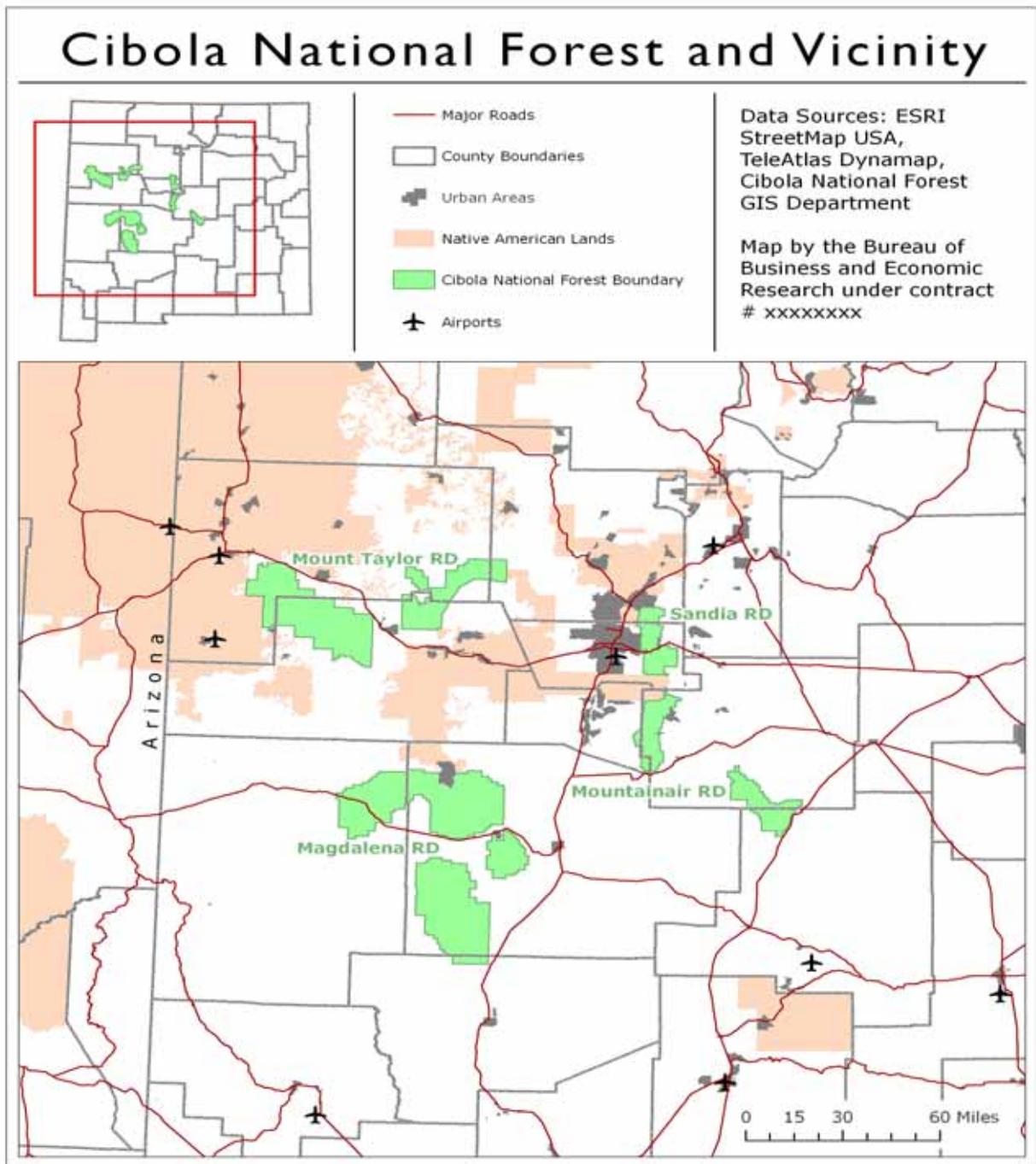


Figure 1.1 Cibola National Forest Assessment Area

Table 1.1 Cibola National Forest Acreage by County

	Total Cibola NF Acres in County	Forest Service Managed Acres	Acres Under Other Ownership	Total Acres in County	Cibola NF as a % of Total County Acres
Bernalillo	94,665	74,682	19,983	747,797	12.66%
Catron	223,493	158,039	65,454	4,442,089	5.03%
Cibola	379,538	305,061	74,477	2,909,927	13.04%
Lincoln	53,396	34,271	19,125	3,089,791	1.73%
McKinley	249,996	189,196	60,800	3,496,296	7.15%
Sandoval	52,116	45,024	7,092	2,376,987	2.19%
Sierra	21,172	18,869	2,303	2,711,922	0.78%
Socorro	832,720	614,805	217,915	4,255,339	19.57%
Torrance	184,826	155,224	29,602	2,139,967	8.64%
Valencia	16,631	15,937	694	683,588	2.43%
Total of All Counties	2,108,552	1,611,108	497,445	26,853,702	7.85%

Sources: Cibola National Forest GIS Department and ESRI Arc GIS Street Map USA 2004
Calculations: Done by UNM-BBER.

The largest portion of forest service managed land (614,805 acres) is in Socorro County, where parts of the Magdalena Ranger District cover almost 20% of the county's area. Some counties, such as Catron and Sandoval have more USDA NF than the table above indicates, since the table shows only the area covered exclusively by the Cibola NF. Catron County is largely covered by the Gila NF, while Sandoval County includes a large portion of the Santa Fe NF.

About 23 percent (497,445 acres) of land within the Cibola NF boundaries is owned by entities other than the USDA FS, such as Native American Tribes, land grant communities, private landowners, and the State of New Mexico. The Native American lands are designated as reservation or puebloan, depending upon the tribe. Land grants are a legacy of the Spanish and Mexican colonial era, whereby land was bestowed upon pueblos, individuals and/or communities by the Spanish Crown or the Mexican Republic. These land grants were recognized by the United States in 1848 with the Treaty of Guadalupe Hidalgo when New Mexico was incorporated as a US territory.⁸

As noted above, two of the six Cibola NF Ranger Districts are National Grasslands. These grasslands have been assessed in a separate report and are not included in this report.⁹ The remaining four districts of Cibola NF are referred to as the "Mountain Districts." There are several unique characteristics regarding the configuration of Cibola NF Mountain Districts:

1. The Districts are generally not in one contiguous area, but are associated with particular mountain ranges. The Cibola NF consists of relatively scattered "islands" of mountainous terrain surrounded by other land jurisdictions, including Native American tribal lands and land grant communities.
2. The counties in the ten-county assessment area vary substantially in their social and economic characteristics. The Sandia Ranger District for example, abuts an area of New

⁸ Robert J. Torrez, Former State Historian. (1997). *New Mexico's Spanish and Mexican Land Grants*. New Mexico State Records Center and Archives. <http://www.nmgs.org/artlandgrnts.htm>.

⁹ Mitchell, J., and Cook, J. (2005, September) *Socioeconomic Assessment of the Region 3 National Grasslands*. Bureau of Business and Economic Research, University of New Mexico. Albuquerque, NM.

- Mexico where over 1/3 of the state's population reside. The other three Ranger Districts are in rural areas of the state.
3. Each of the four Ranger Districts shares borders with land grant communities and Native American Pueblos and reservations.

Where it is possible and appropriate, information is presented on a ranger district level. While some information is provided on individual communities, it was often difficult, if not impossible, to assemble meaningful data for geography below the county level. Furthermore, much of the data provided by the FS are at the forest level and cannot be disaggregated to the individual ranger districts.

The residents living around and within the exterior boundaries of the USDA FS managed lands are from diverse socioeconomic and cultural backgrounds. These various groups of people represent differing, and often opposing, expectations of the services and management obligations of the FS. The areas surrounding the ranger districts include a mixture of land grant areas, pueblos and other reservation land, small rural communities and the state's major metropolitan area, the Albuquerque MSA. Later chapters of this report examine the opportunities and challenges that this heterogeneity presents for managing FS lands. The following sections describe each of the ranger districts and include a discussion of historical land uses. The information presented is based on information from the USDA FS, the FS website, and other sources. **Figures 1.2 to 1.5** are maps of each Ranger District.

Mt. Taylor Ranger District

The Mt. Taylor Ranger District is comprised of two mountain ranges, the San Mateo and Zuni Mountains, and totals nearly 520,000 acres of NF land. The district covers parts of McKinley, Sandoval and Cibola Counties and abuts the Zuni Pueblo and the Navajo Nation. Elevations range from 6,500 to 11,301 feet. Mt. Taylor is the highest peak in the San Mateo range (11,301 ft) and an area of special religious and cultural significance to several Native American communities. In the Zuni range, Lookout Mountain is the highest peak (9,128 ft.). The San Mateo and the Zuni Mountains contain rich heritage resources, including archaic, ancestral Puebloan, and Navajo sites, historic sawmills and logging communities, railroad grades, mines, and homesteads. The mountain ranges provide vital resources for grazing, timber extraction, and recreation. The highland snow pack is the primary water resource for the lowland communities. I-40 serves as a major thoroughfare and access point to the District.

Figure 2 provides a map of the Mt. Taylor RD.

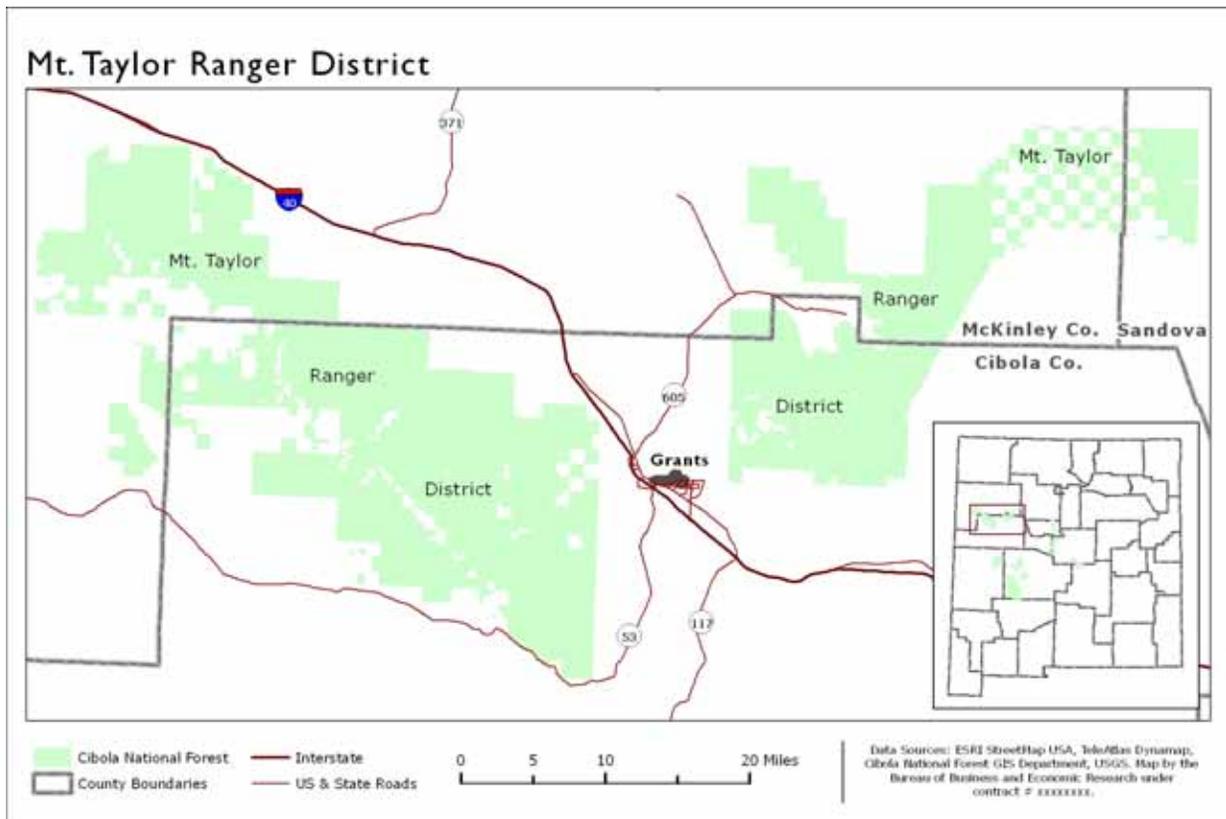


Figure 1.2 Mt. Taylor Ranger District

The map shows a checkerboard pattern of land ownership in the areas surrounding the Zuni Mountains to the southwest and the San Mateo Mountains to the northeast. About 22 percent of the land within the Mt. Taylor RD administrative boundaries is owned by entities other than the FS. The area 25 miles northeast of Grants in McKinley County is known as the “Checkerboard” because of the mix of property held in trust for various tribal governments intermingled with private, non-tribal property holdings within reservation boundaries.¹⁰ This pattern of varied land ownership creates jurisdictional problems, making it difficult to coordinate land and resource programs, and has long been a source of conflict among forest users, private land owners and FS officials. The issues are discussed further in Chapter 4, “Land Cover and Ownership.”

Mt. Taylor Ranger District experienced a period of aggressive logging in the early 1900s. As the transcontinental railroad extended into the Zuni mountain region, camps of settlers established themselves throughout the area. Consequently, Grants and the surrounding area began to grow. However, as the national economy declined in the early 1930s, so did the timber industry. By World War II, logging had come to a complete stop, only to give way to the region’s next profitable endeavor, uranium mining. Uranium mining produced significant profits beginning in the early 1950s and continuing through the early 1980s. By 1979, an estimated 6,000 workers were employed mining and milling uranium in the vicinity of Mt. Taylor RD. Grants and its neighbor village, Milan, grew to about 15,000 people. After the Three Mile Island accident,

¹⁰ Tom Purdom, *Independent* (Gallup), April 11, 2001.

however, the price of uranium plummeted, resulting in the closure of most of the uranium operations in the area.

The Bluewater Creek valley of the Mount Taylor RD sustained large herds of cattle in the 1940's.¹¹ However, over time, the combination of intense grazing, logging and road building severely compromised the riparian qualities of the creek. The Forest Service has been working to restore the area as a riparian habitat over the last 10-15 years. Current management efforts in the Mt. Taylor RD are focused on rehabilitating areas where extensive logging and grazing has occurred since the early 1900s.

Mt. Taylor holds considerable cultural significance for many of the Pueblos as well as the Navajo. The mountain figures prominently in oral traditions, and for some tribes it is considered the home of several deities and kachinas. The mountain is used for a number of traditional cultural and religious activities.¹² For the Navajo, Mt. Taylor is the southern most of the four sacred mountains, and is called the Blue Bead, or Turquoise, Mountain.^{13, 14, 15}

Magdalena Ranger District

The Magdalena Ranger District is the largest district in the Cibola NF, composed of four separate and distinct mountain ranges in southwest New Mexico. The ranges include the Datils, Bears, San Mateos and Magdalena Mountains. The change in elevation from about 6,000 feet in the southern portion of the San Mateos to the 10,700 ft. peak of South Baldy provides great variation in topography and accompanying ecosystems. With an area of approximately 900,000 acres, the district covers the three counties of Socorro, Catron, and Sierra. The largest city in the area is Socorro, with a population of about 9,000 people. US Route 60 is the major access point for the area. See **Figure 3** for a map of the Magdalena RD.

The Magdalena RD includes two Wilderness Areas designated by Congress in 1980. The Apache Kid Wilderness is a 44,650 acre area in the higher elevations of the southern San Mateo Mountains. The topography is rugged, with many narrow steep canyons cutting through high mountain peaks. Vegetation includes piñon and juniper in lower elevations, ponderosa pine in middle elevations, and spruce, fir and aspen in higher elevations. The area has a trail system of 68 miles, one third of which is in primitive condition. The Withington Wilderness covers an 18,824 acre area with elevations varying from 6,800 to 10,100 feet on the eastern slopes of the San Mateo Mountains north of the Apache Wilderness.

The history of the Magdalena RD dates back to 1899 with the creation of the Gila Forest Reserve. The Magdalena RD has been a part of Magdalena's economic life for nearly a century. This long history makes the FS the oldest continuous employer in Magdalena. Even today, the residents near the Magdalena RD look to the FS for economic development.

¹¹ USDA FS (2006) Mt. Taylor Ranger District, <http://www.fs.fed.us/r3/cibola/districts/mttaylor.shtml>.

¹² C. Benedict, Forest Service Archaeologist, Cibola NF, USDA FS, New Mexico.

¹³ Van Valkenburgh, R. F. (1974). "Navajo Sacred Places." In C. Kluckhohn, (Ed.), *A Short History of the Navajo People*. Garland Publishing, Inc., New York, p. 57.

¹⁴ Roessel, R. A. (1983). *Diné'tah, Navajo History, Vol. II*. Navajo Curriculum Center, Rough Rock Demonstration School. Rough Rock, AZ. Pgs. 89, 91.

¹⁵ Danielle Knight (1999, June 15). "Sacred Native American Sites Threatened." *Interpress Third World News* (IPS). Laguna, NM.

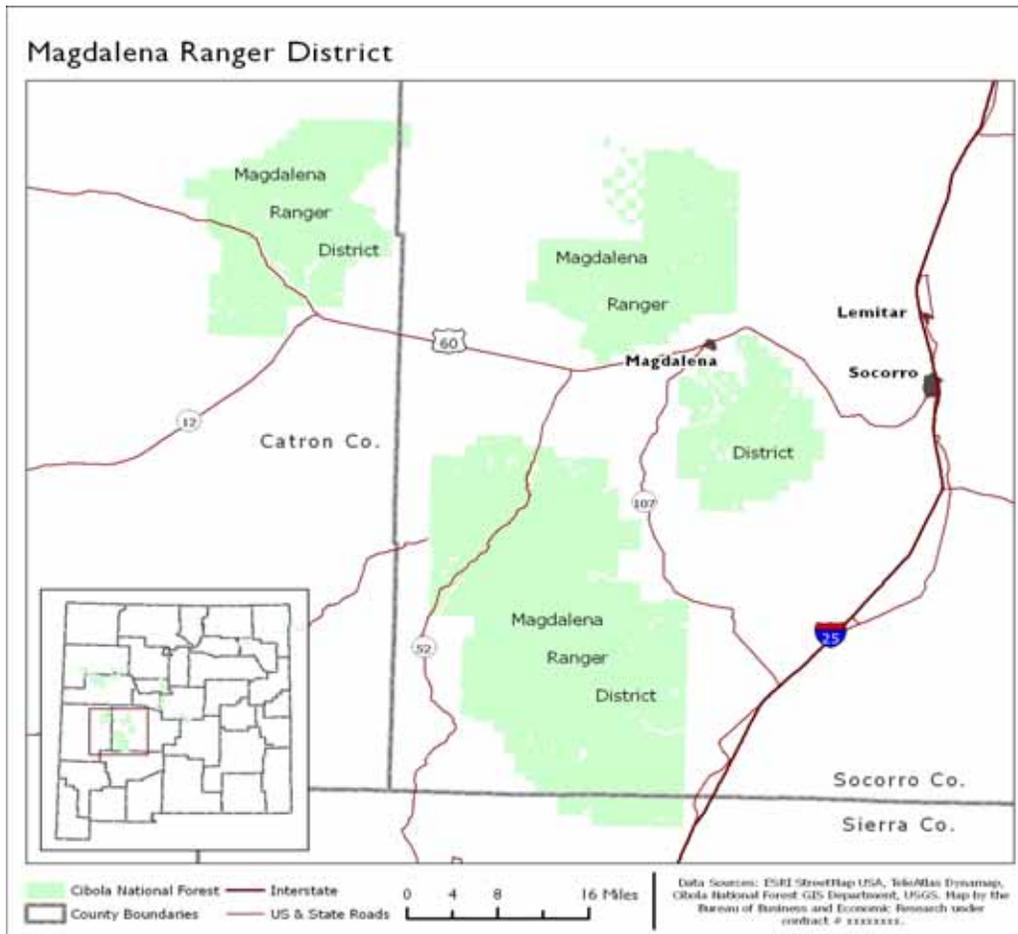


Figure 1.3 Magdalena Ranger District

Historically, the land in the Magdalena RD was subject to expansive logging and mining operations. Mining of lead and other metals was booming until about 1920.¹⁶ The Magdalena Mountains provided timber and firewood for Ft. Craig on the Rio Grande, when it was in operation as a military outpost from 1854 to 1885. Although major timber sales stopped in 1974, current timber related endeavors include firewood for residential and commercial use, and small diameter products such as poles, posts, novelty wood, and Christmas trees.¹⁶ Mining and extractive uses are mostly a relic of the past. The district still has an extensive grazing program, with at least 40 grazing allotments and at least 55 permittees¹⁷, which supports the area's ranching base. Generally speaking, the area is open to grazing, mostly cattle (8,000 permitted), with both yearlong and seasonal grazing allotments. The Magdalena RD is also used for recreation, including hiking, camping, horseback riding, rock climbing, and off-highway vehicles (OHV). Elk hunting in Magdalena RD is a major attraction for sportsmen and sportswomen across the country. Other common game species in the district are white tail deer, black bears, mountain lions, turkeys and pronghorn antelope. Current major uses of FS land include state and

¹⁶ USDA FS (2006). Magdalena Ranger District. Cibola National Forest Website. <http://www.fs.fed.us/r3/cibola/districts/magdalena.shtml>.

¹⁷ USDA FS, INFRA Database.

county roads, telephone and power lines, communication sites and private roads. The Langmuir Laboratory for Atmospheric Research holds the largest special use permit.

Mountainair Ranger District

The Mountainair Ranger District comprises the Gallinas and Manzano Mountains. The Manzano Mountains run north and south reaching elevations of 6,000 to 10,098 feet at Manzano Peak. The mountain range slopes gently upward from the Estancia Valley to about 8,000 feet and then rises abruptly to its peak. The west side drops steeply into the uplands of the Rio Grande Valley. The

Manzano Mountains are situated in the midst of the fastest growing region in New Mexico – the Albuquerque MSA, comprised of Bernalillo, Sandoval, Torrance and Valencia Counties. By contrast, the Gallinas Mountains are an isolated range west of Corona. The Gallinas rise to an elevation of 8,637 feet at Gallinas Peak, the highest point in the range. **Figure 1.4** provides a map of the Mountainair RD.

The Mountainair RD includes the Manzano Mountain Wilderness. There are more than 64 miles of well-developed trails that provide access to the Wilderness, but the lack of reliable water sources and a limited number of campsites may discourage use.¹⁸ The Manzanos are also not as readily accessible as the other ranges in the Cibola NF, and the Wilderness is near small communities and somewhat distant from larger population centers.

Current land use issues facing the Mountainair RD are directly related to the rapid growth around the mountain areas. Urban development is encircling the Manzano Mountains. As a result, new values, desires and needs are being introduced that may conflict with traditional ways of life and culture in the area. According to the Cibola FS website, recreational use in the Mountainair RD has tripled in the last 10 years, challenging more traditional uses, such as grazing, firewood, recreational herb gathering, as well as habitat integrity.¹⁹ Mountain lions and desert bighorn sheep find refuge in these mountains. Expanding recreational use is likely to mean an increase in wildlife encounters.

The Mountainair RD's past is a history of Native American "first use" and Spanish conquest. The people of Isleta Pueblo say they originally lived at the base of the Manzano Mountains, east of their present pueblo on the Rio Grande. In the 1600s, Spaniards found several inhabited Piro and Tiwa pueblos in the foothills of the Manzanos foothills. The ruins of the missions established by the Spanish survive at the Abo and Quarai units of the Salinas Pueblo Missions National Monument, which is managed by the National Park Service.²⁰

¹⁸ Wilderness.net. *Manzano Mountain Wilderness*.

<http://www.wilderness.net/index.cfm?fuse=NWPS&sec=wildView&wid=339>.

¹⁹ <http://www.fs.fed.us/r3/cibola/districts/mountainair.shtml>.

²⁰ National Park Service. (2006, October). Salinas Pueblo Missions. National Park Service Website: <http://www.nps.gov/sapu/>.

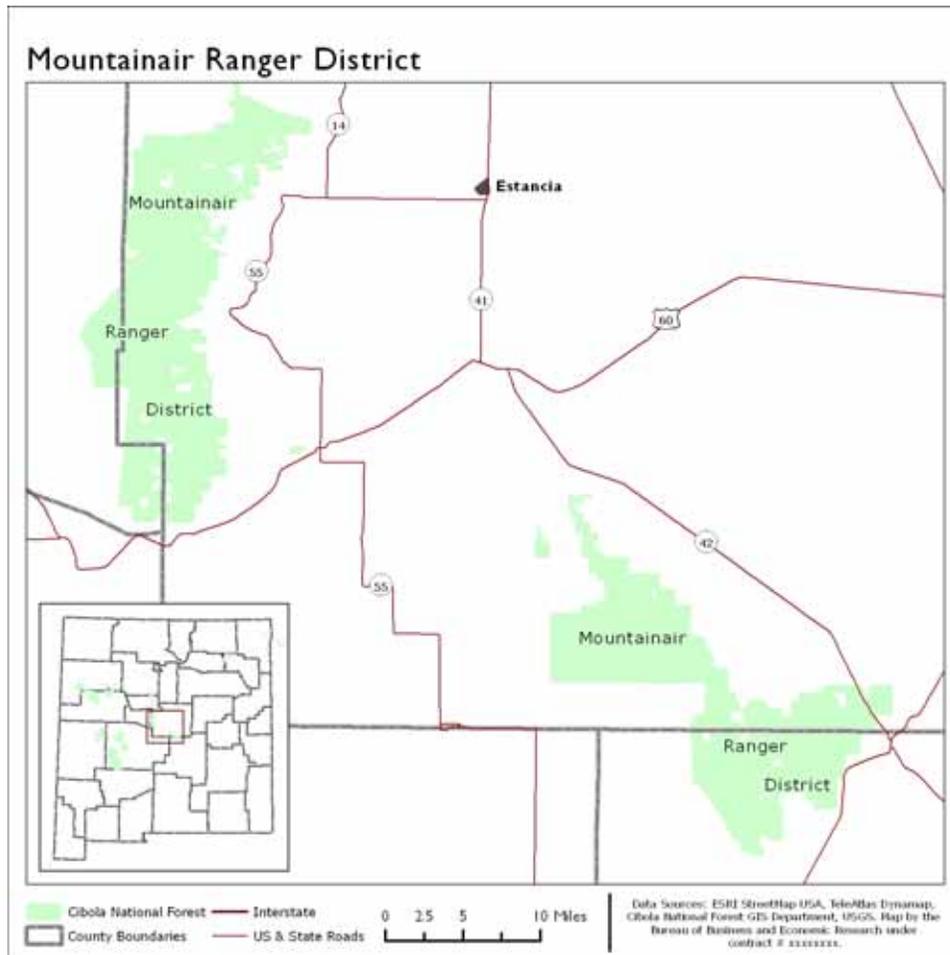


Figure 1.4 Mountainair Ranger District

The pueblos and the missions were abandoned because of famine and persistent raids by nomadic Indians prior to the 1680 Pueblo Revolt. Following the re-conquest of the area in 1692, Hispanic settlers occupied areas in the Manzano Mountains and were eventually given land grants by the Spanish Crown. These villages remain today in the mountains' eastern foothills, where their inhabitants pursue traditional uses of the land such as wood gathering and hunting. It was one of these villages, Manzano, which gave the mountains their name. Tradition says the village took its Spanish name from apples (manzanas) grown in ancient orchards here, and the name spread to the nearby range.

Today, the area surrounding the Manzanos is home to small agricultural communities, most established by the land grants. The area is characterized by its geographic isolation and relatively limited economic activity. The FS is working with local communities to promote use of the NF lands for economic development. In some areas, the FS is working on projects that encourage tourism and recreation. In other areas of Torrance County, a wood products industry is being developed.

Sandia Ranger District

The Sandia Ranger District is the smallest of the districts, with only 100,555 acres, but it is a destination for millions of visitors each year. More than half these visitors ride the Sandia Peak Tram or drive the Sandia Crest National Scenic Byway to enjoy the panoramic views of central New Mexico and the many recreational opportunities afforded. The Tram is the world's longest single section cable aerial tramway, ascending 4,000 feet in about 15 minutes, gliding along the western face of the Sandia Mountains²¹.

The Sandia RD is adjacent to the state's largest population center. More than 800,000 residents live in areas surrounding the ranger district. This assessment finds that visitor spending in the Sandia RD is, by far, the greatest contributor to economic development in the Cibola NF assessment area. (Refer to Section 7.3 and Table 7.5 for details.)

Sandia Crest lies along the summit of the Sandia Mountains, which rise to an elevation 10,678 feet. The Sandia RD covers land in both Bernalillo and Sandoval Counties. Proximity is probably the most valued attribute of the Sandia Mountain range. The Sandias are very much a part of everyday life for the thousands of residents within the Albuquerque MSA. The southern part of the district includes the Manzanita Mountains, which form a low ridge between the Manzano Mountains to the south and the Sandias to the north. The Sandia RD is home to the Tijeras Pueblo Archaeological site, a principal developed site that is open and interpreted for the public and located immediately behind the Sandia Ranger Station in Tijeras. The Sandia RD wildlife program partners with such organizations as the Albuquerque Wildlife Federation, HawkWatch International, Central New Mexico Audubon Society, and the Sandia Mountain Bear Watch, and the New Mexico Habitat Stamp Program. The participation of such organizations encourages use of the district by bird-watchers and wildlife enthusiasts from all parts the state, and adds to the opportunities for nature watching activities.

The Sandia RD area includes the Sandia Mountain Wilderness Area, established through the Endangered American Wilderness Act of 1978. The area, originally 30,981 acres, increased to the present day 37,232 acres with the acquisition of part of the Elena Gallegos Land Grant in 1981. The area encompassed by the Sandia RD has direct ties to Spanish Land Grant communities established by the King of Spain in the 1700s and Mexican land grants in the 1820s, some of which are still active.

Figure 1.5 provides a map of the Sandia RD.

²¹ Sandia Peak Ski & Tramway Website. (2005). <http://www.sandiapeak.com/>.

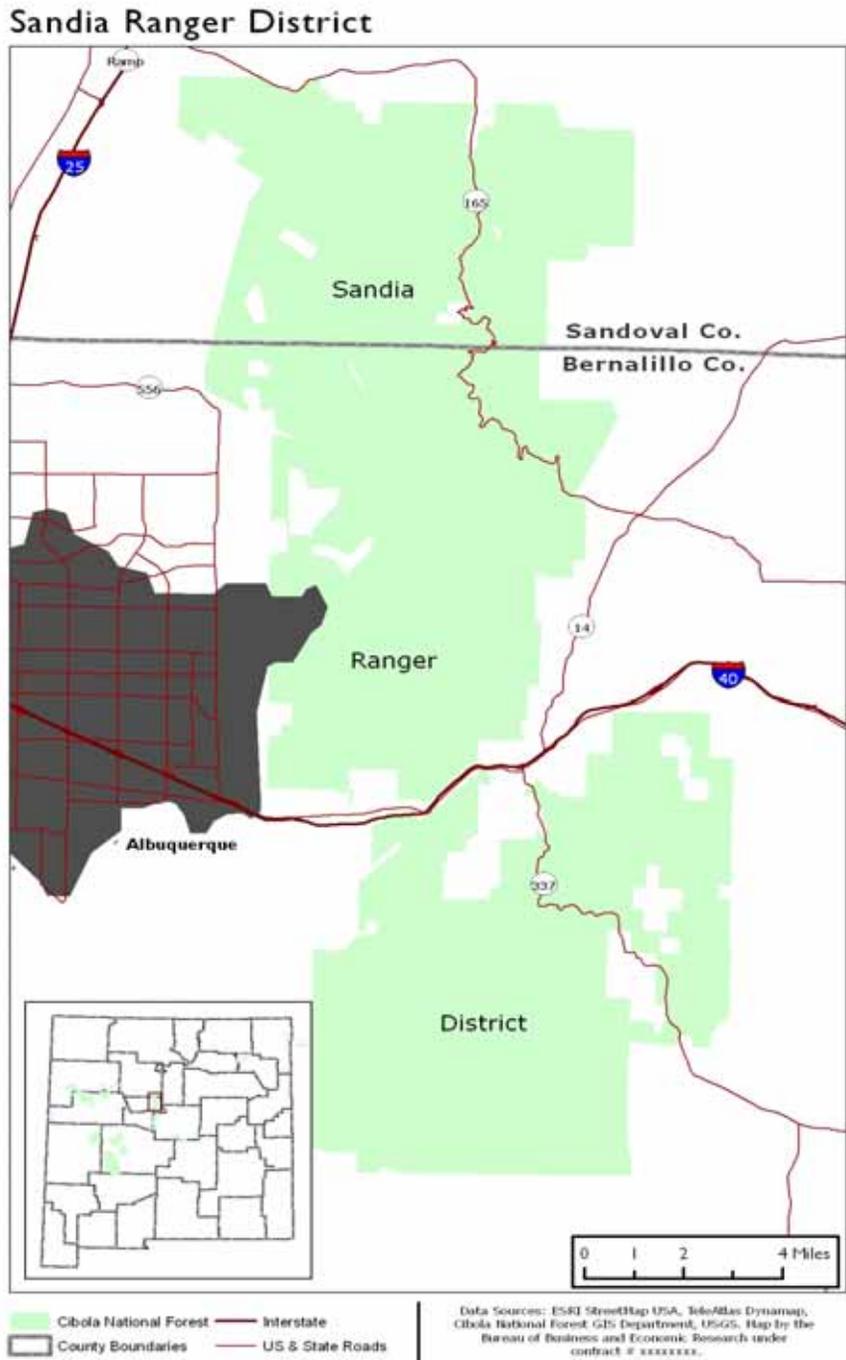


Figure 1.5 Sandia Ranger District

Issues facing the Sandia RD are related to increased usage associated with the rapid residential growth in portions of Bernalillo and Sandoval Counties. Maintaining adequate levels of customer service for all users is one of the greatest challenges for the FS.

A portion of the Manzanita Range in the Sandia RD has had limited public access since 1943, as it is in the Military Withdrawal Area, which was withdrawn from the FS for the exclusive use of the US Department of Energy and the US Air Force.²²

A significant historical land use in the Sandia RD involves the spiritual paths of Native Americans, especially those who now live in Sandia Pueblo. According to the Pueblo, the Sandia people have occupied an area located approximately 13 miles north of what is now Albuquerque for at least 700 years. The Sandia Mountain is central to the Pueblo's religious beliefs, practices, prayers, oral histories and songs and contains the holiest of Pueblo shrines.²³ According to the Pueblo, it lost land after various congressional mandates and government surveys modified some of the forest boundaries. Sandia Pueblo filed a lawsuit against the Secretaries of Interior and Agriculture in 1994. The court found that the Secretary of Interior violated the Administrative Procedures Act in denying the Pueblo's claim for a corrected survey. The conflict between the United States and the Sandia Pueblo involved an issue common to the national forests: access and right of way. The primary road into the national forest was without legitimate right-of-way, and crossed private property. On April 4, 2000, the Pueblo and the federal government signed a negotiated settlement agreement that resolved this conflict. New Mexico Senator Jeff Bingaman then proposed a bill to the Senate that would transform Sandia's sacred ancestral territory into the T'uf Shur Bien Preservation Trust Area to be owned by the federal government and managed by the FS as part of the Cibola NF.²⁴ In early 2003, an amendment to the 108th Congressional Appropriations Act enacted the agreement.²⁵ The agreement guarantees unobstructed access for religious and cultural practices and other purposes by tribal members. In addition, the agreement ensures that affected homeowners in the Pueblo's land claim area have clear title to their property, and expressly authorizes existing rights-of-way and easements in perpetuity.²⁶

1.4 Organization of the Report

The organization of this socioeconomic assessment is based on the collection and analysis of data pertinent to each of the seven individual assessment topics. Chapter 2 provides information on demographic trends in the counties within the assessment area. Chapter 3 discusses the access and travel within the larger region. Chapter 4 examines the land cover, land ownership and uses, and includes material on conveyances and exchanges. Chapter 5 examines the users of the Cibola NF and explores land use patterns and policies. Chapter 6 examines specially designated areas in the forest, including recreational sites and heritage resources. Chapter 7 provides an assessment

²² A nuclear weapons stockpile was stored in Manzano Mountain for 40 years. A presidential emergency relocation center was built deep inside Manzano Mountain as a command post for President Eisenhower. It retained this function until the advent of thermonuclear weapons, by which time it was no longer regarded as a survivable site. According to Global Security.Org, the Manzano storage area "contains structures authorized to store nuclear materials and waste," and continues to have materials "stored on a long-term basis." Global Security.Org write-up on Sandia National Laboratories, www.globalsecurity.org/wmd/facility/sandia_nm.htm.

²³ Pueblo of Sandia Official Website (2002, June) "*Sandia Mountain Claim*." http://www.sandiapueblo.nsn.us/mountain/mtn_claim.htm.

²⁴ Taliman, V. (2002, March 22). "Legislation Hopes to Settle Sandia Land Claim." *Indian Country Today*. <http://www.indiancountry.com/content.cfm?id=1016808777>.

²⁵ US Congress. *T'uf Shur Bien Preservation Trust Area Act*, 16 U.S.C. 539. 108th Congress. Public Law 108-7. S117 STAT. 280 (2003, February 20).

²⁶ Office of Senator Pete V. Domenici. (2003, February 20) "*Senators Confirm Sandia Mountain Agreement Signed into Law*," Press Releases and Statements. <http://domenici.senate.gov/news/topicrecord.cfm?id=190541&code=Indians>.

of the economic impacts the Cibola NF has on the surrounding counties of the assessment area. Chapter 8 discusses relationships between the Cibola NF and surrounding communities at the local and regional levels. Chapter 9 identifies opportunities, risks, and special circumstances facing the National Forest lands and their management. Opportunities, Risks, and Special Circumstances

The Cibola NF consists of scattered “islands” of mountainous terrain that are under FS management and span 10 New Mexico counties which are widely divergent in their socioeconomic characteristics. The assessment area, which includes Native American and Land Grant communities, as well as Albuquerque and fast-growing Rio Rancho, is a study in contrasts and includes a dynamic mix of peoples from different socioeconomic circumstances with different histories and cultural traditions. Depending on their background, people in the assessment area may have differing, and often conflicting, perspectives on the Cibola NF and how land is used. These communities may be expected to make different, and often conflicting, demands on the resources of the NF.

2 Demographic Patterns and Trends

The chapter examines the changing demographic characteristics of those living in the 10 counties of the Cibola National Forest assessment area.

2.1 Population Density and Growth

Table 2.1 shows that urban Bernalillo County has by far the highest population density -- 477 persons per square mile. Other counties with relatively high population densities are the adjacent Valencia and Sandoval counties, respectively with 62 persons and 24 persons per square mile. By contrast, Catron County has only 0.5 persons per square mile.

Table 2.1 2000 Population Densities (sq. mile)

Population Density	
Bernalillo	477.4
Catron	0.5
Cibola	5.6
Lincoln	4.0
McKinley	13.7
Sandoval	24.2
Sierra	3.2
Socorro	2.7
Torrance	5.1
Valencia	62.0

Source: US Census Bureau, 2000 Decennial Census.

Note: Population Density calculated as per square square mile of land area.

As shown in **Table 2.2** the population of all counties in the assessment area except Cibola grew between 1980 and 2000.²⁷ Cibola County's population declined after the uranium industry went bust and thousands of jobs were lost. The population in the assessment area rose from 644,000 to 884,000, increasing 37 percent, or slightly below 40 percent for the state. Bernalillo County, which includes the City of Albuquerque and comprises the majority of population in the area, exhibited relatively stable growth over the 20 year period, with a population increase of 137,000, or 33 percent. Population in Sandoval County, where Rio Rancho is located, increased by 82% during the 1980's and by another 42% during the 1990's, while Valencia County had population growth above 40% in both decades. The population in Torrance County, grew by 37% between 1980 and 1990, with growth accelerating to 62% during the 1990's. Torrance County is now officially part of the Albuquerque MSA. Many of the fastest growing communities have been in the Albuquerque MSA and include, in addition to Rio Rancho, Bernalillo, Corrales, Estancia, Los Lunas, Los Ranchos de Albuquerque, and Rio Communities.

²⁷ Valencia County was split into Cibola and Valencia Counties in the early 1980s. The 1980 population split between the area that became Cibola and that which is the new Valencia County is based on BBER's estimate.

Table 2.2 County Population Growth Forecast, 1990 & 2000

Cibola NF Counties	Historical			Projected		
	1980	1990	2000	2010	2020	2030
Bernalillo	419,700	480,577	556,678	631,839	698,832	759,000
Catron	2,720	2,563	3,543	4,063	4,459	4,752
Cibola	30,346	23,794	25,595	27,681	29,157	30,231
Lincoln	10,997	12,219	19,411	23,792	27,100	29,715
McKinley	56,449	60,686	74,798	88,163	101,750	114,854
Sandoval	34,799	63,319	89,908	126,294	162,409	197,182
Sierra	8,454	9,912	13,270	16,723	19,857	22,672
Socorro	12,566	14,764	18,078	21,421	24,493	27,137
Torrance	7,491	10,285	16,911	21,690	24,979	27,479
Valencia	30,768	45,235	66,152	86,708	108,064	128,922
CIBOLA NF COUNTIES	614,290	723,354	884,344	1,048,374	1,201,100	1,341,944
TOTAL NM	1,303,303	1,515,069	1,819,046	2,112,986	2,383,116	2,626,553

Cibola NF Counties	Percent Change				
	80-90	90-00	00-10	10-20	20-30
Bernalillo	15%	16%	26%	11%	9%
Catron	-6%	38%	26%	10%	7%
Cibola	-22%	8%	14%	5%	4%
Lincoln	11%	59%	40%	14%	10%
McKinley	8%	23%	36%	15%	13%
Sandoval	82%	42%	81%	29%	21%
Sierra	17%	34%	50%	19%	14%
Socorro	17%	22%	35%	14%	11%
Torrance	37%	64%	48%	15%	10%
Valencia	47%	46%	63%	25%	19%
CIBOLA NF COUNTIES	18%	22%	36%	15%	12%
TOTAL NM	16%	20%	31%	13%	10%

Source: US Census Bureau, Decennial Census, 1980, 1990, 2000. UNM-BBER population projections and calculations.

Population growth outside the Albuquerque MSA was moderate during the 1980's except in Cibola and Catron Counties, where population actually declined. Growth accelerated in each of the non-metro counties during the 1990's, with Lincoln County growth accelerating from 11% to 59%, and Catron County seeing a population surge of 38% between 1990 and 2000. Fast growing communities in the non-metro area include Capitan, Crownpoint, and Ruidoso Downs.

BBER has projected population growth in each New Mexico County through 2030.²⁸ The population in the assessment area is projected to increase to 1,342,000, or 28%, by 2030. Population in the assessment area is expected to grow by 36% during this decade, versus 31% statewide. As can be seen in the table, the strongest growth will be in Sandoval (81%), Valencia (63%), Sierra (50%) and Torrance (48%) Counties, with the slowest growth forecast for Cibola County (14%). While overall population growth in the assessment area will slow after 2010, to 15% between 2010 and 2020 and to

²⁸ These projections, which were done in 2003, are summarized in a table on the BBER website (<http://www.unm.edu/~bber/demo/table1.htm>) and available in more detail by year, by sex and by age on a CD.

12% in the decade which follows, the area will continue to out-perform the state. Bernalillo County's population is expected to grow 36 percent to 759,000 by 2030. Counties that are projected to grow rapidly in this period include Sandoval, Valencia, Torrance, and Sierra. Contributing to the attraction of these areas is the development of a commuter rail system running between Belen, Los Lunas, Albuquerque, Los Ranchos, Bernalillo and (ultimately) Santa Fe. Counties adjacent to Bernalillo County can expect to see some spillover as Bernalillo County residents migrate seeking access to these amenities, but lower housing prices still available in the more rural communities.

2.2 Racial/Ethnic Composition

As shown in **Table 2.3** and **Table 2.4**, between 1990 and 2000, the Hispanic population in the 10 assessment counties grew from 252,000 to 338,000, boosting their share of the total Cibola NF population from 35 to 38 percent. Hispanics increased their share of the total population in Bernalillo, Sandoval, and Valencia counties.

Regarding racial groups, the share of the population self-defining as White dropped from 72 percent to 65 percent in the 10 county assessment area between 1990 and 2000. The share of Whites fell in each of the assessment counties, while the share of those identifying themselves as of more than one race or "Other", many of whom are Hispanic, increased sharply, from 13 to 19 percent. In 2000, those self-identifying as Whites maintained a majority in all counties except McKinley and Cibola. These two counties have large Native American populations, accounting for 75 percent and 40 percent, respectively. The Navajo Nation, the second largest Indian Nation in the US, in terms of membership, and the Zuni Pueblo, both own lands in McKinley County. American Indians, with a population increase of 24,000 over the decade, comprised 12 percent of the total Cibola NF population in the two most recent censuses. The population of Asians and Pacific Islanders also increased modestly.

New Mexico was the first state in the United States with a total minority population exceeding that of the White Non-Hispanic population. White Non-Hispanics share of the total Cibola NF population dropped from 51 percent to 45 percent (not shown) between censuses. In 2000, While not shown in the table, White Non-Hispanics made up at least 70 percent of the population in Catron, Lincoln, and Sierra counties and the majority in Torrance and Sandoval counties.

Table 2.3 Racial / Ethnic Composition by County

	ETHNICITY		RACIAL GROUP					TOTAL
	NON-HISPANIC	HISPANIC	WHITE ALONE	AFRICAN AMERICAN	AMERICAN INDIAN	ASIAN OR PACIFIC ISLANDER	OTHER	
Year 1990								
Bernalillo	302,267	178,310	369,445	13,199	16,296	7,386	74,251	480,577
Catron	1,835	728	2,508	7	21	2	25	2,563
Cibola	15,685	8,109	13,899	191	9,155	81	468	23,794
Lincoln	8,792	3,427	11,175	65	132	28	819	12,219
McKinley	52,922	7,764	13,295	295	43,570	245	3,281	60,686
Sandoval	45,947	17,372	43,440	939	12,491	503	5,946	63,319
Sierra	7,533	2,379	9,254	39	77	12	530	9,912
Socorro	7,707	7,057	11,423	114	1,491	212	1,524	14,764
Torrance	6,393	3,892	8,951	43	128	23	1,140	10,285
Valencia	22,502	22,733	35,037	500	1,329	200	8,169	45,235
CIBOLA NF								
COUNTIES	471,583	251,771	518,427	15,392	84,690	8,692	96,153	723,354
Year 2000								
Bernalillo	323,113	233,565	393,851	15,401	23,175	11,325	112,926	556,678
Catron	2,864	679	3,109	10	78	26	320	3,543
Cibola	17,040	8,555	10,138	246	10,319	112	4,780	25,595
Lincoln	14,436	4,975	16,228	68	379	65	2,671	19,411
McKinley	65,522	9,276	12,257	296	55,892	376	5,977	74,798
Sandoval	63,471	26,437	58,512	1,535	14,634	992	14,235	89,908
Sierra	9,782	3,488	11,541	64	197	34	1,434	13,270
Socorro	9,268	8,810	11,365	116	1,974	216	4,407	18,078
Torrance	10,628	6,283	12,495	280	354	76	3,706	16,911
Valencia	29,781	36,371	44,001	837	2,183	292	18,839	66,152
CIBOLA NF								
COUNTIES	545,905	338,439	573,497	18,853	109,185	13,514	169,295	884,344

Source: US Census Bureau, Decennial Census, 1990 and 2000. Calculations by UNM BBER.

Note: Ethnicity can be of any race. The "Other" group includes two or more races.

Table 2.4 Percent Racial / Ethnic Composition by County

	ETHNICITY		RACIAL GROUP					TOTAL
	NON-HISPANIC	HISPANIC	WHITE ALONE	AFRICAN AMERICAN	AMERICAN INDIAN	ASIAN OR PACIFIC ISLANDER	OTHER	
Year 1990								
Bernalillo	63%	37%	77%	3%	3%	2%	15%	100%
Catron	72%	28%	98%	0%	1%	0%	1%	100%
Cibola	66%	34%	58%	1%	38%	0%	2%	100%
Lincoln	72%	28%	91%	1%	1%	0%	7%	100%
McKinley	87%	13%	22%	0%	72%	0%	5%	100%
Sandoval	73%	27%	69%	1%	20%	1%	9%	100%
Sierra	76%	24%	93%	0%	1%	0%	5%	100%
Socorro	52%	48%	77%	1%	10%	1%	10%	100%
Torrance	62%	38%	87%	0%	1%	0%	11%	100%
Valencia	50%	50%	77%	1%	3%	0%	18%	100%
CIBOLA NF COUNTIES								
	65%	35%	72%	2%	12%	1%	13%	100%
TOTAL NM	62%	38%	89%	2%	8%	1%	0%	100%
Year 2000								
Bernalillo	58%	42%	71%	3%	4%	2%	20%	100%
Catron	81%	19%	88%	0%	2%	1%	9%	100%
Cibola	67%	33%	40%	1%	40%	0%	19%	100%
Lincoln	74%	26%	84%	0%	2%	0%	14%	100%
McKinley	88%	12%	16%	0%	75%	1%	8%	100%
Sandoval	71%	29%	65%	2%	16%	1%	16%	100%
Sierra	74%	26%	87%	0%	1%	0%	11%	100%
Socorro	51%	49%	63%	1%	11%	1%	24%	100%
Torrance	63%	37%	74%	2%	2%	0%	22%	100%
Valencia	45%	55%	67%	1%	3%	0%	28%	100%
CIBOLA NF COUNTIES								
	62%	38%	65%	2%	12%	2%	19%	100%
TOTAL NM	58%	42%	86%	2%	9%	1%	2%	100%

Source: US Census Bureau, Decennial Census, 1990 and 2000. Calculations by UNM BBER.

Note: Ethnicity can be of any race. The "Other" group includes two or more races.

2.3 Age of Population

Table 2.5 presents data on the changing age composition of the population by county in the assessment area. Shown are the percentages of those within each cohort as derived from the 1990 and 2000 Censuses followed by BBER's projections for each age cohort in 10-year increments until 2030. As can be seen, throughout the assessment area, the population aged over the decade of the 1990's. The population under age 15 is shrinking and the population over age 65 typically increasing their share. Two exceptions stand out: In both Sierra, which has a large retirement community, and Torrance, the percentage 65 and older shrank, as did the population under 15, while the working-age population expanded. The general aging of the population in the Cibola NF counties corresponds with the national trend, that the American population is becoming older.^{29,30}

²⁹ United States Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau, Wan, H., Sengupta, M., Velkoff, V., DeBarros, K. (December 2005). *65+ in the United States 2005*. Washington, DC. Retrieved October 2006, <http://www.census.gov/prod/2006pubs/p23-209.pdf>.

The 15-64 age cohort represents those of working age. This cohort increased its share of the population in all of the counties during the decade of the 1990s. Looking forward, however, this cohort is projected to lose share – in the current decade and beyond (the cases of Bernalillo, Catron, Cibola and Lincoln) or after 2010 (the remaining counties in the assessment area).

Of interest are Sierra, Lincoln, and Catron counties. While the average age was 35 in New Mexico in 2000, in the aforementioned counties the average age was 49, 44, and 48, respectively. We have noted the growth in the working age population in Sierra during the 1990's. In Lincoln and Catron Counties, the population 65 and old increased by two and a half percentage points, while that under 15 declined by three or more percentage points. Both counties may have lost some of their younger members to job opportunities elsewhere, but both seem also to have attracted in-migration by those of retirement age.

The aging of the population in the assessment counties may be expected to place new demands on the Cibola NF, since the recreational uses and interests may change,³¹ but retirees may have the leisure time to volunteer their services or to become involved in partnerships with the FS. Nationally, aging populations present new challenges for governments, as those retiring from the workforce expect to receive services funded through revenues generated by a workforce, which is a shrinking portion of the total population. These retirees will compete for federal and state funds as they seek services such as Medicaid and Social Security. One consequence for Federal agencies like the Forest Service may be increased competition for funding in an era of flat or declining government revenues.

³⁰ United Nations Department of Economic and Social Affairs, Population Division, *Report: World Population Ageing: 1950-2050*. <http://www.un.org/esa/population/publications/worldageing19502050/>, and Profile: United States of America, <http://www.un.org/esa/population/publications/worldageing19502050/pdf/207unite.pdf>.

³¹ The relationship between age and pursuit of outdoor recreational activities is generally found to be an inverse relationship, with younger people more active in their pursuit of outdoor recreational activities. However, the importance of age varies depending upon the type of activity. See H. Ken Cordell, Gary T. Green, and Carter J. Betz, "Recreation and the Environment as Cultural Dimensions in Contemporary American Society," *Leisure Sciences* Vol 24, No 1 / January 01, 2002, pp. 13 – 41. See also, Bergstrom, John C. and Cordell, H. Ken, "An Analysis of the Demand for and Value of Outdoor Recreation in the United States," *Journal of Leisure Research*, v23 n1 p67-86 1991.

Table 2.5 Age of Population by Broad Cohort & County

County	Age	Percent Distribution				
		Actual		Projections		
		1990	2000	2010	2020	2030
Bernalillo	0 - 14	22.4%	21.0%	19.4%	18.6%	17.6%
	15 - 64	67.2%	67.5%	67.2%	63.6%	60.6%
	65 yrs. & over	10.5%	11.5%	13.4%	17.8%	21.8%
Catron	0 - 14	22.0%	16.3%	13.2%	14.5%	14.7%
	15 - 64	62.6%	64.9%	57.8%	48.9%	46.3%
	65 yrs. & over	15.4%	18.8%	29.0%	36.6%	39.1%
Cibola	0 - 14	28.8%	25.4%	22.5%	21.2%	19.8%
	15 - 64	62.9%	63.9%	63.6%	60.3%	56.4%
	65 yrs. & over	8.4%	10.7%	13.9%	18.4%	23.8%
Lincoln	0 - 14	21.5%	18.5%	13.9%	13.7%	13.2%
	15 - 64	63.2%	63.7%	60.8%	55.0%	52.0%
	65 yrs. & over	15.3%	17.9%	25.2%	31.4%	34.8%
McKinley	0 - 14	33.5%	31.7%	23.6%	22.5%	21.0%
	15 - 64	60.3%	61.4%	67.6%	65.1%	62.2%
	65 yrs. & over	6.1%	6.9%	8.9%	12.4%	16.8%
Sandoval	0 - 14	27.9%	24.6%	18.9%	18.2%	17.5%
	15 - 64	62.1%	64.8%	67.6%	63.7%	59.9%
	65 yrs. & over	10.0%	10.6%	13.5%	18.1%	22.7%
Sierra	0 - 14	16.7%	16.4%	12.7%	13.0%	12.5%
	15 - 64	51.6%	55.9%	56.6%	53.3%	50.8%
	65 yrs. & over	31.7%	27.7%	30.7%	33.7%	36.8%
Socorro	0 - 14	25.6%	23.3%	19.7%	19.4%	18.1%
	15 - 64	64.0%	65.8%	66.0%	62.4%	60.3%
	65 yrs. & over	10.5%	10.9%	14.3%	18.2%	21.6%
Torrance	0 - 14	26.8%	25.2%	18.7%	19.5%	18.5%
	15 - 64	61.8%	64.9%	68.8%	63.5%	59.7%
	65 yrs. & over	11.3%	9.8%	12.4%	17.0%	21.9%
Valencia	0 - 14	26.1%	25.1%	20.9%	20.7%	19.8%
	15 - 64	63.9%	64.8%	66.8%	63.7%	61.1%
	65 yrs. & over	10.0%	10.2%	12.3%	15.6%	19.2%
CIBOLA NF COUNTIES	0 - 14	24.3%	22.3%	19.3%	18.6%	17.6%
	15 - 64	65.4%	66.5%	67.1%	63.2%	60.0%
	65 yrs. & over	10.4%	11.2%	13.6%	18.3%	22.4%
NEW MEXICO	0 - 14	25.1%	23.0%	20.0%	19.2%	17.9%
	15 - 64	64.2%	65.3%	66.1%	62.6%	59.7%
	65 yrs. & over	10.7%	11.7%	13.9%	18.2%	22.4%

Source: New Mexico County Population Projections: July 1, 1990 to July 1, 2030; UNM-BBER, April 2004.

2.4 Income and Poverty

The first column of **Table 2.6** presents data from the decennial Census on per capita income in 1989 and 1999 in constant 1999 dollars by county for the assessment area. As can be seen, per capita income increased in all counties over the decade.³² On a percentage basis, per capita income increased the most in Lincoln County. Since the population is small, this result could reflect changes at the higher income levels. As indicated in **Appendix Table A.1**, Lincoln County experienced a high level of in-migration from outside the county between 1995 and 2000. Sandoval County also exhibited substantial per capita income growth along with rapid population growth.

Table 2.6 Per Capita Income and Persons in Poverty, 1989 & 1999

	1989			1999		
	Per Capita Income	Persons Below Poverty	Percent of Persons Below Poverty	Per Capita Income	Persons Below Poverty	Percent of Persons Below Poverty
Bernalillo	17,643	68,845	14%	20,790	74,987	13%
Catron	11,080	657	26%	13,951	860	24%
Cibola	8,829	7,753	33%	11,731	6,054	24%
Lincoln	13,888	2,384	20%	19,338	2,855	15%
McKinley	8,602	26,118	43%	9,872	26,664	36%
Sandoval	14,080	9,852	16%	19,174	10,847	12%
Sierra	13,140	1,882	19%	15,023	2,706	20%
Socorro	11,881	4,282	29%	12,826	5,539	31%
Torrance	11,616	2,153	21%	14,134	3,106	18%
Valencia	13,295	8,288	18%	14,747	10,806	16%
TOTAL CIBOLA COUNTIES	15,659	132,214	18%	18,552	144,424	16%
TOTAL NM	14,596	305,934	21%	17,261	328,933	18%

Source: US Census Bureau, Decennial Census, 1990 and 2000. Calculations by UNM BBER.

Note: The poverty line is the federal established poverty level. Per capita income is in 1999 dollars.

The 1989 per capita income figures were adjusted for the effects of inflation using the Consumer Price Index (CPI-U-RS)

Per capita income in 1999 varies significantly by county, ranging from a high of \$20,790 in Bernalillo County to less than half that amount (\$9,872) in McKinley County. Per capita income exceeded the 2000 New Mexico average of \$17,261 only in Bernalillo, Sandoval, and Lincoln counties.

Table 2.6 also shows the percentage of persons who were living below the federal poverty level in each of the counties in the assessment area. In 1999, 144,000 persons lived in poverty in the Cibola NF counties, an increase of more than 12,000 persons from 1989. However, the poverty rate declined from 18 percent to 16 percent for the entire assessment area, compared to a decline from 21 percent to

³² Calculated from self-reported income in 1989 and 1999. The Census definition of income is different from and the estimates produced generally lower than the US Bureau of Economic Analysis. The Census definition is closer to a "cash received" concept. According to the Census Bureau website (factfinder.census.gov), "Total income" is the sum of the amounts reported separately for wages, salary, commissions, bonuses, or tips; self-employment income from own non-farm or farm businesses, including proprietorships and partnerships; interest, dividends, net rental income, royalty income, or income from estates and trusts; Social Security or Railroad Retirement income; Supplemental Security Income (SSI); any public assistance or welfare payments from the state or local welfare office; retirement, survivor, or disability pensions; and any other sources of income received regularly such as Veterans' (VA) payments, unemployment compensation, child support, or alimony.

18 percent for the state as a whole. While real per capita income grew in each of the assessment counties, the population living below poverty actually increased in Sierra and Socorro Counties. Note that in the non-metro counties, the poverty rate was in every case above the New Mexico average of 18.4 percent in 1999. While reductions were evident in rural counties like Cibola, Catron, Socorro, and McKinley counties, the percentage of population living under poverty is, in each case, exceedingly high. McKinley County, with its high percentage of Native Americans, had more than one-third of the population below poverty. As one would expect, Bernalillo and Sandoval counties, where most of the population and industry are located, had the lowest poverty rates in the assessment area with 13 and 12 percent respectively.

As is evident in **Table 2.7**, poverty in the assessment area tracks with race and ethnicity. Over one third of those identifying as American Indian lived under the federal poverty level in 2000. Among American Indians, poverty is greatest in the rural counties. Nevertheless, even in urban areas their rates of poverty exceed those of other racial and ethnic cohorts. Poverty rates by race in the assessment area were: Whites (12%), African Americans (19%), American Indians (37%), Asians (13%), and “Other” (21%). Twenty percent of Hispanics in the assessment counties lived below poverty, compared to 15% of Non-Hispanics. Sandoval County had the lowest percentage of Hispanics below poverty, with virtually no difference between Hispanics and Non-Hispanics.

Rising incomes are associated with increased demand for outdoor recreation.³³ Traditionally, many people in rural communities went into the forest to gather wood and to hunt, and these types of activities continue to be of importance to nearby residents.³⁴ Those living near or below the poverty level may supplement a meager income by engaging in various subsistence activities, including hunting and fuel wood gathering, as well as in efforts to bring cash into the family, such as selling pinon nuts, fire wood and Christmas trees from the NF.

³³ Rising incomes are associated with increased demand for outdoor recreation. See, John C. Bergstrom and H. Ken Cordell, “An Analysis of the Demand for and Value of Outdoor Recreation in the United States,” *Journal of Leisure Research*, v23 n1 p67-86 1991. Also see H. Ken Cordell, Gary T. Green, and Carter J. Betz, “Recreation and the Environment as Cultural Dimensions in Contemporary American Society,” *Leisure Sciences* Vol 24, No 1 / January 01, 2002, pp. 13 – 41.

³⁴ See summaries of focus groups with residents living near each of the ranger districts in J.D. Russell & P.A. Adams-Russell, (2005a). *Values, Attitudes and Beliefs Toward National Forest System Lands: The Cibola National Forest* (Issue Brief). Placerville, CA: Adams-Russell Consulting, September 23, 2005.

Table 2.7 Percent in Poverty by Race and Ethnicity, 2000

	ETHNICITY		RACIAL GROUP					TOTAL
	NON-HISPANIC	HISPANIC	WHITE	AFRICAN AMERICAN	INDIAN	ASIAN	OTHER	
Bernalillo	31,041	43,946	42,902	2,877	5,688	1,517	22,003	74,987
Catron	733	127	728	0	70	0	62	860
Cibola	4,057	1,997	1,228	29	3,306	7	1,484	6,054
Lincoln	1,585	1,270	2,040	3	74	0	738	2,855
McKinley	24,274	2,390	1,441	87	23,464	21	1,651	26,664
Sandoval	7,790	3,057	3,657	116	5,251	59	1,764	10,847
Sierra	1,699	1,007	2,249	10	66	0	381	2,706
Socorro	2,776	2,763	2,448	47	1,309	39	1,696	5,539
Torrance	1,614	1,492	2,078	28	16	0	984	3,106
Valencia	2,973	7,833	6,399	97	239	0	4,071	10,806
CIBOLA NF COUNTIES	78,542	65,882	65,170	3,294	39,483	1,643	34,834	144,424
<u>Percent of Total Group</u>								
Bernalillo	10%	19%	11%	20%	26%	15%	19%	14%
Catron	26%	20%	23%	0%	67%	0%	22%	24%
Cibola	25%	25%	13%	21%	33%	5%	32%	25%
Lincoln	11%	26%	13%	5%	24%	0%	28%	15%
McKinley	37%	26%	12%	29%	43%	6%	28%	36%
Sandoval	12%	12%	6%	9%	35%	7%	12%	12%
Sierra	18%	30%	20%	32%	35%	0%	27%	21%
Socorro	31%	32%	23%	64%	65%	25%	39%	32%
Torrance	16%	25%	17%	26%	6%	0%	27%	19%
Valencia	10%	22%	15%	16%	12%	0%	22%	17%
CIBOLA NF COUNTIES	15%	20%	12%	19%	37%	13%	21%	17%
TOTAL NM	16%	20%	14%	23%	36%	14%	24%	18%

Source: US Census Bureau, Decennial Census, 2000. Calculations by UNM BBER.

Note: The poverty line is the federal established poverty level. Ethnicity can be of any race.

2.5 Household Composition

Total households in the assessment area grew by 69,000 over the decade of the 1990s to number 333,000 in 2000. **Table 2.8** presents household composition by type of household for 1990 and 2000. Households in the assessment area are exhibiting the same trend as seen in the US, where there are proportionally more single households, or non-family households headed by a single person, and more households headed by a female, with children or other dependents and no male head who is present. In 2000, for example, Catron County had 1,587 total households, of which 471 (30%) are single households and 140 (9%) are female-headed family households.

The 13 percent of female households in the assessment area parallels that of the state as a whole. In general, there are fewer female headed households in counties where ranching is a predominant industry, such as Catron, Lincoln, and Sierra. Counties with high Native American populations, such as Cibola and McKinley, show much higher rates of female-headed households.

Both the number and the percentage share of single households have been increasing because of a trend in marrying at later ages. However, roughly one-third of the residents in single person households in the state are over 65 years of age.

Table 2.8 Type of Household, 1990 & 2000

	Number of Households			Percent of Total Households	
	Total	Single	Female Headed Family	Single	Female Headed Family
Year 1990					
Bernalillo	185,445	48,091	20,967	26%	11%
Catron	1,063	269	69	25%	6%
Cibola	7,197	1,287	1,049	18%	15%
Lincoln	4,761	1,176	398	25%	8%
McKinley	16,864	3,081	3,093	18%	18%
Sandoval	20,925	3,486	2,252	17%	11%
Sierra	4,431	1,425	324	32%	7%
Socorro	5,297	1,249	627	24%	12%
Torrance	3,681	770	329	21%	9%
Valencia	15,192	2,609	1,615	17%	11%
CIBOLA NF COUNTIES	264,856	63,443	30,723	24%	12%
Year 2000					
Bernalillo	220,939	62,898	27,894	28%	13%
Catron	1,587	471	140	30%	9%
Cibola	8,335	1,740	1,416	21%	17%
Lincoln	8,206	2,196	777	27%	9%
McKinley	21,441	4,182	4,826	20%	23%
Sandoval	31,412	6,255	3,733	20%	12%
Sierra	6,103	2,194	506	36%	8%
Socorro	6,690	1,763	955	26%	14%
Torrance	6,067	1,393	745	23%	12%
Valencia	22,714	4,274	2,915	19%	13%
CIBOLA NF COUNTIES	333,494	87,366	43,907	26%	13%

Source: US Census Bureau, Decennial Census, 1990 and 2000. Calculations done by UNM BBER.

Note: Single households are non-family households headed by a single person. Female headed family households include children.

2.6 Educational Attainment

Table 2.9 presents educational attainment for the 25-year and older population in 1990 and 2000. Attainment levels generally advanced in 2000, compared to a decade earlier, as the share of the population with at least some college or a college degree increased, while those with high school or less declined.

Table 2.9 Educational Attainment by County (%)

	Less than 9th Grade	9th to 12th Grade	HS Grad or GED	Some College; no degree	Assoc., BA/BS or More	Total
Year 1990						
Bernalillo	7%	11%	28%	22%	32%	100%
Catron	11%	15%	31%	19%	23%	100%
Cibola	15%	19%	38%	15%	14%	100%
Lincoln	10%	13%	32%	25%	20%	100%
McKinley	21%	20%	30%	14%	15%	100%
Sandoval	8%	12%	31%	23%	25%	100%
Sierra	17%	19%	35%	17%	12%	100%
Socorro	17%	16%	31%	17%	20%	100%
Torrance	13%	15%	39%	20%	14%	100%
Valencia	11%	16%	34%	22%	17%	100%
CIBOLA NF COUNTIES	9%	13%	29%	21%	28%	100%
TOTAL NM	11%	14%	29%	21%	25%	100%
Year 2000						
Bernalillo	6%	10%	25%	23%	36%	100%
Catron	7%	14%	29%	24%	25%	100%
Cibola	9%	16%	37%	21%	18%	100%
Lincoln	5%	10%	28%	27%	29%	100%
McKinley	16%	19%	28%	20%	18%	100%
Sandoval	5%	9%	29%	25%	32%	100%
Sierra	9%	15%	31%	26%	19%	100%
Socorro	12%	16%	29%	19%	24%	100%
Torrance	8%	15%	33%	25%	19%	100%
Valencia	9%	15%	32%	23%	21%	100%
CIBOLA NF COUNTIES	7%	11%	27%	23%	32%	100%
TOTAL NM	9%	12%	27%	23%	29%	100%

Source: US Census Bureau, Decennial Census, 1990 and 2000. Calculations done by UNM-BBER.

In 2000, the population with at least some college measured 55 percent, improving from 49 percent in 1990. The changes in the assessment area are in the same direction as those of New Mexico. Thirty-six percent of the 25 and older population in Bernalillo County had a post secondary degree in 2000 – the highest percent among the Cibola NF counties. While making advances between censuses, Socorro (12%) and McKinley (16%) counties both have a significant proportion of adults with a ninth grade or lower education level. The state average in 2000 was 9 percent. The percentage of those with at least some college level education varied by county in 2000, ranging from McKinley County (38%) to Bernalillo County (59%). McKinley County also has the highest proportion (35%) of persons with less than a high school education.

Educational attainment is closely tied to one's ability to generate income. The average earnings of a person with a bachelor's degree in 2005 were 80% more than those of someone with a high school

As demonstrated in Table 2.12, the housing stock in the assessment area is relatively new, ranging from an average of 17 years in Sandoval County to 30 years in Socorro County. The stock in the counties where the greatest percentage of new building has occurred (Sandoval, Torrance, and Valencia) yields a lower average housing age. Also shown is the percentage of households that lack complete plumbing. There is a correlation between counties of high poverty (Table 2.5) and the lack of plumbing in a dwelling. In New Mexico the average age of the housing stock rose from 22 to 27 years and the proportion of households without plumbing stayed level at 3 percent. The number of houses that lacked plumbing facilities increased by 1,827 units between 1990 and 2000, but declined from 4 percent to 3 percent of the stock. McKinley County has the highest proportion of houses (28%) that lacked plumbing facilities in 2000. The majority of counties improved but three showed a small increase in the housing units that lacked complete plumbing.

Table 2.11 Vacant Housing by Type

	For rent	For sale only	Rented or sold, not occupied	Seasonal or recreational use	For migrant workers	Other vacant	Total vacant
Year 1990							
Bernalillo	53%	12%	5%	2%	0%	27%	100%
Catron	10%	6%	2%	48%	4%	30%	100%
Cibola	16%	5%	6%	20%	0%	52%	100%
Lincoln	5%	6%	2%	81%	0%	6%	100%
McKinley	9%	4%	9%	22%	1%	56%	100%
Sandoval	11%	14%	8%	25%	0%	40%	100%
Sierra	16%	9%	2%	49%	2%	22%	100%
Socorro	28%	8%	2%	7%	1%	53%	100%
Torrance	7%	14%	5%	21%	1%	53%	100%
Valencia	26%	21%	9%	5%	3%	35%	100%
CIBOLA NF COUNTIES	28%	10%	5%	27%	1%	30%	100%
Year 2000							
Bernalillo	59%	17%	5%	9%	0%	11%	100%
Catron	1%	6%	1%	67%	0%	24%	100%
Cibola	12%	6%	4%	49%	0%	28%	100%
Lincoln	5%	4%	1%	86%	0%	4%	100%
McKinley	7%	6%	3%	40%	0%	44%	100%
Sandoval	20%	17%	8%	37%	0%	18%	100%
Sierra	12%	10%	3%	62%	0%	12%	100%
Socorro	23%	11%	8%	29%	0%	29%	100%
Torrance	10%	18%	10%	22%	0%	41%	100%
Valencia	25%	27%	5%	19%	0%	24%	100%
CIBOLA NF COUNTIES	31%	12%	4%	35%	0%	17%	100%

diploma.³⁵ As educational attainment increases, the likelihood of poverty decreases. This correlation is also evident in the assessment area by reviewing the counties with a high percentage of persons with less than a high school education as shown in Table 2.7 and comparing it to the counties with high percentages of poverty shown previously in Table 2.5.

Increasing incomes and education in the assessment area counties are likely to place additional demands on the Cibola NF in terms of recreation.³⁶ Reducing poverty could make communities less dependent on forest products for subsistence and for cash income.

2.7 Housing

Table 2.10 presents figures from the 1990 and 2000 Census on the number of housing units and the occupied status of these units in each county in the assessment area. As would be expected, the number of dwellings in all counties has increased as population has increased. The housing stock expanded by over 73,000 units between 1990 and 2000. While the housing stock increased about 20 percent in the Cibola NF area, the stock grew at more than twice that rate in Sandoval, Torrance, and Valencia Counties – the Albuquerque MSA counties abutting Bernalillo County.

Table 2.10 Housing Units and Whether Occupied

	1990			2000		
	Total	Occupied	Vacant	Total	Occupied	Vacant
Bernalillo	201,235	185,582	15,653	239,074	220,936	18,138
Catron	1,552	1,010	542	2,548	1,584	964
Cibola	9,692	7,292	2,400	10,328	8,327	2,001
Lincoln	12,622	4,789	7,833	15,298	8,202	7,096
McKinley	20,933	16,588	4,345	26,718	21,476	5,242
Sandoval	23,667	20,867	2,800	34,866	31,411	3,455
Sierra	6,457	4,428	2,029	8,727	6,113	2,614
Socorro	6,289	5,217	1,072	7,808	6,675	1,133
Torrance	4,878	3,670	1,208	7,257	6,024	1,233
Valencia	16,781	15,170	1,611	24,643	22,681	1,962
CIBOLA NF COUNTIES	304,106	264,613	39,493	377,267	333,429	43,838

Source: US Census Bureau, Decennial Census, 1990 and 2000. Calculations done by UNM-BBER.

Of interest is the high number of vacant houses in Lincoln (46%), Catron (38%), and Sierra (30%) Counties in 2000. As indicated in **Table 2.11** below, the majority of these vacant homes are for seasonal or recreational use. Note that both the number and the percent of homes classified as vacant in Lincoln County decreased over the decade, suggesting that some vacationers may have decided to become permanent residents. Both Catron and Sierra Counties saw sizeable gains in the number of vacant homes, but in Sierra these homes declined as a percent of the total.

³⁵ <http://www.census.gov/population/www/socdemo/educ-attn.html>. According to the press release for the Current Population Survey 2005 data on education and earnings, "Adults age 18 and older with a bachelor's degree earned an average of \$51,554 in 2004, while those with a high school diploma earned \$28,645... Those without a high school diploma earned an average of \$19,169..." www.census.gov/Press-release/www/releases/archives/education/007660.h

³⁶ Bergstrom and Cordell. 1991. "An Analysis of the Demand for and Value of Outdoor Recreation in the United States." *Journal of Leisure Research*. 23:1:79.

Table 2.12: Age of Housing Stock and Plumbing Availability

	Average Age of Housing Stock		Lacking Complete Plumbing Facilities	
	1990	2000	1990	2000
Bernalillo	22.8	27.1	0.5%	0.5%
Catron	28.7	28.9	10.1%	10.8%
Cibola	23.8	28.3	10.8%	10.3%
Lincoln	22.3	23.5	1.4%	1.3%
McKinley	20.1	23.9	30.4%	27.7%
Sandoval	15.2	17.2	5.6%	3.6%
Sierra	24.7	28.8	1.2%	2.6%
Socorro	26.2	30.3	5.4%	5.5%
Torrance	23.7	22.6	3.6%	3.0%
Valencia	19.5	20.6	1.4%	1.3%
CIBOLA NF				
COUNTIES	22.7	25.1	3.6%	3.4%
TOTAL NM	22.2	27.0	3.0%	3.0%

Source: US Census Bureau, Decennial Census, 1990 and 2000. Calculations done by UNM-BBER.

For the four counties surrounding the Sandia Ranger District (Bernalillo, Sandoval, Torrance, and Valencia) data are collected on building permits by the Middle Rio Grande Council of Governments (MRCOG) from local governments in the region and used in regional planning. For planning purposes, the data are grouped into relatively small geographic areas known as Data Analysis Sub Zones (DASZ). Data by DASZ were available from 2000 through July of 2005 in most cases. By looking at building permits issued for single-family housing from DASZs at the edge of the Sandia RD one can gain an understanding of how increasing populations may be encroaching on the wildland-urban interface (WUI).

Table 2.13 presents the number of permits issued from the DASZs on the Sandia RD edge from 2000 until mid-2005. For the Sandia RD, DASZs that touch the district were only found in the Sandoval and Bernalillo counties. Data are aggregated to the county level for Bernalillo and the southeastern corner of Sandoval counties. As can be seen, over 2000 total permits have been issued in the last five years³⁷. In Bernalillo County, 49 percent of these permits (746 of the 1,528) were issued in three DASZs in the foothills to the west of the Sandia Mountains. Two DASZs of note in Bernalillo County for future planning are on the east side of the Sandia Mountains and numbered 3021 and 3031. These DASZs include PAAKO, a high-end community of expensive single-family dwellings built around a golf course. According to planners at MRCOG, PAAKO is projected to grow to 1,400 single-family units over the next 20 years. Similarly, many of those houses permitted in the southeastern part of Sandoval County are more expensive single-family homes. These are homes on the northern edge of the Sandia RD near the community of Placitas.

³⁷ This number is for single-family homes. Only four multi-family structures were indicated in the permit data for the DASZs included and all of these were four-plexes.

Table 2.13: Total Permits for Single Family Dwellings in DASZs Abutting the Sandia Ranger District

	2000	2001	2002	2003	2004	2005	Total
Bernalillo County	347	278	292	288	252	71	1,528
Sandoval County	<u>85</u>	<u>94</u>	<u>108</u>	<u>117</u>	<u>74</u>	<u>29</u>	<u>507</u>
Total	432	372	400	405	326	100	2,035

2.8 Net Migration

Table 2.14 examines the net migration into the assessment area at the county level. In each decennial Census, respondents are asked about their county and state of residence five years previous. Shown in **Table 2.14** then are only those in New Mexico who are five years of age or older. Thus, for the assessment area in 2000, approximately 47 percent of those in the area were movers (had changed addresses in the past five years). Of the 387,011 movers, 201,851 (52%) had moved from a house in the county of residence to another house within the same county. In the assessment area 99,616 persons (26%) moved to the area from other states. Of those who moved from other states, the regions of origin are Northeast (9%), Midwest (16%), South (30%), and West (44%), belying the perception that many of the in-migrants to the Southwest are escaping from the colder North. It is notable that Texas is in the South region and that California dominates the West region.

Table 2.14 Net Migration

	NEW MEXICO				TOTAL CIBOLA NF COUNTIES			
	1990	2000	% of	% of	1990	2000	% of	% of
			Total	Total			Total	Total
TOTAL	1,390,048	1,689,911	100	100	663,759	821,452	100	100
Same House	719,628	919,717	52	54	333,691	434,441	50	53
Different House	670,420	770,194	48	46	330,068	387,011	50	47
in the United States	645,519	731,488	46	43	319,796	370,681	48	45
Same County	345,469	400,128	25	24	169,509	201,851	26	25
Different County	300,050	331,360	22	20	150,287	168,830	23	21
Same State	107,289	126,093	8	7	57,633	69,214	9	8
Different State	192,761	205,267	14	12	92,654	99,616	14	12
Northeast	14,311	15,329	1	1	8,068	8,674	1	1
Midwest	28,270	29,457	2	2	16,143	15,831	2	2
South	73,548	72,497	5	4	29,978	30,614	5	4
West	76,632	87,984	6	5	38,465	44,497	6	5
Puerto Rico	110	398	0	0	59	229	0	0
Elsewhere	24,791	38,308	2	2	10,213	16,101	2	2

Source: US Census Bureau, Decennial Census, 1990 and 2000. Calculations done by UNM BBER.

Minimal differences in these percentages occur in the assessment area between the 1990 and 2000 Census data. Overall, in 1990 a higher percentage of movers who came to New Mexico were from the Midwest and the South. The total number of movers into the assessment area from other Western states is up slightly between 1990 and 2000. At the county level, only Lincoln County breaks this trend: the people moving into Lincoln from out-of-state are from the South, most likely Texas.

2.9 Opportunities, Risks and Special Circumstances

The assessment area for Cibola NF mountain ranger districts includes the largest metropolitan area in the state, the Albuquerque MSA, with a population now exceeding 800,000. It includes some of the

fastest growing communities in the county, among them Rio Rancho, which experienced a 4-fold increase in population between 1980 and 2000 and now has a population approaching 70,000. Move away from Sandia RD, which is surrounded by the MSA, however, and the picture changes from that of a dynamic fast growing urban center to that of small rural communities, many of which have experienced little if any growth over the past few decades. The contrast is sharp. Bernalillo County, with a population that today exceeds 600,000 had a population density approaching 500 people per square mile in 2000; Catron County, with 3,400 people (estimated in 2005, down from 3,543 in 2000) had a population density of 0.5 people per square mile in 2000. The large and growing population base in the Albuquerque MSA is a special circumstance that affects management decisions not simply in the Sandia RD but throughout the Cibola NF. The diverse size, differing growth paths and contrasting demographics of the communities in the assessment area, however, also create a special set of circumstance for the Cibola NF.

The population increased in all counties between 1990 and 2000, as did real per capita income, and these changes may be expected to impact forest use, particularly the demand for recreation.³⁸

Counties where poverty is most prevalent include rural counties, those with high percentages of minority populations (especially Native Americans), those that exhibit lower levels of education, and those with more housing with no indoor plumbing facilities. Poverty rates fell dramatically in some areas, particularly in McKinley and Cibola Counties, although there were slight increases in both Sierra and Socorro counties. Despite these improvements, people in many rural communities will continue to be more dependent on agriculture and other traditional uses, such as grazing, wood gathering and piñon harvesting. Management decisions that curtail these uses could significantly impact the well-being of certain populations.

The demographic data developed in this chapter generally follow the demographics of the US as a whole – the population is aging, the population is becoming more racially diverse, educational attainment has increased, and per capita incomes have generally grown. More households are headed by women or are single person households. Cordell, Green and Betz have explored how the changing demographics may affect the demand for different types of outdoor recreation as well as environmental attitudes. Changing demographics and the attitudes and beliefs of various cohorts (whether age, race, income, or educational level), can result in differing expectations of how the lands should be managed.³⁹

On a national level, America is aging and life spans are increasing as well.⁴⁰ The leading edge of the Baby Boomers reaches age 60 this year. As this massive cohort moves into their retirement years, they will have more leisure time to spend on various recreational pursuits, including travel, but also on volunteer activities, from which the Cibola NF could benefit.⁴¹ The aging of the US population

³⁸ Rising incomes are associated with increased demand for outdoor recreation. See, Bergstrom and Cordell. 1991. "An Analysis of the Demand for and Value of Outdoor Recreation in the United States." *Journal of Leisure Research*. 23:1:79. and Cordell, Green, and Betz "Recreation and the Environment as Cultural Dimensions in Contemporary American Society." *Journal of Leisure Sciences*. 24:1:13-41.

³⁹ Cordell, Green, and Betz "Recreation and the Environment as Cultural Dimensions in Contemporary American Society." *Journal of Leisure Sciences*. 24:1:13-41.

⁴⁰ U.S. Census Bureau. (October 2001). *Age: 2000, Census 2000 Brief*, Washington, D.C. <http://www.census.gov/prod/2001pubs/c2kbr01-12.pdf>.

⁴¹ The relationship between age and pursuit of outdoor recreational activities is generally found to be an inverse relationship, with younger people more active in their pursuit of outdoor recreational activities. However, the importance of age varies depending upon the type of activity. See Cordell, Green, and Betz, op. cit. and Bergstrom and Cordell, op. cit.

and of the population in the assessment area counties can be expected to place new demands on Cibola NF for recreation as well as for more cultural and heritage displays and interpretive events. Serving this population may require investments in infrastructure to make areas of the forest more accessible to those with limited mobility. Many retirees become amenity migrants, and many come searching for sunshine, mountain vistas and opportunities for outdoor recreation -- all of which can be found in communities near the Cibola NF. Finally, the aging of the US population is already placing a heavy demand on federal entitlement programs, such as Medicare, Medicaid, and Social Security, intensifying the competition for federal dollars. Discretionary spending on Forest Service programs is at risk.

Finally, there are many who may desire to build houses at the wildland-urban interface. This was evidenced in the DASZ permit data obtained from the Mid-Region Council of Governments (MRCOG). New, single family dwellings at the edge of the Sandia RD continue to flourish. These are often more expensive houses built on land that is sold at premium prices, and their owners have a stake in NF policies and perhaps the clout to try to affect decisions. In addition to the access issues raised by this type of development, housing at the wildland-urban interface also impacts Cibola NF policies about fire and the reduction of fuel loads. Strategies for fighting fires when there are dwellings in or near the forest now must devote additional resources to the protection of those houses and the lives of their residents. Residents at the forest edge may also oppose thinning and thinning methods. Also, housing in the forest can alter access and impact forest use. New roads built to developments can impact forest health by creating runoff problems, air pollution problems, and access to new areas where unmanaged recreation can occur.
