

Executive Summary

This report is an assessment of the socioeconomic and cultural relationships between the Gila National Forest (NF) and its neighboring communities. This assessment was commissioned by the Southwestern Regional Office of the United States Department of Agriculture Forest Service (FS), and serves as a source of information for the development of a revised plan for the Gila NF.

The assessment is based primarily on secondary data sources, including the United States Bureau of the Census, the Bureau of Land Management, the United States Geological Survey, the United States Federal Highway Administration, the New Mexico Department of Transportation, offices of wildlife management, and county governments. The most important source of data was FS records, including the FS infrastructure database (INFRA) and geographic information system (GIS) databases. In many cases, specific information was not available in a form appropriate to this analysis, requiring the Bureau of Business and Economic Research to make estimates, using the best available data. In other cases, data were not available at all and the analysis was limited. Information sources and analysis methods are thoroughly documented throughout the report.

Gila National Forest Overview

The Gila National Forest (NF) has 3.3 million acres of publicly-owned forest and range land and is the sixth largest national forest in the continental United States. The forest spans Catron, Grant, Hidalgo, and Sierra Counties in the southwestern quadrant of New Mexico. Although they vary in their socioeconomic characteristics, all the counties in the four-county assessment area are rural counties. In terms of population, the largest incorporated areas are Silver City, Bayard, and Hurley (10,545, 2,534, and 1,464, respectively, in 2000) in Grant County, Truth or Consequences (7,289) in Sierra County, and Lordsburg (3,379) in Hidalgo County. The one incorporated area in Catron County is Reserve, with a population of only 387 in 2000. Cities within 150 miles of the Gila NF include Las Cruces (74,267) and Deming (14,116) to the south in Dona Ana and Luna Counties, respectively, and Socorro (8,877) to the northeast in Socorro County. The Gila NF does not share boundaries with any present-day occupied Indian reservations, but the Ramah and Alamo Navajo and the Acoma Pueblo in New Mexico and the Warm Springs Apache in Oklahoma all have historical ties to the Gila NF, continue to use the Gila NF, and have on-going concerns about particular places and the disposition of various sites.

Unlike the four other national forests in New Mexico, all of the Gila NF except for the Burro Mountain Region near Silver City covers one contiguous area. The Gila NF is comprised of six ranger districts (Black Range, Glenwood, Quemado, Reserve, Silver City, and Wilderness) and includes three wilderness areas: the Aldo Leopold Wilderness (about 200,000 acres), the Gila Wilderness (about 560,000 acres), and portions of the Blue Range Wilderness (about 29,000 acres). The Gila Cliff Dwellings National Monument, which is jointly managed by the National Park Service and the FS under a memorandum of understanding, lies within the Wilderness Ranger District.

Demographics and the Economy of the Four-County Assessment Area

Once home to the Mogollon and Mimbrenos Indians and, later, the Warm Springs Apache, who consider the Gila their ancestral home, the area population took off when gold, silver, and copper were discovered; but the mining history has been one of boom and bust. In addition to mining, the

area's economy has been dependent on ranching, timber, and, more recently, tourism, with the NF providing critical resources in support of all these activities.

The four Gila NF assessment area counties generally follow the demographics of the U.S. as a whole – the population is aging, more racially diverse, with higher educational attainment and increasing per capita incomes. More households are headed by women and are single person households.

This is an area of changing economic fortunes, and many of the changes relate to the natural resources of the Gila NF. Over the past two decades, much of the logging industry in this part of New Mexico died, with the largest sawmill closing in Reserve in 1993. Prolonged drought conditions, adverse market conditions, and restrictions on grazing allotments designed to foster sustainable grazing have adversely impacted some ranching operations and may together have contributed to decisions to sell off land to other uses or to go out of business entirely. Falling copper prices on international markets were one major factor in the layoffs that occurred at the mines and also at the smelters of Grant and Hidalgo Counties. On the other hand, the Gila NF has attracted increasing recreational users. The local tourism industries expanded, as did amenity migration into the area by retirees and others, along with investments in vacation homes.

Access

While the Gila NF remains relatively remote, there are well-developed transportation links from major population centers. Growing populations in the Albuquerque Metropolitan Statistical Area (MSA) and in the Las Cruces, El Paso, and Tucson MSAs mean more people seeking out the diverse recreation opportunities offered by the Gila NF.

Forest roads provide access for both forest users and FS officials to areas of interest in the Gila NF. These roads are essential because they allow the only access to certain areas, permitting maintenance and rehabilitative activities. Access to the forest becomes critical in the event of a forest fire or other catastrophic event. The Gila NF features about 6,626 miles of roadways on NF-managed land. The Gila NF has 88 trailheads, and, according to the FS infrastructure database, almost 1,900 miles of trails.

The roads and trails catalogued above do not include all the roads and trails that have been created in the forest by people taking their motorized vehicles, typically their off-highway vehicles (OHVs), “off road.” These motorized vehicles provide an increasingly popular recreation alternative, but they can have many adverse effects, including causing damage to riparian and other areas of the forest, and degrading the experience of other forest users. In part to address the problem of OHVs, the FS has promulgated a new management directive, the Travel Management Rule, requiring each of the NFs to designate those roads, trails, and areas that are open to motor vehicle use.

A recent national trend is retirees and those not restricted to doing their job at a particular worksite (“lone eagles”) migrating or building or buying second homes in areas with considerable amenities. These newcomers to the land can create a number of challenges for forest management in terms of access when they willingly or unwillingly block previously used points-of-entry to the forest. Ranchers have also been known to prevent access to the forest to other users.

Land Cover and Wildlife

Overall, two thirds of the land in the Gila is evergreen forest, 22.6 percent is shrub land, 8.5 percent is herbaceous grasslands, and 1.7 percent is mixed forest. There are 121 thousand acres of privately-owned land on the Gila NF, making up about 3.6 percent of the entire forest. The private lands are disproportionately shrub and herbaceous grasslands – lands more suitable for grazing.

The Gila NF supports a vast variety of birds and other animals and is known for its hunting and wildlife viewing opportunities. The Gila NF is home to a number of endangered and threatened species, including the southwestern willow flycatcher, the Gila trout, the bald eagle, the Mexican spotted owl, the loach minnow, and the Spikedace. The Mexican gray wolf has been reintroduced into the areas surrounding the Gila NF, and its release in this area is very controversial.

The overgrowth of small diameter trees in the forest is endangering the health of the forest and creating conditions conducive to major fire disasters. The very great challenge is to restore the forest so that natural processes, including fire, will have a role in maintaining the health of the forest. While controlled burns may provide an answer, there are a number of promising projects around the Gila NF that involve harvesting small diameter trees to support wood products industries.

Users of the Gila National Forest

Recreation is a major use of the Gila NF. FS data indicate that over one million people visited the Gila NF in 1999-2000. Of these, almost 70 percent came for recreational activities such as hiking, picnicking, biking, and camping, while more than 30 percent came to go hunting or fishing or to view wildlife. Local visitors make up about 57 percent of the recreational visitors. OHV recreational use is increasing and can come into conflict with just about every other use, from traditional and cultural to grazing, ranching, and other recreational uses.

Grazing is a substantial commercial activity on the Gila NF and has a significant economic impact on surrounding rural communities. The data on farm receipts and income and on farm acreage attest to some problems in ranching. Ranchers face problems relating to the general drought conditions in the Southwest; they may face deteriorating market conditions and declining prices that threaten not only their short-term operations, but also the likelihood of their children being able to afford to take over their operations. In addition, the sustainable grazing practices mandated by the Rangeland Renewable Resources Act and the Multiple Use Sustained Yield Act and the protections of animal habitat and water quality required by the Endangered Species Act and the Clean Water Act have led to changes in FS management of the grazing program for the Gila and other national forests. For some allotments, these changes have meant lower limits on the number of animals that can be grazed; in some cases, ranchers have been required to move their herds and fence them in areas to prevent over-use and over-grazing. In other cases they have been forced to pipe in water, which requires additional investment and raises operating costs. The compounding of these circumstances can drive ranchers to the margin, with some deciding to quit entirely. Others may decide to sell off their rangelands, within or on the perimeter of the forest, taking advantage of the much higher prices paid for land used for residential development.

Timber has a long history of traditional uses in the Gila NF, and logging was once a very important activity. As noted above, there is growing interest in harvesting small diameter trees for wood products, and a number of public-private partnerships have formed. There are enterprises to take this input to market, but one of the problems in the Gila NF and elsewhere has been guaranteeing a long term supply of wood. Data from the Timber Information Manager database indicate that the most valuable forest product in the Gila NF in 2004 was fuel wood. Poles were a close second, while pinesaw timber was a distant third. In terms of special forest products, the major draw is Christmas trees.

Research for this report did not reveal any existing mining production or extractive activities occurring in the Gila today, but this does not rule out future mining activity. There are numerous mining claims on or near Inventoried Roadless Areas (IRAs) within the Gila NF.

Special use permits in the Gila NF have been granted most commonly for recreational and transportation uses. Among recreational uses permitted, the vast majority went for outfitters and guides.

In terms of illegal uses, the most common offense related to sanitation, typically leaving refuse, debris, or litter exposed. Other common violations relate to cutting or otherwise damaging timber or other forest trees, damaging a natural feature or other property of the U.S., or leaving a fire without completely extinguishing it.

Special Places

The Gila NF features 162 designated recreational sites. In addition to the developed recreation sites and dispersed recreation activities that take place on lakes and within the forest, there are a number of undeveloped sites of interest to recreational users. Major examples are the many hot springs and pools within the Gila NF.

Major attractions in the forest include the Gila Cliff Dwellings National Monument, the structures which comprise Fort Bayard in the Fort Bayard Historic District within the Silver City Ranger District (RD), the old mining town of Mogollon along Bursum Road in the Glenwood RD, and the mill ruins and catwalk up Whitewater Canyon, now part of the Catwalk National Recreation Area, also in the Glenwood RD. The Gila NF also has more than 6,700 sites of archeological or historical interest. These include everything from rock art and the ruins of pre-historic villages to Civilian Conservation Core (CCC) camps and lookouts. The forest has a list of Priority Heritage Assets that lists over 500 of these sites. The Gila NF also contains a number of properties that are listed on the National Register of Historic Places. In addition to these priority assets are historic and prehistoric structures and a great number of archeological sites. Finally, there are collections, such as historical archives and artifacts.

In addition to formally designated areas, some areas are considered “special places,” especially to Native American communities. Where known, the identity and other information about these areas are kept secret out of respect for the privacy of tribal activities and uses. The fact that the locations of many of these sites are unknown complicates FS management of the Gila NF resources for multiple-use.

The Gila NF includes three wilderness areas, the Gila, Aldo Leopold, and Blue Range Wildernesses, and these make up about 24 percent of the total acreage of the Gila NF. Aside

from these areas, there are 685 thousand acres (20 percent of the total) that are IRAs on which there cannot be road construction or reconstruction under the Bush alternative to Clinton's Roadless Rule and 49,000 acres of IRAs on which roads can be built or rebuilt.

Economic Impact of the Gila National Forest

The principal economic activities on the Gila NF include ranching, timber harvesting, recreation and wildlife visits, and FS operations. The direct impacts indicate that visitor spending is by far the largest contributor to the economic activity in the assessment area, providing \$111 million in output and 2,122 jobs. FS operations account for a substantial number of jobs as well, and ranching operations on FS land produce \$11.6 million of output with an estimated 161 employees. The direct activities associated with the Gila NF create indirect and induced impacts, as businesses and workers make expenditures and purchases and these funds cycle through the local economy. In total, the Gila NF contributes directly or indirectly an estimated 3,376 jobs and \$63.9 million in income to the economies of the four counties included in this study. This is equivalent to about 17.5 percent of the 19,245 jobs in these areas in 2002. Visitor spending is by far the largest source of activity, contributing a total of 75 percent of the jobs and 80 percent of the labor income impacts. Ranching also contributes significantly, while the impacts of timber harvesting are negligible.

There are a number of special, high income activities that may not be satisfactorily captured in the above data. Those outfitters and guides that are located within the assessment area represent a significant amount of economic activity. For hunting outfitters, standard prices seem to range from \$600 to \$700 per day, often with a multiple day minimum. Customers of these companies are almost exclusively from outside the local region, so they represent an important flow of money into the assessment area. Another activity that may not be accurately counted in the data is the impact of wildfire suppression spending. The Bureau of Business and Economic Research estimates the additional economic activity generated by this spending to be \$3 million in output, 18 jobs, and \$459,000 of labor income.

Community Partnerships

The Gila NF 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, conducting business, and achieving goals that could not be met by the FS alone. One way the forest has been teaming up with community groups is through the Collaborative Forest Restoration Program (CFRP). The Community Forest Restoration Act of 2000 provides cost-share grants – up to \$5 million annually – to stakeholders for forest restoration projects on public land that are designed through a collaborative process. Projects must address specific issues such as wildfire threat reduction, ecosystem restoration, preservation of old and large trees, and utilization of small diameter wood products. CFRP projects in the Gila NF in 2005 included a biomass utilization project, a tree thinning project in the Little Walnut Picnic Area, and a project to hand over a small diameter wood operation to Lower Frisco Wood Products in Catron County.

According to data collected from the FS, the Gila NF benefited from 26,531 hours of work from 350 volunteers in 2005. The FS estimates the appraised value of these hours at over \$289,000 in

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2005, after accounting for the skill-level of volunteers and appraising on the government pay grade scale. The Gila NF benefits the most from volunteer efforts related to recreational activities and facilities (campground and trail maintenance), where volunteers provided more than \$234,000 worth of time and about 12 person-years worth of work. The amount and value of the time donated is quite large, particularly when one considers that only about 54,000 people lived in the four-county assessment area in 2000. This level of effort is testament to the value of the forest to local residents.

1 Introduction

1.1 Statement of Purpose

This report provides a socioeconomic assessment of the Gila National Forest (NF) and the surrounding counties and communities that comprise the assessment area. The report explores relationships and linkages between Forest Service-managed land, visitors, and surrounding communities. Specifically, this report contains information and analysis intended to help the Forest Service (FS) and the public do the following:

- Document and assess current contributions of the Gila NF to the socioeconomic and cultural vitality of the communities neighboring the public land;
- Identify opportunities and strategies to address land use conflicts brought about by growing multiple use concerns;
- Compile in one place information and analysis helpful in developing a forest management and planning framework.

1.2 Sources of Information and Analytical Methods

Information in this assessment is largely drawn from secondary data sources. Secondary data are often collected for different purposes, but may still be very useful in other inquiries or studies. Specifically, data for this report come from:

- Demographic and economic data sets, including 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; 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 Gila NF has 3.3 million acres of publicly-owned forest and range land and is the sixth largest national forest in the continental United States. The Gila NF is comprised of six ranger districts (Black Range, Glenwood, Quemado, Reserve, Silver City, and Wilderness) and includes three wilderness areas: the Aldo Leopold Wilderness (about 200,000 acres), the Gila Wilderness (about 560,000 acres), and portions of the Blue Range Wilderness (about 29,000 acres). The Gila Cliff Dwellings National Monument, which is jointly managed by the National Park Service and the FS under a memorandum of understanding, lies within the Wilderness Ranger District (RD).

The forest spans four counties in the southwestern quadrant of New Mexico – Catron to the north, Grant to the south, a piece of Hidalgo to the southwest, and Sierra to the east. These four counties comprise the assessment area for this report. **Figure 1.1** provides a map of the Gila NF and vicinity, showing county boundaries, urban areas, and Native American lands.

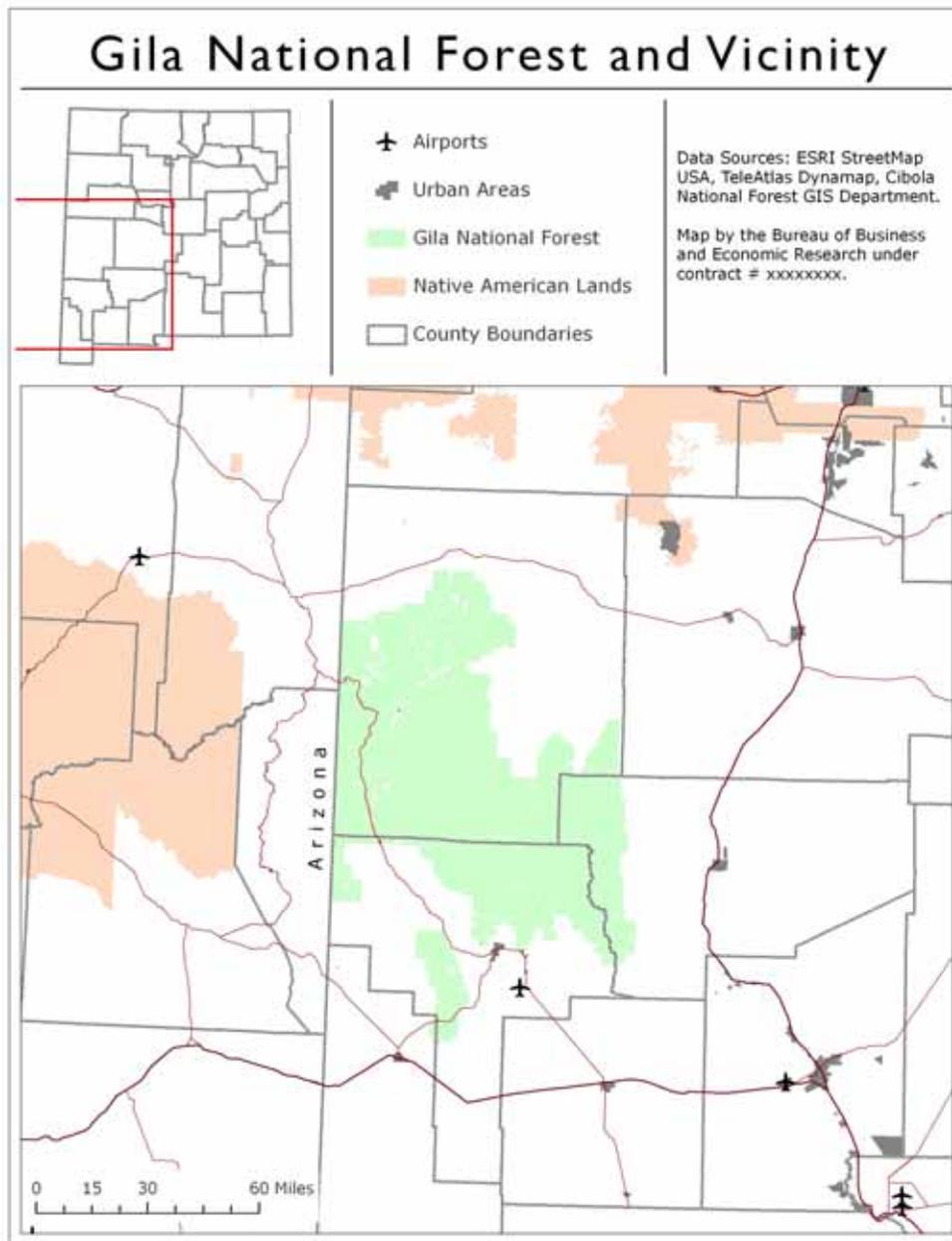


Figure 1.1: Gila NF Assessment Area

Although they vary in their socioeconomic characteristics, all the counties in the four-county assessment area are rural counties. The largest incorporated areas within the assessment area are Silver City (10,545 in 2000) in Grant County, Truth or Consequences (7,289) in Sierra County, Lordsburg (3,379) in Hidalgo County, and Bayard (2,534) and Hurley (1,464), both in Grant County. The one incorporated area in Catron County is Reserve, with a population of only 387 in 2000. Cities within 150 miles of the Gila NF include Las Cruces (74,267) and Deming (14,116) to the south in Dona Ana and Luna Counties, respectively, and Socorro (8,877) to the northeast in Socorro County.

Unlike the forests in the northern part of the state, there are no land grant communities adjacent to the Gila NF. While the Gila NF is the ancestral home of aboriginal groups (the Mimbrenos, the Mogollon) and of the Warm Springs Apache, the Gila does not share boundaries with any present-day occupied Native American tribal lands or reservations. The closest Native American lands are the White Mountain Apache and San Carlos Apache reservations to the west in Arizona, the Zuni Pueblo and the Ramah Navajo reservation, which lie further to the north, and the Acoma and Laguna Pueblos and the Alamo Navajo reservation, which lie to the northeast. While not adjacent to the forest, the Acoma Pueblos and the Ramah and Alamo Navajo all have historical ties to the Gila. They continue to use areas of the Gila NF and have ongoing concerns in regards to culturally significant places and the disposition of various sites.

Much of the data used for this report is available only on a county level. Thus, county boundaries define the parameters of much of the data and determine the assessment area – the area includes only New Mexico counties that are contained or touched by the six ranger districts of the Gila NF. The four New Mexico counties that comprise the assessment area total 11.9 million acres, or 18,606 square miles. **Table 1.2** lists the counties in the assessment area and shows the total Gila NF acres in the county, the amount of FS-managed land in each county, and the amount of land within the exterior boundaries of the Gila NF that is owned by other entities, referred to as “other owned” or “privately owned” in FS literature.¹ The last two columns provide data on the total acres in the county and the percent of these acres covered by the Gila NF.

Table 1.1: Gila NF Land by County (Acres)

	Total Gila NF Acres in County	Forest Service Managed Acres	Acres Under Other Ownership	Total Acres in County	Gila NF as a % of Total County Acres
Catron	2,127,869	2,036,793	91,076	4,442,089	47.9%
Grant	889,056	865,470	23,586	2,543,508	35.0%
Hidalgo	7,652	7,600	52	2,210,454	0.3%
Sierra	365,618	359,439	6,179	2,711,922	13.5%
All Counties	3,390,195	3,269,302	120,893	11,907,973	7.9%

Sources: Gila National Forest GIS Department and ESRI Arc GIS Street Map USA 2004

Calculations: Done by UNM-BBER.

The biggest portion of Gila NF-managed land (2.1 million acres) is in Catron County, where the Gila NF accounts for almost half of the total land area. The Gila NF comprises 35 percent of the land in Grant County and 13.5 percent of the land in Sierra County. FS lands account for less than 1 percent of the land in Hidalgo County.

1.4 Gila National Forest Ranger Districts

Unlike some national forests in New Mexico, almost all of the Gila NF is contained in one contiguous area. There is only one piece of the forest in the Silver City RD that is separate, but it

¹ USDA FS, “Land Areas Report Definition of Terms,” http://www.fs.fed.us/land/staff/lar/definitions_of_terms.htm.

is proximate - the Burro Mountain Region near Silver City. **Figure 1.2** depicts the geographical boundaries for the six ranger districts that make up the Gila NF.

Where it is possible and appropriate, information in this report is presented on a ranger district-level. However, it was often difficult, if not impossible, to reduce the level of analysis lower than the county level. Furthermore, some of the data provided by the FS is at the forest level, meaning data were reported at the aggregate level of the entire NF, and often could not be broken out by RD.

The following sections describe each of the RDs, including a discussion of historical land uses, using information from the Gila NF website and a variety of other sources.²

1.4.1 Black Range Ranger District

The Black Range RD, in the eastern-most portion of the Gila NF, covers 552,615 acres within parts of Catron and Sierra counties, and borders Grant County on the west. The Black Range Mountains are the dominant feature, with elevations ranging from 4,200 feet to just under 10,000 feet. A large portion of the Aldo Leopold Wilderness lies within the Black Range RD, as does a small portion of the Gila Wilderness. The Black Range RD encompasses a diversity of habitats, from desert and arid grasslands to Piñon and juniper woodlands and ponderosa pine. Higher up in the mountains above 9,000 feet is mixed conifer forest of spruce and fir.

Precipitation varies from 12 inches in the southern woodlands to over 20 inches in the higher elevations.³ The Continental Divide runs north-south through the northern part of the ranger district.

² USDA FS, "Gila National Forest," <http://www2.srs.fs.fed.us/r3/gila>.

³ USDA FS: Gila National Forest, "Black Range Ranger District," <http://www2.srs.fs.fed.us/r3/gila/about/distmain.asp?district=black>.

Gila National Forest Ranger Districts

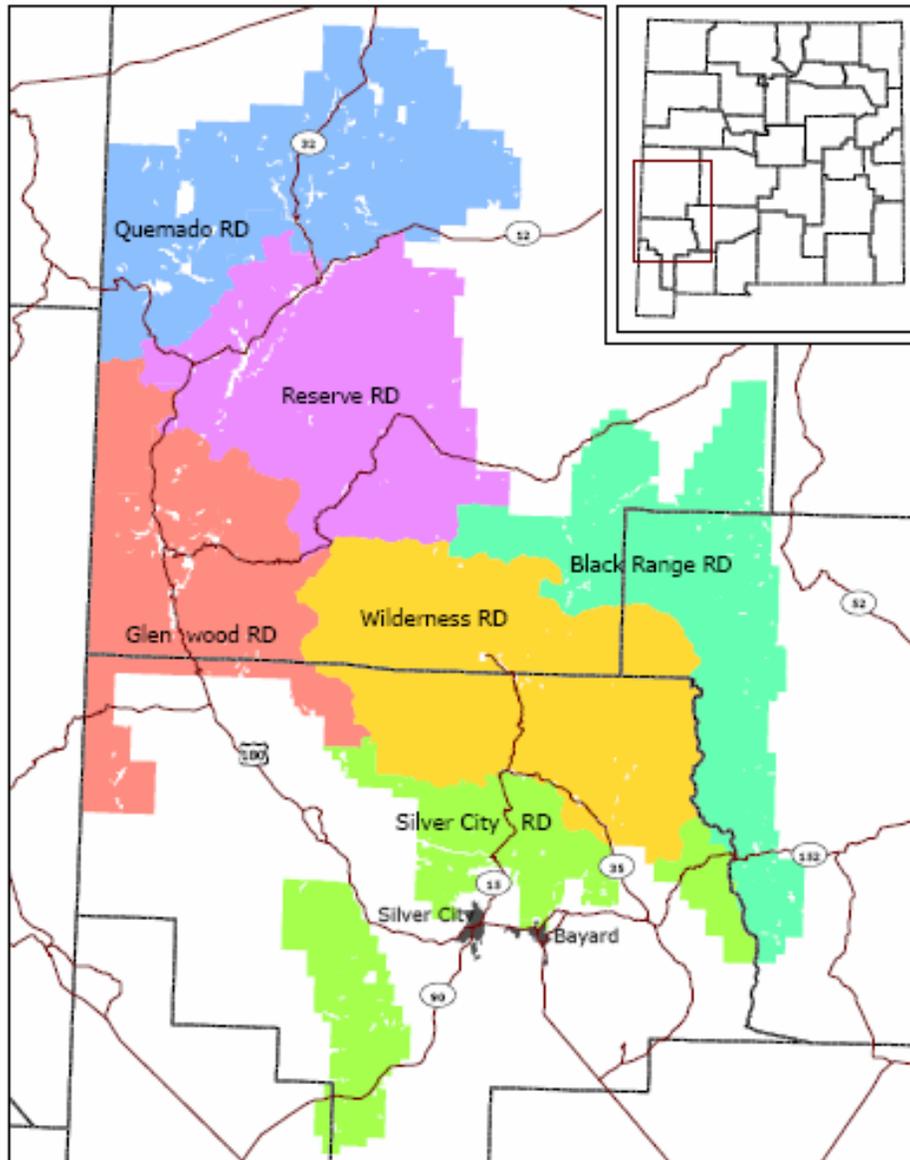


Figure 1.2: Gila NF Ranger Districts

State Highway 152 bisects the Black Range RD in the south, taking travelers through the historic town of Hillsboro (32 miles southwest of Truth or Consequences in Sierra County), which was founded in 1877 when gold was discovered at the nearby Opportunity and Ready Pay mines. Only a few hundred people live in Hillsboro today, but the town annually hosts an apple festival and has various tourist amenities in addition to its 120 year-old general store and the Black Range Museum.⁴ Nine miles west of Hillsboro is the small community of Kingston. Once the largest

⁴ Michael Cook, "Hillsboro: New Mexico Ghost Town," <http://www.ghosttowns.com/states/nm/hillsboro.html>.

town in the territory with over 7,000 residents, Kingston was founded after the discovery of a rich lode of silver ore at the Solitaire Mine in 1882.⁵

North of Elephant Butte, State Highway 52 provides another tour of the remnants of the Gila NF area's past. Cuchillo was established by ranchers and farmers in the 1850s and flourished as a stage stop and trade center from the 1880s to the 1930s, as it was mid-way between the mines at Chloride and Winston and the railroad at Engle.⁶ Chloride was founded in 1879 after silver ore was discovered nearby. Despite problems with the Indian population, the town grew to 2,000 people, with 12 mines and nearly 500 prospector holes, including the Silver Monument, the U.S. Treasury, and the St. Cloud, which is still in operation. The silver panic of 1893 wiped out the town and only about 20 people live there today.⁷ Winston was settled by miners from nearby Chloride in 1881. By 1884, it had 3,100 people, but it also declined as silver prices fell and only a few people live there today.⁸ Monticello was settled by ranchers and farmers in 1856. Once the headquarters for the Southern Apache Agency, Monticello was home to 500 Apaches in 1870. Placita was founded by the Sedillo family in the 1840s.⁹

1.4.2 Glenwood Ranger District

The Glenwood RD encompasses more than 523,000 acres on the west side of the Gila NF. The Glenwood RD includes the Blue Range Wilderness and the western portion of the Gila Wilderness and offers hikers more than 322 miles of varied trails.¹⁰

The Glenwood RD has many attractions, including the Catwalk National Recreation Area, which includes the Catwalk Trail in Whitewater Canyon. In 1893, a mill was built to serve the water needs of the town of Graham, which was located at the mouth of the canyon. Remains of the mill can still be seen today near the picnic area. Building the accompanying water pipeline was an engineering challenge, as the canyon is very narrow: the pipeline sometimes hung as much as 20 feet above the canyon bottom. Maintaining the pipeline was another challenge and "the workmen who walked the line to repair damage dubbed it the 'Catwalk'." The Catwalk Trail came into existence in the 1930s, when the Civilian Conservation Corps built a suspended walkway where the pipeline had been. In 1961, the FS rebuilt the trail, which was designated a National Recreation Trail in 1978. Today, the Catwalk Trail and picnic area are very popular visitor destinations in the Gila NF.¹¹

Other attractions include the Aldo Leopold Vista, Mogollon Historic Area, and Pueblo Park Campground. Bursum Road (NM 159), a primitive scenic byway, leads not only to varied recreational opportunities but also provides access to the historic mining town of Mogollon. The first log cabin was built in Mogollon and mines were developed in Silver Creek by 1889. Although the town was almost destroyed several times, the mines, including the newer additions of Little Fanny, Champion, McKinley, Pacific, and Deadwood, "extracted approximately one and a half million dollars of gold and silver in 1913, or about 40 per cent of New Mexico's precious

⁵ Percha Bank Museum, "A Brief History of Kingston, NM," <http://www.perchabank.com/history.html>.

⁶ Michael Cook, "Cuchillo: New Mexico Ghost Town," <http://www.ghosttowns.com/states/nm/cuchillo.html>.

⁷ Ibid.

⁸ Michael Cook, "Winston: New Mexico Ghost Town," <http://www.ghosttowns.com/states/nm/winston.html>.

⁹ Michael Cook, "Monticello or Placita: New Mexico Ghost Town,"

<http://www.ghosttowns.com/states/nm/monticello.html>.

¹⁰ USDA FS, "Glenwood Ranger District," <http://www2.srs.fs.fed.us/r3/gila/about/distmain.asp?district=glenwood>.

¹¹ National Recreation Trails, "Catwalk Trail, Gila National Forest, New Mexico, National Recreation Trails," <http://www.americantrails.org/nationalrecreationtrails/trailNRT/Catwalk-NM.html>.

metals for that year.”¹² The community expanded to a population of fifteen hundred by 1915. During World War I, the demand for gold and silver dropped and many of Mogollon's mines shut down. A spike in the price of gold in 1934 saw a temporary rejuvenation, but by 1950 the Little Fanny was the only mine in operation.¹³

1.4.3 Quemado Ranger District

The Quemado RD is the northern-most district and the second largest district (600,600 acres) within the Gila NF. It also contains the largest amount of private land within the exterior boundaries of the Gila NF. The elevation of the Quemado RD varies from 6,600 feet to 9,700 feet. Vegetation and land cover consist of grassland in the lowlands, piñon-juniper woodland and ponderosa pine in the mid-range elevations, and mixed conifer with aspen and fir in the upper elevations. Cottonwood and willow are found in the riparian areas. Historically, logging and grazing were the primary industries in the Quemado RD, but since the mid-1990s, logging has died out.¹⁴

Recreational opportunities in the Quemado RD include “fishing, boating, camping, horseback riding, rock hounding, hiking, recreational vehicle use, hunting, and wildlife viewing.”¹⁵ Unique areas within the RD for recreating include the Quemado Lake Recreation Area in the northern part of the RD, portions of the Continental Divide National Scenic Trail in the eastern part of the district, the San Francisco Warm Springs in the western part of the district, and NM State Highway 32 between Quemado and Apache Creek.¹⁶

The area encompassed by the Quemado RD is rich in wildlife – elk, pronghorn antelope, and coyote are common, black bear and mule deer less so, and there are mountain lion. The Quemado Lake area is excellent for bird watching, with different varieties of water fowl and other birds taking advantage of the range of vegetation and the water supply.¹⁷

1.4.4 Wilderness Ranger District

The Wilderness RD is the largest district within the Gila NF, covering 900,000 acres. The Wilderness RD is the heart of the Gila and contains two designated wilderness areas, the Gila and the Aldo Leopold. The terrain of the Wilderness RD is varied and rugged. It is characterized by “deep canyons, flat mesas, large river channels and flood plains.”¹⁸ Vegetation and land cover vary by elevation. The lower elevations are comprised of semi-desert landcover and grasslands. Pine, spruce, and mixed conifers make up the landcover for the higher elevations, and ponderosa pine is extensive. Large areas of the Wilderness RD are also made up of piñon-juniper-oak woodlands.¹⁹

In addition to the two wilderness areas, the Wilderness RD offers visitors multiple recreation opportunities. The district manages the Gila Cliff Dwellings National Monument and associated

¹² James E. Sherman and Barbara H. Sherman, *Ghost Towns and Mining Camps of New Mexico* (Norman: University of Oklahoma Press), 155.

¹³ Ibid.

¹⁴ USDA FS, “Quemado Ranger District,” <http://www2.srs.fs.fed.us/r3/gila/about/distmain.asp?district=quemado>.

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ USDA FS, “Wilderness Ranger District,” <http://www2.srs.fs.fed.us/r3/gila/about/distmain.asp?district=wilderness>.

¹⁹ Ibid.

visitors center and the Lake Roberts Recreation Area with developed campgrounds and fishing opportunities.²⁰ The Wilderness RD and the Mimbres Valley are the ancient home of the Mogollon and the Mimbres people, whose civilization reached its peak sometime after 1000.²¹ The legacy of these pre-historic peoples consists of the remnants of their dwellings – the cliff houses that have become the favored attraction at the National Monument and the impressive but unexcavated TJ Ruin – and the examples of Mimbres pottery that have been found: some 10,000 bowls, by custom buried with the dead.²²

1.4.5 Reserve Ranger District

The Reserve RD website provides this description of the RD:

The Reserve Ranger District is one of the largest Districts in the northern portion of the Gila National Forest. Grass plains, chaparral, woodland, pine and mixed conifer habitats are found within the District's 573,537 acres that make up the District. Elevations . . . range from 5300 feet to 9786 feet. There are four developed campgrounds located in the District [and] 155 miles of trail including 55 miles on the Continental Divide. The District's southern border is the Gila Wilderness, providing several backcountry hiking opportunities. A large portion of the District is relatively untouched, providing the abundance of big game, small game, and fishing, making the area a 'hunter's paradise', known worldwide.²³

There are extensive grazing allotments on the Reserve RD. The timber industry went into decline around 1990, although there are currently efforts to revive the industry by harvesting and utilizing the small diameter trees that choke the forest and present a major fire hazard. A sawmill has recently been opened in Reserve. (See discussion in Chapter 8.)

1.4.6 Silver City Ranger District

The Silver City RD is the southern-most of the districts within the Gila NF and is comprised of three areas: the area adjacent to Silver City, the portion west of Emory Pass in the Black Range, and the separate Burro Mountain region to the southwest of Silver City. These areas, which are not contiguous, combine to form 402,972 acres and support a diversity of uses including recreation, scientific research, mining, grazing, and timber harvesting.²⁴

There are a multitude of recreation opportunities in the Silver City RD, including numerous developed and undeveloped campgrounds, picnic areas, and many miles of trails varying in length and difficulty to accommodate hikers, backpackers, mountain bikers, and horseback riders. Several recreation sites make this district unique: Little Walnut, Fort Bayard, which includes a

²⁰ Ibid.

²¹ Robert L. Cox, "The Mogollon Mimbres Culture," <http://www.mimbres.com/>.

²² J.E. Bradford and P.J. McKenna, "TJ Ruin, Gila Cliff Dwellings National Monument," National Park Service Southwest Cultural Resources Center Professional Papers No 21 (1989). According to McKenna & Bradford of the National Park Service, "the addition of the TJ unit, expanded [the Monument] to include all major architectural representations of the Mimbres Mogollon, including cave habitations, a large multi-component open site, pit house villages, and smaller limited activity sites." <http://www.mimbres.com/tjruin.htm>.

²³ USDA FS, "Reserve Ranger District," <http://www2.srs.fs.fed.us/r3/gila/about/distmain.asp?district=reserve>.

²⁴ USDA FS, "Silver City Ranger District," <http://www2.srs.fs.fed.us/r3/gila/about/distmain.asp?district=silver>.

wildlife refuge, and the Gila River Bird Area. The Trail of the Mountain Spirits Scenic Byway also travels through part of the Silver City RD.²⁵

The Silver City area has a long tradition of mining – gold, silver, and more recently, copper. Silver City derives its name and its fame as a mining town from a silver out-cropping that launched the local mining industry after 1870. Pinos Altos allegedly owes its fortunes as a gold mining town to three frustrated 49-ers who stopped to take a drink in Bear Creek and discovered gold. Santa Rita’s mining history goes back to the Mimbreno Indians (1100-1300), who collected low grade turquoise and chrysocolla and the Apache who later lived in the area and collected copper to be used for ceremonial and trade purposes. Mining of copper began in 1799. Today, the Phelps Dodge Santa Rita Chino Mine is an open pit mine almost 1,500 feet deep and 1-1/2 miles across that employs about 600 people.²⁶

The Red Paint or Warm Springs Apache consider the Gila their ancestral home. They were living in the area when gold and silver were discovered. Conflict over land and resources was perhaps inevitable as the Apache, headed by Mangas Coloradas, Victorio, and later Geronimo, tried to defend their lands and hunting areas from the encroachment of the mines and the boomtowns that often sprung up around them. Fort Bayard was established as an encampment in 1866 by Company B of the 125th U.S. Colored Infantry under the command of Lieutenant James Kerr, and was critical to the sustained campaign fought against the Apache.²⁷

1.5 Organization of the Report

The organization of this assessment is based on the collection and analysis of data pertinent to each of the assessment topics. Chapter 2 provides information on demographic trends and economic characteristics of the counties within the assessment area. Chapter 3 discusses access and travel patterns within the area. Chapter 4 examines the forest’s land cover and ownership, as well as forest health. Chapter 5 explores the different uses of the Gila NF and the policies impacting these different uses. Chapter 6 looks at specially designated areas in the forest, including recreational sites and heritage resources. Chapter 7 provides an assessment of the economic impacts the Gila NF has on surrounding communities. Chapter 8 discusses the relationships between the Gila NF and various communities at the local and regional levels and discusses partnerships on specific projects. Finally, Chapter 9 identifies key issues facing the FS lands and their management.

²⁵ Ibid.

²⁶ Silver City - Grant County Chamber of Commerce. “A History of the Santa Rita Mine” [Brochure] <http://www.silvercity.org/Reprints/mining>.

²⁷ Jeannette Geise, “A Brief History of Fort Bayard,” <http://www.southernnewmexico.com/Articles/Southwest/Grant/AbriefhistoryofFortBayard.html>.

2 Demographic Patterns and Trends

This chapter looks at the changing demographic characteristics of those living in the Gila National Forest (NF) assessment area. Data are generally presented at the county level, although population counts are provided for Census Designated Places and incorporated municipalities.²⁸

2.1 Population Density and Growth

Population density per square mile for the U.S. averaged 79.6 persons in 2000; that for New Mexico was 15.0 persons. By contrast, as shown in **Table 2.1**, population is relatively sparse in the assessment area counties. Catron County, which is largely covered by the Gila NF, has a population density of only 0.5 persons per square mile.

Table 2.1: 2000 Population Density (sq. mile)

Population Density	
Catron	0.5
Grant	7.8
Hidalgo	1.7
Sierra	3.2

Source: US Census Bureau, 2000 Decennial Census.

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

As indicated in **Table 2.2**, by 2000, the assessment area counties had a population of nearly 54,000. Between 1980 and 2000, the population in the assessment area counties increased modestly by 10,300, or 24 percent, versus the 40 percent growth experienced by the state. Population growth in the four Gila NF counties was only 6 percent during the 1980s, when both Catron (-6 percent) and Hidalgo (-2 percent) experienced population declines. By contrast, the population in Sierra County grew by 17 percent between 1980 and 1990. With the exception of Hidalgo County, where population was flat, population grew in the assessment area counties during the 1990s, but growth over the decade (17 percent) still lagged behind the state's 20 percent. Catron County, with a 38 percent population gain over the decade, and Sierra, with a 34 percent increase, considerably outpaced the state as a whole, while Grant County logged in at 12 percent, well below the state but twice that county's rate of growth during the 1980s.

²⁸ According to the Census Bureau website Question and Answer Center, "A Census Designated Place (CDP) is a geographic entity that serves as the statistical counterpart of an incorporated place for the purpose of presenting census data for an area with a concentration of population, housing, and commercial structures that is identifiable by name, but is not within an incorporated place. CDPs usually are delineated cooperatively with state, Puerto Rico, Island Area, local, and tribal officials based on U.S. Census Bureau guidelines. For Census 2000, for the first time, CDPs did not need to meet a minimum population threshold to qualify for the tabulation of census data." www.census.gov/

Table 2.2: Historical & Projected County Population, 1980-2030

	Historical			Projected		
	1980	1990	2000	2010	2020	2030
Catron	2,720	2,563	3,543	4,063	4,459	4,752
Grant	26,204	27,676	31,002	33,769	35,886	37,657
Hidalgo	6,049	5,958	5,932	5,799	5,624	5,378
Sierra	8,454	9,912	13,270	16,723	19,857	22,672
TOTAL GILA COUNTIES	43,427	46,109	53,747	60,354	65,826	70,459
TOTAL NM	1,303,303	1,515,069	1,819,046	2,112,986	2,383,116	2,626,553

	Percent Change				
	1980-1990	1990-2000	2000-2010	2010-2020	2020-2030
Catron	-6%	38%	15%	10%	7%
Grant	6%	12%	9%	6%	5%
Hidalgo	-2%	0%	-2%	-3%	-4%
Sierra	17%	34%	26%	19%	14%
TOTAL GILA COUNTIES	6%	17%	12%	9%	7%
TOTAL NM	16%	20%	16%	13%	10%

Source: US Census Bureau, Decennial Census, 1980, 1990, 2000. UNM BBER projections, 2003. Calculations done by UNM BBER.

Grant County comprised almost two-thirds of the population in the area in 2000, after adding about 5,000 in population during the twenty-year period. Fast-growing Sierra County gained nearly the same number of new residents, many of them retirees attracted to Truth or Consequences or other communities near Elephant Butte. Catron County had a population of over 3,500 in 2000, after a decade of in-migration of people attracted by the county's scenic beauty and recreational opportunities.

A projected 70,000 residents will live in the assessment area by 2030, with the population increasing by 17,000, or 31 percent, between 2000 and 2030. Sierra County stands to gain the most in population between 2000 and 2010 – 26 percent growth is projected – while Catron and Grant Counties are expected to grow by a more modest 15 and 9 percent, respectively, and Hidalgo County is projected to lose 2 percent of its population in the same time period. Hidalgo County's population is projected to continue to decline in the following two decades, as well.²⁹ As is projected for the state as a whole, population growth in the assessment area counties should decelerate after 2010.

Table 2.3 displays the population for eleven incorporated municipalities and those unincorporated communities that meet the criteria to be Census Designated Places that reside in the Gila NF. Silver City, the largest community in the assessment area, has been faced with a decline in the copper mining industry, precipitated at least in part by a sharp drop in the price of

²⁹ U.S. Census Bureau. America Fact Finder, www.census.gov. There are developments across the Arizona border (e.g., the new Phelps Dodge copper mine in Morenci) that could provide job opportunities for Hidalgo and Grant County residents.

copper. The industry provided jobs in Grant and Hidalgo Counties, but also supported a large portion of the tax base in the area. Notice, too, that other mining towns in Grant County (Bayard and Hurley) declined during 1980-2000. Truth or Consequences, in growing Sierra County, saw population growth between 1980 and 2000 that matched the state's 40 percent growth rate. Lordsburg in Hidalgo County lost population in the 1980s but recovered and had gains in the 1990s. During the 1980s, Reserve in Catron County lost residents, as logging and sawmill activity declined. Taken together, these eleven places accounted for 55 percent of the total population in the assessment area in 2000.

Table 2.3: Population In Places, 1980-2000

Gila Places	County	Number			Percent Change	
		1980	1990	2000	1980-1990	1990-2000
Bayard city	Grant	3,036	2,598	2,534	-14	-2
Central village	Grant	1,968	1,835	NA	-7	NA
Elephant Butte city	Sierra	NA	NA	1,390	NA	NA
Hurley town	Grant	1,616	1,534	1,464	-5	-5
Lordsburg city	Hidalgo	3,195	2,951	3,379	-8	15
Reserve village	Catron	439	319	387	-27	21
Santa Clara village	Grant	NA	NA	1,944	NA	NA
Silver City town	Grant	9,887	10,683	10,545	8	-1
Truth or Consequences city	Sierra	5,219	6,221	7,289	19	17
Virден village	Hidalgo	246	108	143	-56	32
Williamsburg village	Sierra	433	456	527	5	16
TOTAL GILA PLACES		26,039	26,705	29,602	3	11

Source: US Census Bureau, Decennial Census, 1980, 1990, 2000. Calculations done by UNM - BBER.

2.2 Racial/Ethnic Composition

In 2000, New Mexico became a majority-minority state, with a total minority population exceeding that of the white non-Hispanic population. **Table 2.4** shows that all racial groups increased their numbers in the assessment area between 1990 and 2000. Non-Hispanics increased their numbers in all counties except for Hidalgo County, while the number of Hispanics increased in all counties except for Catron County. In terms of race, in Grant County there was a decline in those self-identifying as white alone and a large increase in the number of persons identified as "Other". While not shown in the table, the white Hispanic population fell by more than 4,000 people, while Hispanics in the "other" race category increased by almost 4,000.

Table 2.4: Race / Ethnicity by County, 1990 and 2000

	Ethnicity		Race					Total
	Non-Hispanic	Hispanic	White	African American	American Indian	Asian Pacific Islander	Other	
Year 1990								
Catron	1,835	728	2,508	7	21	2	25	2,563
Grant	13,615	14,061	25,745	137	229	69	1,496	27,676
Hidalgo	2,974	2,984	5,457	11	20	37	433	5,958
Sierra	7,533	2,379	9,254	39	77	12	530	9,912
Total Gila Counties	25,957	20,152	42,964	194	347	120	2,484	46,109
Year 2000								
Catron	2,864	679	3,109	10	78	26	320	3,543
Grant	15,876	15,126	23,459	162	419	99	6,863	31,002
Hidalgo	2,608	3,324	4,970	24	46	19	873	5,932
Sierra	9,782	3,488	11,541	64	197	34	1,434	13,270
Total Gila Counties	31,130	22,617	43,079	260	740	178	9,490	53,747

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

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

Table 2.5 presents the percentages of the racial-ethnic groups represented in each county in the assessment area. From 1990 to 2000, while Hispanics increased their share of the total New Mexico population from 38 to 42 percent, their share of the total assessment area population fell from 44 to 42 percent. Those self-identified in terms of race as “white alone” fell from 93 percent to 80 percent of the assessment area population, with negligible changes for specific racial groups except those classified as “other” race. This latter group, which includes those who self-identify with more than one racial group, increased their share of the total population from 5 percent to 18 percent.

Table 2.5: Race / Ethnicity by County, Percentage, 1990 and 2000

	Ethnicity		Race					Total
	Non-Hispanic	Hispanic	White	African American	American Indian	Asian Pacific Islander	Other	
Year 1990								
Catron	72%	28%	98%	0%	1%	0%	1%	100%
Grant	49%	51%	93%	0%	1%	0%	5%	100%
Hidalgo	50%	50%	92%	0%	0%	1%	7%	100%
Sierra	76%	24%	93%	0%	1%	0%	5%	100%
Total Gila Counties	56%	44%	93%	0%	1%	0%	5%	100%
New Mexico	62%	38%	76%	2%	9%	1%	13%	100%
Year 2000								
Catron	81%	19%	88%	0%	2%	1%	9%	100%
Grant	51%	49%	76%	1%	1%	0%	22%	100%
Hidalgo	44%	56%	84%	0%	1%	0%	15%	100%
Sierra	74%	26%	87%	0%	1%	0%	11%	100%
Total Gila Counties	58%	42%	80%	0%	1%	0%	18%	100%
New Mexico	58%	42%	67%	2%	10%	1%	21%	100%

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

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

2.3 Age of Population

Table 2.6 presents the age 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 projections of the percentages of each age cohort in 10-year increments until 2030. Between 1990 and 2000, the population 14 and younger decreased as a share of the total population in each of the assessment area counties, while the share of the population 65 and older increased in every county except Sierra County, which already had a very large retirement population in 1990.

As a group, the assessment area counties have an older population. While the median age was 34.6 years in New Mexico in 2000, the median age in the assessment area counties was generally significantly higher: 47.8 years in Catron, 38.8 in Grant, and 48.9 in Sierra, with only Hidalgo, with a median age of 34.8, near the state median.³⁰ The well-established retirement community in Sierra County has been mentioned. Over the past decade or so, Catron County has experienced in-migration from those of retirement age. As can be seen in the table, in each of the counties, and in the overall assessment area, the population projections anticipate further aging of the population. This corresponds with the national trend of Americans becoming older.³¹

³⁰ U.S. Census Bureau, American Factfinder, Fact Sheets for 2000, http://factfinder.census.gov/servlet/ACSSAFFacts?_submenuId=factsheet_1&_sse=on.

³¹ 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 Julie Meyer, "Age: 2000, Census 2000 Brief," *U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau* (October 2001). <http://www.census.gov/prod/2001pubs/c2kbr01-12.pdf>.

Table 2.6: Age of Population by Broad Cohort and County

County	Age	Percent Distribution				
		Actual		Projections		
		1990	2000	2010	2020	2030
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
Grant	0 - 14	25.4	21.3	20.6	20.0	18.5
	15 - 64	60.6	62.2	60.4	57.3	56.5
	65 yrs. & over	14.0	16.5	19.0	22.6	25.0
Hidalgo	0 - 14	27.3	25.7	22.1	21.5	21.1
	15 - 64	61.3	60.7	61.0	56.1	50.0
	65 yrs. & over	11.4	13.6	16.9	22.4	28.9
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
GILA NF COUNTIES	0 - 14	23.6	20.2	18.1	17.7	16.5
	15 - 64	58.9	60.7	59.2	55.4	53.5
	65 yrs. & over	17.5	19.1	22.7	26.9	30.0
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, 2000 to July 1, 2030; UNM-BBER, April 2004.

The 15 to 64 age cohort encompasses those of working age. This cohort's share is projected to shrink in all of the assessment area counties, but the decline will be more rapid in Catron and Hidalgo counties. Catron and Hidalgo are small, rural counties with limited economic activity. Facing limited opportunities for employment, younger people migrate to larger communities, accelerating the aging of the population. As mentioned above, Catron County is also attracting in-migration and many of those attracted are older.

The 65 and older cohort will rise from 19 percent to 30 percent in the assessment area between 2000 and 2030. In Catron and Hidalgo Counties, this cohort's share will more than double. The in-migration of retirees, and particularly those who take up residence in the wildland-urban interface, will place new demands on the Forest Service (FS) as well as new constraints. (See discussion in Chapter 4.) The aging of the population in the assessment area counties may be expected to place new demands on the Gila NF, since the recreational uses and interests may change; on the other hand, retirees may have the leisure time to volunteer their services or to become involved in partnerships with the FS.³² Aging populations present new challenges for

³² 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* 24, no. 1 (January 01, 2002): 13-41. See also 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* 23, no. 1 (1991): 67-86.

governments, as those retiring from the workforce expect to receive services funded by revenues from a workforce that is shrinking as a percent of the total population.³³ These retirees will compete for federal and state funds as they seek services such as Medicaid and Social Security. The consequence for federal agencies like the FS may be increased competition for funding as revenue growth slows.

2.4 Income and Poverty

Table 2.7 depicts per capita income in 1999 dollars by county in the assessment area for 1989 and 1999. Real per capita income (Census Bureau income definition) increased in all the counties except Hidalgo between 1989 and 1999.³⁴ Real per capita income in the assessment area was \$14,421 in 1999, well below the New Mexico average of \$17,261. Real per capita income for the state grew by more than 18 percent over the decade and by just under 16 percent in the four assessment area counties. The sharp reductions in copper mining and smelting activities in Grant and Hidalgo Counties undoubtedly played a role in holding back income growth for the area.

Table 2.7 also shows the number and percent of persons living below the federal poverty level for each county. The poverty rate in the assessment area counties was the same as that statewide in 1989 – 20.6 percent. However, while the state poverty rate fell to 18.4 percent in 1999, there was little improvement overall in the assessment area, where the poverty rate averaged 20.2 percent. About 10,800 persons in the assessment area counties were below the official poverty level in 1999, up from about 9,500 persons in 1989. In all four of the counties with the exception of Grant County, the poverty rate was above the New Mexico average of 18.4 percent in 1999. Poverty rates declined in Catron and Grant Counties but increased in Sierra and Hidalgo Counties, with the poverty rate in the latter increasing nearly 7 percentage points.

³³ Wan He, Manisha Sengupta, Victoria A. Velkoff, and Kimberly A. DeBarros, “65+ in the United States 2005,” U.S. Census Bureau, Current Population Reports, *U.S. Government Printing Office* P23-209 (2005): 25, <http://www.census.gov/prod/2006pubs/p23-209.pdf>.

³⁴ The income figures reported in this chapter are self-reported income from the 1990 decennial census. Census income definitions differ from those used by the U.S. Bureau of Economic Analysis. The per capita figures are therefore not comparable to those reported in Chapter 7. 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 nonfarm 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.

Table 2.7: Per Capita Income and Persons in Poverty, 1989 & 1999

	1989			1999		
	Per Capita Income	Persons Below Poverty Line	% of Persons Below Poverty Line	Per Capita Income	Persons Below Poverty Line	% of Persons Below Poverty Line
Catron	11,080	657	25.6%	13,951	860	24.3%
Grant	12,175	5,731	20.7%	14,597	5,676	18.3%
Hidalgo	13,098	1,212	20.3%	12,431	1,591	26.8%
Sierra	13,140	1,882	19.0%	15,023	2,706	20.4%
TOTAL GILA COUNTIES	12,441	9,482	20.6%	14,421	10,833	20.2%
TOTAL NM	14,596	305,934	20.6%	17,261	328,933	18.4%

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

Note: The poverty line is the federally established poverty level. Per capita income is in 1990 dollars. The 1989 per capita income figures were adjusted for the effects of inflation using the Consumer Price Index (CPI-U-RS)

Poverty in the assessment area (20.2 percent) is high and generally tracks with race and ethnicity. **Table 2.8** indicates that poverty percentages by race in the assessment area are: white (19 percent), African American (19 percent), American Indian (31 percent), Asian (33 percent), and "other" (28 percent). White Non-Hispanics (not shown but at 16 percent) have the lowest poverty rate among those listed, except in Catron County, but their rate of poverty exceeds their counterparts across New Mexico, 14 percent of whom are in poverty. The overall poverty rate for Hispanics in the assessment area is 27 percent, which is also above the statewide average of 24 percent.

Table 2.8: Poverty by Race and Ethnicity, 2000

	Ethnicity		Racial Group				
	NON-HISPANIC	HISPANIC	WHITE	AFRICAN AMERICAN	AMERICAN INDIAN	ASIAN	OTHER
Catron	663	127	728	0	70	0	62
Grant	2,083	3,538	3,758	30	55	43	1,790
Hidalgo	343	1,233	1,213	0	15	5	358
Sierra	1,633	1,007	2,249	10	66	0	381
GILA NF COUNTIES	4,722	5,905	7,948	40	206	48	2,591
Percent of Total Group							
Catron	23%	20%	23%	0%	67%	0%	22%
Grant	13%	24%	16%	19%	17%	39%	26%
Hidalgo	13%	37%	25%	0%	42%	100%	42%
Sierra	17%	30%	20%	32%	35%	0%	27%
GILA NF COUNTIES	15%	27%	19%	19%	31%	33%	28%
NEW MEXICO	15%	24%	14%	23%	36%	14%	24%

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

Note: Hispanic can be of any race. The "Other" group includes two or more races. The poverty line is federally established.

2.5 Household Composition

Total households in the assessment area grew by about 4,500, numbering almost 22,000 in 2000. **Table 2.9** 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 U.S., as there are proportionately more single households and more female-headed households.³⁵ For example, in 2000, Catron County had 1,587 total households, of which 471 (30 percent) were single households and 140 (9 percent) were households with a female head.

Female-headed households are becoming an increasingly important market nationally, as they continue to become an important part of the demographic landscape. All the counties in the assessment area had increases in the share of female-headed households between 1990 and 2000, when the number of these households increased by nearly 900, to total nearly 2,600. In 2000, female-headed households accounted for 12 percent of all households, slightly less than the 13 percent for the state as a whole. It may be recalled that the assessment area counties as a whole have an older population, with a higher percentage of persons 65 and older than in the state.

Similarly, households of people who live by themselves have become increasingly common. Single households continue to grow in part because of a national trend of marrying at later ages. However, roughly one-third of the residents in single person households in New Mexico are over 65 years of age. Within the assessment area counties, single households increased by 2,200, totaling over 6,300 in 2000. In 2000, the percent of single households in the assessment area (29 percent) was higher than in the state (25 percent). Single households increased by about 5 percentage points in each of the counties during 1990-2000.

³⁵ Single households are non-family households headed by a single person. Female-headed family households are households that are headed by a female with children or other dependents and no husband present.

Table 2.9: Type of Household, 1990 & 2000

	Number of Households			Percent of Total Households	
	Total	Single	Female Headed, Family	Single	Female Headed, Family
Year 1990					
Catron	1,063	269	69	25%	6%
Grant	9,874	2,077	1,143	21%	12%
Hidalgo	2,095	417	179	20%	9%
Sierra	4,431	1,425	324	32%	7%
TOTAL GILA COUNTIES	17,463	4,188	1,715	24%	10%
Year 2000					
Catron	1,587	471	140	30%	9%
Grant	12,138	3,130	1,629	26%	13%
Hidalgo	2,152	548	309	25%	14%
Sierra	6,103	2,194	506	36%	8%
TOTAL GILA COUNTIES	21,980	6,343	2,584	29%	12%

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

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

2.6 Educational Attainment

Table 2.10 presents educational attainment for the 25-years and older population in 1990 and 2000, while **Table 2.11** looks at the percentage of educational attainment in 1990 and 2000 and offers a comparison with the state as a whole. Compared to a decade earlier, attainment levels in the assessment area counties were generally higher in 2000: the share of the population with at least some college education increased from 38 percent to 47 percent, while those with less than a high school education (or GED) declined from 31 percent to 23 percent.

The area as a whole evidenced considerable improvement over the decade, but still lagged behind the state in 2000. Among the Gila NF counties, Hidalgo County has by far the lowest educational attainment, and showed the smallest gains over the decade. In 2000, the percentage of those with at least some college varied by county, ranging from 32 percent in Hidalgo County to 50 percent in Grant County. The higher share for Grant County may be partly related to access to education, as Western New Mexico University is located in Silver City.

Table 2.10: Educational Attainment by County, 25 Years and Older

	Less than 9th Grade	9th to 12th Grade	HS Grad or GED	Some College; No Degree	Assoc., BA. Or More	Total
Year 1990						
Catron County	197	262	536	324	398	1,717
Grant County	2,586	2,370	4,728	3,716	3,411	16,811
Hidalgo County	523	461	1,323	582	573	3,462
Sierra County	1,286	1,428	2,603	1,275	890	7,482
TOTAL GILA COUNTIES	4,592	4,521	9,190	5,897	5,272	29,472
Year 2000						
Catron County	195	380	770	649	663	2,657
Grant County	1,868	2,321	5,922	4,947	5,292	20,350
Hidalgo County	642	480	1,328	696	450	3,596
Sierra County	891	1,480	3,106	2,565	1,864	9,906
TOTAL GILA COUNTIES	3,596	4,661	11,126	8,857	8,269	36,509

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

Table 2.11: Educational Attainment Percentage by County, 25 Years and Older

	Less than 9th Grade	9th to 12th Grade	HS Grad or GED	Some College; No Degree	Assoc., BA. Or More	Total
Year 1990						
Catron County	11%	15%	31%	19%	23%	100%
Grant County	15%	14%	28%	22%	20%	100%
Hidalgo County	15%	13%	38%	17%	17%	100%
Sierra County	17%	19%	35%	17%	12%	100%
TOTAL GILA COUNTIES	16%	15%	31%	20%	18%	100%
TOTAL NM	11%	14%	29%	21%	25%	100%
Year 2000						
Catron County	7%	14%	29%	24%	25%	100%
Grant County	9%	11%	29%	24%	26%	100%
Hidalgo County	18%	13%	37%	19%	13%	100%
Sierra County	9%	15%	31%	26%	19%	100%
TOTAL GILA COUNTIES	10%	13%	30%	24%	23%	100%
TOTAL NM	9%	12%	27%	23%	29%	100%

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

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 percent more than those of someone with a high school diploma.³⁶ As educational attainment increases, the likelihood of poverty decreases.

³⁶ 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..." <http://www.census.gov/Press-Release/www/releases/archives/education/007660.html>.

This correlation is evident in the assessment area when one compares the counties with a high percentage of persons with less than a high school education to the counties with high percentages of poverty shown previously in **Table 2.7**.

Increasing incomes and education levels in the assessment area counties are likely to place additional demands on the Gila NF in terms of recreation.³⁷ Reducing poverty could make communities somewhat less dependent on forest products for subsistence and for household cash income.

2.7 Housing

Table 2.12 provides data 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 increased as the population grew.

The housing stock expanded by about 6,500 units, or about one-third, from 1990 to 2000. Note the relatively high numbers of vacant houses in Catron (38 percent) and Sierra (30 percent) counties in 2000. As is indicated in **Table 2.13** and **Table 2.14**, the majority of these vacant homes were for seasonal or recreational use.

Table 2.12: Housing Units and Occupation of Housing

	1990			2000		
	Housing Units: Total	Housing Units: Occupied	Housing Units: Vacant	Housing Units: Total	Housing Units: Occupied	Housing Units: Vacant
Catron County	1,552	1,010	542	2,548	1,584	964
Grant County	11,349	9,773	1,576	14,066	12,146	1,920
Hidalgo County	2,413	2,004	409	2,848	2,152	696
Sierra County	6,457	4,428	2,029	8,727	6,113	2,614
TOTAL GILA COUNTIES	21,771	17,215	4,556	28,189	21,995	6,194

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

³⁷ J.M. Bowker, et al, "Wilderness and Primitive Area Recreation Participation and Consumption: An Examination of Demographic and Spatial Factors," *Journal of Agricultural and Applied Economics* (August 2006), http://findarticles.com/p/articles/mi_qa4051/is_200608/ai_n17176784/print.

Table 2.13: Vacant Housing by Type Of Vacancy

	For rent	For sale only	Rented or sold, not occupied	Seasonal or rec use	For migrant workers	Other vacant	Total vacant
Year 1990							
Catron	53	35	13	258	20	163	542
Grant	404	219	96	281	17	559	1,576
Hidalgo	111	38	15	21	17	207	409
Sierra	330	191	38	997	32	441	2,029
TOTAL GILA COUNTIES	898	483	162	1,557	86	1,370	4,556
Year 2000							
Catron	17	56	14	638	5	234	964
Grant	535	245	137	460	6	537	1,920
Hidalgo	167	50	24	85	17	353	696
Sierra	323	265	78	1,543	21	384	2,614
TOTAL GILA COUNTIES	1,042	616	253	2,726	49	1,508	6,194

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

Table 2.14: Percent of Total Vacant Housing

	For rent	For sale only	Rented or sold, not occupied	Seasonal or rec use	For migrant workers	Other vacant	Total vacant
Year 1990							
Catron	10%	6%	2%	48%	4%	30%	100%
Grant	26%	14%	6%	18%	1%	35%	100%
Hidalgo	27%	9%	4%	5%	4%	51%	100%
Sierra	16%	9%	2%	49%	2%	22%	100%
TOTAL GILA COUNTIES	20%	11%	4%	34%	2%	30%	100%
Year 2000							
Catron	2%	6%	1%	66%	1%	24%	100%
Grant	28%	13%	7%	24%	0%	28%	100%
Hidalgo	24%	7%	3%	12%	2%	51%	100%
Sierra	12%	10%	3%	59%	1%	15%	100%
TOTAL GILA COUNTIES	17%	10%	4%	44%	1%	24%	100%

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

According to the information presented in **Table 2.15**, the housing stock in the assessment area was about 30 years old in 2000, with only small variances among counties. Also shown is the percentage of households that lack complete plumbing.³⁸ The number of houses in the assessment area that lacked plumbing facilities increased from 2 percent to 3 percent between 1990 and 2000. In contrast, the state average age of housing rose from 22 to 27 years and the proportion of households without plumbing stayed level at 3 percent. There is a correlation between high

³⁸ According to the U.S. Census Bureau, *Census 2000*, B-59, in both the 1990 and 2000 censuses, "Complete plumbing facilities include: (1) hot and cold piped water, (2) a flush toilet, and (3) a bathtub or shower. All three facilities must be located inside...but not necessarily within the same room." www.census.gov/prod/cen2000/doc/sf4.pdf.

poverty levels and the lack of plumbing in a dwelling; Catron County had the highest percent of dwellings without complete plumbing (11 percent) and the second-highest poverty rate of the assessment area counties (24 percent).

Table 2.15: Age of Housing Stock and Plumbing Availability

	Average Age of Housing Stock		Lacking Complete Plumbing Facilities	
	1990	2000	1990	2000
Catron County	28.7	28.9	10%	11%
Grant County	28.9	31.6	2%	2%
Hidalgo County	26.4	32.9	0%	3%
Sierra County	24.7	28.8	1%	3%
TOTAL GILA COUNTIES	27.2	30.5	2%	3%
TOTAL NM	22.2	27.0	3%	3%

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

2.8 Net Migration

Table 2.16 illustrates 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 2.16**, then, are only those in New Mexico who were five years of age or older at the time of the 2000 census. Thus, for the assessment area in 2000, 43 percent of those in the area were movers (had changed addresses in the past five years). Of these 21,633 movers, 10,287, or nearly half, had moved from a house in the county of residence to another house within the same county. In the assessment area, 7,048 persons, or one of three movers, came to the area from other states. And of those who moved from other states, the region of origin was Northeast (6 percent), Midwest (13 percent), South (27 percent), and West (54 percent). (It is notable that Texas is in the South region and that California dominates the West region.) Minimal differences in these percentages occurred in the assessment area between the 1990 and 2000 census data. Of note are the figures for Catron County, which show that 22 percent of the population in 1990 and 23 percent of the population in 2000 had lived in a different state five years earlier. In both years, the vast majority of the new residents came from the West region.

Table 2.16: Net Migration by County

	CATRON COUNTY				GRANT COUNTY			
	1990	2000	Percent of Total	Percent of Total	1990	2000	Percent of Total	Percent of Total
			1990	2000			1990	2000
TOTAL	2,403	3,394	100%	100%	25,604	28,911	100%	100%
Same House	1,237	1,960	51%	58%	14,177	16,916	55%	59%
Different House	1,166	1,434	49%	42%	11,427	11,995	45%	41%
in the United States	1,166	1,430	49%	42%	11,319	11,763	44%	41%
Same County	388	307	16%	9%	6,430	6,913	25%	24%
Different County	778	1,123	32%	33%	4,889	4,850	19%	17%
Same State	258	344	11%	10%	1,693	1,528	7%	5%
Different State	520	779	22%	23%	3,196	3,322	12%	11%
Northeast	73	17	3%	1%	60	263	0%	1%
Midwest	29	48	1%	1%	376	444	1%	2%
South	13	85	1%	3%	900	924	4%	3%
West	405	629	17%	19%	1,860	1,691	7%	6%
Puerto Rico	0	0	0%	0%	0	0	0%	0%
Elsewhere	0	4	0%	0%	108	232	0%	1%

	HIDALGO COUNTY				SIERRA COUNTY			
	1990	2000	Percent of Total	Percent of Total	1990	2000	Percent of Total	Percent of Total
			1990	2000			1990	2000
TOTAL	5,409	5,473	100%	100%	9,359	12,668	100%	100%
Same House	2,863	3,526	53%	64%	4,818	6,411	51%	51%
Different House	2,546	1,947	47%	36%	4,541	6,257	49%	49%
in the United States	2,546	1,834	47%	34%	4,467	6,107	48%	48%
Same County	1,375	982	25%	18%	1,846	2,085	20%	16%
Different County	1,171	852	22%	16%	2,621	4,022	28%	32%
Same State	613	233	11%	4%	1,186	1,694	13%	13%
Different State	558	619	10%	11%	1,435	2,328	15%	18%
Northeast	13	14	0%	0%	82	159	1%	1%
Midwest	47	26	1%	0%	273	392	3%	3%
South	93	183	2%	3%	457	699	5%	6%
West	405	396	7%	7%	623	1,078	7%	9%
Puerto Rico	0	0	0%	0%	0	0	0%	0%
Elsewhere	41	113	1%	2%	74	150	1%	1%

	TOTAL GILA COUNTIES				NEW MEXICO			
	1990	2000	Percent of Total	Percent of Total	1990	2000	Percent of Total	Percent of Total
			1990	2000			1990	2000
TOTAL	42,775	50,446	100%	100%	1,390,048	1,689,911	100%	100%
Same House	23,095	28,813	54%	57%	719,628	919,717	52%	54%
Different House	19,680	21,633	46%	43%	670,420	770,194	48%	46%
in the United States	19,498	21,134	46%	42%	645,519	731,488	46%	43%
Same County	10,039	10,287	23%	20%	345,469	400,128	25%	24%
Different County	9,459	10,847	22%	22%	300,050	331,360	22%	20%
Same State	3,750	3,799	9%	8%	107,289	126,093	8%	7%
Different State	5,709	7,048	13%	14%	192,761	205,267	14%	12%
Northeast	228	453	1%	1%	14,311	15,329	1%	1%
Midwest	725	910	2%	2%	28,270	29,457	2%	2%
South	1,463	1,891	3%	4%	73,548	72,497	5%	4%
West	3,293	3,794	8%	8%	76,632	87,984	6%	5%
Puerto Rico	0	0	0%	0%	110	398	0%	0%
Elsewhere	223	499	1%	1%	24,791	38,308	2%	2%

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

2.9 Challenges and Opportunities for Forest Management

The demographic data developed in this chapter for the four Gila NF assessment area counties generally follow the demographics of the U.S. as a whole – the population is aging, more racially diverse, with higher educational attainment, and increasing per capita incomes. More households are headed by women and are single person households.

To focus on the similarities between the U.S. and the Gila NF counties, however, would be to miss some very important developments over the past two decades. This is an area of changing economic fortunes, and many of the changes relate to the use of natural resources from the Gila NF and other public lands. Over the past two decades, much of the logging industry in this part of New Mexico shut down, with the largest sawmill closing in Reserve in 1993.³⁹ Policies regarding grazing on public lands have moved toward encouraging sustainable grazing practices. Restrictions on grazing, where they occur, can compound the adverse economic impacts of drought and unfavorable market conditions. Any of these reasons could prompt some ranchers to sell off some of their land or shut down entirely. Falling copper prices on international markets were one major factor in the layoffs that occurred at the mines and also at the smelters of Grant and Hidalgo Counties.⁴⁰

On the other hand, the Gila NF has attracted increasing recreational uses. The local tourism industries expanded, as did amenity migration into the area by retirees and others and investments in vacation and second homes. Twenty-two percent of the population in Catron County in 1990 had lived in another state 5 years before and 23 percent of the population in 2000 was in this situation. The housing stock in the assessment area expanded by about 6,500 units during 1990-2000 – an increase of about one-third. The 2000 census found a very large number of vacant houses in Catron (38 percent) and Sierra (30 percent) Counties. Sixty-six percent of the vacant houses in Catron County and 59 percent of those in Sierra were seasonal or vacation homes. Sierra County has other attractions like Elephant Butte. The major attraction in Catron County, however, is the Gila NF.

It is also important to recognize the differences in experience among the four assessment area counties. For example, the population increased in the assessment area and in three of the assessment area counties between 1980 and 2000, but declined in Hidalgo County. Hidalgo County was also alone in experiencing a fall in real per capita income between 1990 and 2000, and there was a sharp rise in the county's poverty rate. Hidalgo County also had the smallest gains in terms of educational attainment. By contrast, Grant County realized a healthy gain in real per capita income and a two and one half percentage point drop in the poverty rate.

More people with more education and more income in the assessment area may be expected to translate to more use of the forest for recreation purposes.⁴¹ Increasing incomes and lower poverty rates may make at least some households less dependent on the forest for subsistence and household cash generation. However, agriculture and other natural resource industries are likely to be important in the rural way of life, even as their economic importance diminishes, and the

³⁹ USDA Forest Service State & Private Forestry Forest Products Laboratory, Adele Olstad and John Zerbe, ed's., *The Forest Products Conservation & Recycling Review* 13, no. 5/6 (May/June 2001), http://www.fpl.fs.fed.us/tmu/documents/nltr/nltr05_06_01.htm.

⁴⁰ Kent Paterson, "Earth's Bounty – Mining Sector in New Mexico," *New Mexico Business Journal* (July 2000), http://findarticles.com/p/articles/mi_m5092/is_6_24/ai_64059458.

⁴¹ Bowker, op. cit.

forest may continue to be critical to some households' subsistence activities and as a source of cash income.

On a national level, America is aging and life spans are increasing. With the leading edge of the Baby Boomers reaching age 60 in 2006, this massive cohort could begin to spend more of that leisure time in the vicinity of the Gila NF. There is already evidence of retirees choosing to live within or near the Gila NF. The aging of the U.S. population and of the population in the assessment area counties can be expected to place new demands on the Gila 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. Yet Boomers have indicated that they will seek alternatives to retirement that include volunteering, from which the Gila NF could benefit. Aging Boomers will place a heavy demand on federal benefits and entitlements, such as Medicare, Medicaid, and Social Security, and therefore intensify competition for federal dollars.⁴² This could mean flat or reduced funding levels for federal agencies, including the FS.

Finally, those seeking to live or retire in more peaceful forest surroundings are increasingly choosing to buy land and build houses within or adjacent to the national forests. This is clearly happening in the Gila NF, particularly in the Quemado and Silver City RDs. Housing at the wildland-urban interface also impacts the Gila NF policies about fire and the reduction of fuel loads. Strategies for fighting fires when there are dwellings in the forest require that additional resources be devoted to the protection of those houses and the lives of their residents.⁴³ Residents at the forest edge may also oppose thinning and thinning methods, particularly those involving controlled burns. Housing in the forest also can alter access and impact forest use. New roads built to developments can impact forest health by creating runoff and air pollution problems, and by providing access to new areas where unmanaged recreation can occur.

⁴² Wan He, Manisha Sengupta, Victoria A. Velkoff, and Kimberly A. DeBarros, "65+ in the United States 2005," U.S. Census Bureau, Current Population Reports, *U.S. Government Printing Office P23-209* (2005): 25, <http://www.census.gov/prod/2006pubs/p23-209.pdf>.

⁴³ Jesse McKinley and Kirk Johnson, "At Your Peril: On Fringe of Forests, Homes and Fires Meet," *The New York Times* (June 26, 2007).