

# **Gila National Forest Travel Management FEIS**

## **Social and Economic Report**

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**for:**

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# Introduction

## Regulatory Framework

As described in FSM 1970.2 and 1970.44, the purpose of this report is to provide the Responsible Official with information sufficient to support planning and management decisions with major economic or social impacts reflecting to the extent appropriate: (a) Current social and economic conditions and trends potentially affected by National Forest System management actions; (b) Desired social and economic conditions; and (c) Expected and actual effects of National Forest System management actions on social and economic sustainability. In this case, the desired conditions have been described by the Travel Management Rule, including planning for future population growth and providing for natural resources by prohibiting unregulated cross-country travel and by designating a system of motorized roads, trails and areas.

New Mexico law does not allow hunting off-road, so the prohibition of cross-country travel in the Travel Management Rule affects game retrieval.

Executive Order 11644 (February 8, 1972) – “Use of Off-road Vehicles on Public Lands,” as amended by Executive Order 11989 (May 24, 1977) directs federal agencies to ensure that use of off-road vehicles on public lands will be controlled and directed to protect the resources of those lands, to protect the safety of all users on those lands, and to minimize conflict among the various uses of those lands.

Rehabilitation Act of 1973 (B504) requires that no person with a disability be denied participation in a federal program that is available to all other people solely because of his or her disability.

### FSH 1909.17 – Economic and Social Analysis Handbook

FSM 2353.17 – Accessibility. Under section 504 of the Rehabilitation Act of 1973, no person with a disability can be denied participation in a federal program that is available to all other people solely because of his or her disability. Consistent with 36 CFR 212.1, FSM 2353.05, and Title V, Section 507(c), of the Americans With Disabilities Act, wheelchairs and mobility devices, including those that are battery-powered, that are designed solely for use by a mobility-impaired person for locomotion and that are suitable for use in an indoor pedestrian area are allowed on all NFS lands that are open to foot travel.

Executive Order 12898 on Environmental Justice requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the U.S.

Gila National Forest Land Resource Management Plan (Forest Plan) of 1986 includes a Forest-wide goal (p.12) to “Manage Forest human resource programs to provide employment, and economic development opportunities while meeting natural resource goals of the Gila National Forest.” This goal relates to Forest Service human resource programs. However, this report discusses potential impacts to local communities from implementing the Travel Management Rule.

ORV Policy (p.22) states that during the travel management process, Forest personnel will determine which roads, trails and areas will be open to motorized vehicle use and which will be restricted or closed.

## Social Guidance

FSM 1973.2 notes that social analysis may be qualitative or quantitative, as appropriate: “Used alone or in combination, the range of appropriate general information treatment methods includes: (1) Qualitative approaches, such as ethnographic studies. (2) Mixed qualitative and quantitative approaches, such as content analysis of media, written documents, and scoping results. (3) Quantitative approaches such as statistical (probability-based) analysis.”

## Economic Guidance

FSM 1972 (Economic Impact Evaluation) identifies the following regarding project economic analysis:

Economic impact analyses describe short-term effects that Forest Service activities may have on economic conditions in defined impact areas. Impact analyses help identify those who may be favorably or adversely affected by Forest Service decisions. Economic impact analysis is the basis for evaluating economic contributions by the Forest Service in the impact area.

Economic impact analyses are not required for project level environmental assessments or environmental impact statements unless there is an important interaction between anticipated environmental effects and economic effects. Such relationships are typically identified as key issues during public comment or collaboration.

FSM 1972.2 provides guidance on measures of economic impact, as follows:

As identified in the scope, impacts in the affected economy may be indicated by one or more of the following measures, which can vary in scale from a specific firm to specific industries to economy-wide: (1) employment, (2) income, and (3) revenues contributed to state and local governments.

## Overview of Issues and Indicators

A number of social and economic issues were identified in the public comments associated with this proposal: motorized vehicle use and elimination of unregulated cross-country travel (including designation of motor vehicle routes – roads and trails); motorized big game retrieval; motorized dispersed camping access; motorized open areas. Fuelwood gathering was also recognized as a major social and economic issue in the planning area. These issues will be analyzed according to the proceeding social and economic indicators.

Social indicators include:

**Population trends** affect future demand and need for services and opportunities on the Forest. The area of analysis is at the county-level for Grant, Catron, Sierra, and Hidalgo counties. The unique elements of counties could be obscured by a regional (i.e., multi-county) analysis. However, where appropriate, trends across the planning area may be described in aggregate (regional) terms.

**Proportion of visitors who are older or have physical access challenges.** While age, gender and ethnicity were all examined, gender and ethnicity were determined not to be as relevant to the proposed action and alternatives because no differential effect from the proposed action or alternatives was discerned. Since the proportion of visitors in these categories is not easily extractable from NVUM, **the age distribution of the local population will be used as an indicator** (compared to the No Action alternative and the State of New Mexico). It is assumed

that visitors from outside the local area would be informed in advance of the types of opportunities available, and would select visitation to match their goals and abilities. Therefore, the effects analysis considers residents in Catron, Grant, Hidalgo, and Sierra counties.

**Forest visitor data** from 2011 National Visitor Use Monitoring (NVUM), a nationally-standardized survey protocol. The scope for effects is the Gila National Forest; 2011 is the most current survey and will be considered indicative of the present.

**Qualitative experience factors** addressing some commenters' concerns. These include opportunities expressed by individuals or communities as contributing to well-being. The Recreation and Wildlife sections provide additional related information. Gathering forest products such as fuelwood and piñon nuts are in this category; fuelwood is also an economic concern. The ability to gather forest products on the national forest for personal use, such as firewood, is important to many people who live within or adjacent the Gila National Forest. For some, it is part of their heritage and tradition and for some it is an important fuel for winter heating. Many communities rely on fuelwood for economic well-being. In the four counties, the three main fuel types are utility gas, electricity, and wood. Wood is the major heating fuel type in Catron County. Utility gas and to a lesser degree electricity is the major heating fuel types in Grant, Hidalgo, and Sierra counties.

**Tribal cultural and traditional practices** related to the Gila National Forest.

Economic indicators include:

**Employment related to recreation tourism** as an indicator of the proposal's effects to the tourism industry and general economy of the area. Recreation-based tourism is likely to be more sensitive to the proposed action and alternatives than other employment because of the Travel Management Rule's provision for written authorization applicable to livestock grazing permits, mining plans of operations, etc. The IMPLAN model will be used to evaluate effects of the alternatives on recreation-based jobs. The scope of the effects analysis is the four-county region (i.e., employment effects are not separated by county).

**Income** – While recreation-based employment is shown to have a strong relationship to National Forest System (NFS) lands, they are not the sole income sources in the vicinity of the Gila National Forest. *Income* is a more inclusive quantitative measure than *employment related to recreation tourism*. In addition to quantitative income discussion, **non-labor income** is a qualitative factor. Because the direct or indirect connection of **non-labor income** to this proposal is not clearly established, this will not be discussed further. The analysis will focus on the quantitative income discussion. Income effects related to recreation on the Forest is addressed parallel to the employment effects for the four-county region. However, the affected environment description of income addresses the counties individually, as there is sufficient difference between counties to warrant individual attention.

**Fuelwood availability** - Fuelwood gathered under Gila National Forest permit is commonly used by local residents to maintain affordable heating. Public comments and county concerns received identified fuelwood gathering as an economic necessity as well as a social factor. The effects of this activity are being analyzed in social terms; the conclusions of that analysis also have economic effects on individual households. The Forest Service has the opportunity to provide firewood cutting areas, in addition to the ability to gather firewood from roadside parking where safe to do so (all alternatives).

**Other economic factors**, such as environmental services, may have economic values that are not fully captured in market transactions. For example, NFS lands provide clean air and water, fish

and wildlife, and hiking/wildlife viewing opportunities. These amenities are not directly traded in markets, but they likely influence the property values of surrounding areas. Due to the difficulty and controversy of estimating non-market values, this discussion will be primarily qualitative. As a result, direct comparisons and tradeoffs between market and non-market values are inappropriate.

**Federal payments to counties – PILT, Secure Rural Schools.** These add-on funds to county budgets are related to federal natural resource agencies. These will be acknowledged, but are not expected to vary with the proposed action or alternatives because any payments related to timber receipts will be able to continue through the “written authorization” exemption of the Travel Management Rule (36 CFR 212.51). Therefore, they will not be analyzed in detail for the alternatives.

## Data Sources and Methods of Analysis

Data for the social and economic specialist report are primarily from the following sources:

1. U.S. Forest Service, National Visitor Use Monitoring (NVUM), 2011 data.
2. U.S. Department of Commerce, Bureau of the Census: 1980, 1990, 2000, and 2010 Census of Population and Housing; State and County QuickFacts.
3. U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Accounts.
4. U.S. Department of Labor, Bureau of Labor Statistics.
5. University of New Mexico, Bureau of Business and Economic Research.
6. Headwaters Economics, Economic Profile System.
7. Minnesota IMPLAN Group, IMPLAN Professional Version 3.0, 2010 Data Package.
8. Southwest New Mexico Council of Governments.
9. Public input gathered from public meetings and comments.

An exhaustive list of data sources is available in the Effects of Forest Plan Amendments section.

IMPLAN Professional Version 3.0 was used to estimate changes to employment and income under the various alternatives. This tool is explained in detail in the Environmental Consequences section.

## Affected Environment

The Gila National Forest (Forest) is located in southwestern New Mexico in Catron, Grant, Hidalgo, and Sierra counties. These counties compose the primary project assessment area for the social and economic analysis. The four county area is approximately 12 million acres. The largest incorporated areas within the assessment area are Silver City (10,330) in Grant County, Truth or Consequences (7,111) in Sierra County, Lordsburg (2,882) in Hidalgo County, and Bayard (2,401) and Hurley (1,411), both in Grant County. The one incorporated area in Catron County is Reserve, with a population of only 388 (U.S. Census Bureau 2009).

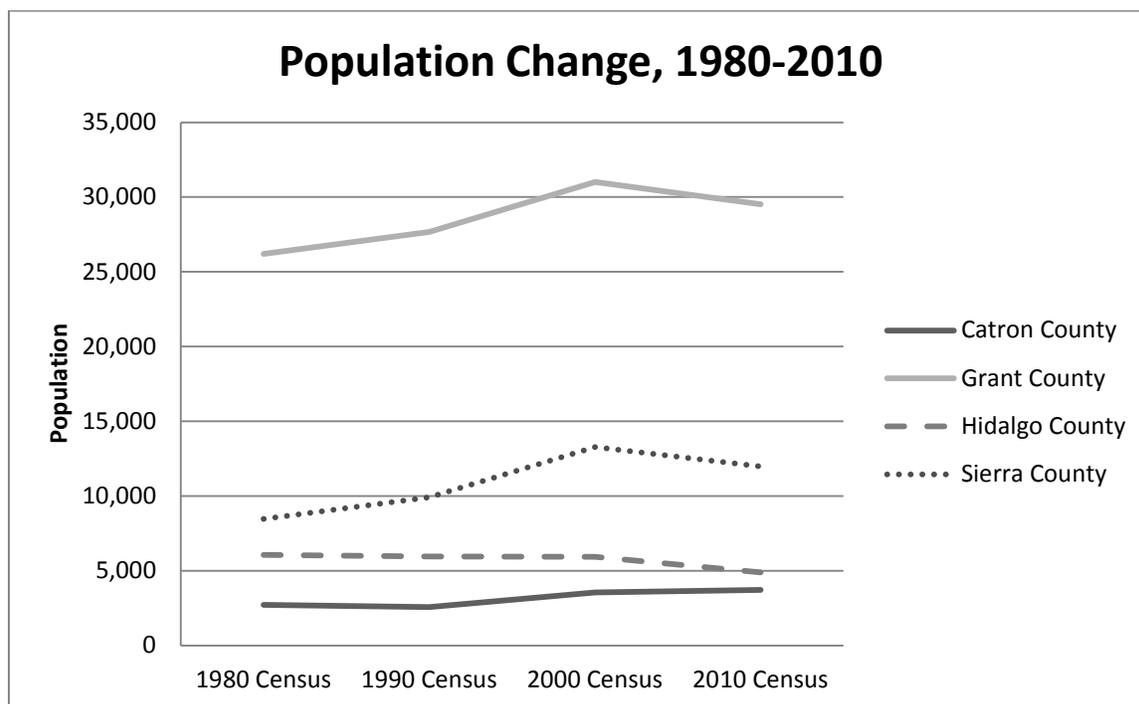
While the Forest is relatively remote, there are well-developed transportation links from major population centers. Growing populations in the Albuquerque Metropolitan Statistical Area (MSA) and in the Las Cruces, El Paso, and Tucson MSAs have led to more people seeking out the

diverse recreation opportunities offered by the Forest. Nevertheless, the Gila Region remains the “hole of the donut” with respect to interstate roads and access in general. The Catwalk near Glenwood and the Cliff Dwellings each receive about 50,000 visitors a year. In Grant County, Silver City has two annual spring events that draw large numbers: the Tour of the Gila and the Blues Festival. The region holds ecotourism potential, but only recently has a local committee formed to address the marketing and infrastructure needs (UNM-BBER, 2007).

## Social Environment

### Population Conditions and Trends

The total population of the four county area is estimated at 50,121 (U.S. Census Bureau, 2010). Figure 1 illustrates population change in the four counties since 1980.



Sources: U.S. Census Bureau, 1980, 1990, 2000, and 2010

**Figure 1. Population Change in Planning Area, 1980 to 2010**

All four counties in the study area are largely rural and sparsely populated. However, Grant County is by far the largest – it has more than double the population of the second largest county in the planning area (Sierra) and Grant County is eight-times more populous than the least populated county (Catron).

Nearly all of the planning area counties experienced positive population growth rates between 1980 and 2000. However, population decreased between 2000 and 2010 in all counties except Catron County. Declining populations may be due to aging populations (deaths exceed births) and out-migration. In the past decade, layoffs in the mining sector decreased available economic opportunities in the area, which may have spurred out-migration. However, positive population growth rates are expected to return as a result of the anticipated influx of amenity retirees (SWCOG, 2010).

The median age of a population is relevant for social and economic analysis of travel management planning. Older populations are likely to have different needs and preferences related to Forest use than younger populations. Table 1 lists the median age for planning area counties, the state, and the nation in 2010. The table also provides a comparison to the 1990 and 2000 median ages to identify trends.

**Table 1. Median Age by County, 1990, 2000, and 2010**

Location	1990 Census	2000 Census	% Change, 1990 to 2000	2010 Census	% Change, 2000 to 2010
Catron County	37.7	47.8	27%	55.8	17%
Grant County	33.2	38.8	17%	45.9	18%
Hidalgo County	30.7	34.8	13%	40.9	18%
Sierra County	51.1	48.9	-4%	54.5	11%
New Mexico	31.2	34.6	11%	36.7	6%
United States	32.9	35.3	7%	37.2	5%

Source: U.S. Census Bureau, 1990, 2000, and 2010

Catron and Sierra counties are substantially older than the other planning area counties, the state, and the nation. Catron County experienced the most striking change between 1990 and 2010 - the median age in the county increased by 48% during the period. Grant and Hidalgo counties also have older populations than the state and the nation. Issues concerning elderly and aging populations, particularly related to access to Forest resources, are a concern in all study area counties; particularly in Catron and Sierra counties.

Table 2 reports age and disability data. All counties in the planning area have higher percentages of disabled and elderly residents than the state or the nation. Catron and Sierra counties have the highest concentrations of elderly residents – approximately 30 percent of Sierra County residents are over age 65. Grant County has the most disabled residents; however, in percentage terms Grant County has the lowest frequency of disability due to its relatively large population. Hidalgo and Sierra counties have the highest percentages of disabled residents. Mirroring the concentration of elderly residents, approximately 30 percent of Sierra County residents are disabled.

Elderly and disabled residents may be more reliant on motorized access to participate in activities on the Forest. Some comments received during the scoping period identified limitations in motorized access as potentially detrimental to mobility-impaired (due to age, disability, or both) people.

**Table 2. Elderly and Disabled Population**

Location	Persons with a disability, age 5+ (2000) Number	Persons with a disability, age 5+ (2000) Percent	Persons 65 years and over (2009) Percent
Catron County	718	20.3%	26.9%
Grant County	6,140	19.8%	20.3%
Hidalgo County	1,316	22.2%	17.4%
Sierra County	3,996	30.1%	29.6%
New Mexico	338,430	18.6%	13.0%
United States	49,746,248	17.7%	12.9%

Source: U.S. Census Bureau, 2010

The racial and ethnic composition of the study area offers context for the social analysis. Table 3 shows the racial and ethnic breakdown of the counties. The majority of residents self-identify as white. Although racial identification is similar across the planning area, the ethnic composition of the counties is more variable. In both Grant and Hidalgo counties, approximately half of the residents are Hispanic.

**Table 3. Race and Ethnicity by County**

Location	White	Black or African American	American Indian	Asian	Native Hawaiian and Pacific Islander	Some Other Race	Two or More Races	Hispanic or Latino (of any race)
Catron County	91%	0%	5%	0%	0%	3%	1%	17%
Grant County	75%	1%	2%	1%	0%	20%	2%	48%
Hidalgo County	78%	3%	1%	0%	0%	18%	0%	57%
Sierra County	92%	1%	2%	0%	0%	2%	4%	27%
New Mexico	72%	2%	9%	1%	0%	12%	3%	46%
United States	74%	13%	1%	5%	0%	5%	3%	16%

Source: U.S. Census Bureau, 2012

Note: Ethnicity relates to identification as either Hispanic/Latino or not. Hispanic/Latino individuals may identify as any members of any of the racial groups. The "Other" group includes two or more races.

The key difference between the planning area and the state is the American Indian population. The state has a much higher percentage of American Indians than the planning area, where they only make up one percent of the four-county population.

## Forest Recreation Use

The Forest receives many visitors from throughout the western United States; however the majority of visits are from local residents. Both motorized and non-motorized activities attract visitors to the Forest, and those visits affect economic and social conditions. Motorized use on the Forest provides visitors with a means to get to other locations often for non-motorized activities, and serves as a recreational activity by itself. Non-motorized activities still require access to the forest on roads and trails and these activities often co-exist with motorized activities.

There were approximately 514,000 national forest visits to the Forest during 2011. Visits are defined as the entry of one person onto the forest to participate in recreation activities for an unspecified period of time (NRIS HD-NVUM 1.2.2.33). The average site visit length of stay on the Forest was 33.0 hours, which includes day and overnight use. Eighty-seven percent of the respondents went only to the site at which they were interviewed. During those visits, individuals participated in a variety of recreational activities. Table 4 shows the ranked activities. All participation numbers are based on a host of sampling factors and randomized events such as weather. Nonetheless, these numbers represent the best available science and serve to assist the decision maker in understanding visitor use in general as a foundation for assigning economic impact results to particular activity categories.

**Table 4. Activity Participation on the Gila National Forest**

Activity	% Participation	% Main Activity	Average Hours Doing Main Activity
Viewing Wildlife	57.0	3.9	2.5
Viewing Natural Features	56.8	12.1	2.3
Hiking/Walking	51.9	21.4	2.8
Driving for Pleasure	49.3	12.0	3.5
Relaxing	45.3	7.6	26.9
Hunting	20.2	19.7	50.2
Primitive Camping	17.6	0.1	20.0
OHV Use	17.5	1.8	1.0
Picnicking	14.6	4.1	2.7
Motorized Trail Activity	11.7	0.0	0.0
Fishing	11.2	7.3	7.5
Visiting Historic Sites	11.0	0.8	3.7
Some Other Activity	7.0	6.7	3.1
Developed Camping	6.6	0.8	43.8
Nature Study	6.2	0.0	4.0

Activity	% Participation	% Main Activity	Average Hours Doing Main Activity
Gathering Forest Products	4.4	0.0	3.2
Nature Center Activities	4.1	0.0	0.0
Backpacking	2.9	0.3	4.5
Horseback Riding	2.1	2.0	2.0
Other Non-motorized	1.1	0.3	4.5
Other Motorized Activity	0.9	0.9	15.0
Bicycling	0.9	0.2	5.3
Resort Use	0.1	0.0	0.0
Non-motorized Water	0.1	0.1	10.0
Motorized Water Activities	0.0	0.0	0.0
Snowmobiling	0.0	0.0	0.0
Downhill Skiing	0.0	0.0	0.0
Cross-country Skiing	0.0	0.0	0.0
No Activity Reported	0.0	0.0	

Source: USDA FS 2012b

## Lifestyles, Values, Beliefs and Attitudes

Most public comments express values related to Forest resources and management. However, the identified values vary considerably among the public. Some members of the public believe that unhampered motorized access improves public use and enjoyment of the Forest. On the other hand, some comments express frustration with motorized use on the Forest. These comments often identify resource conservation and the preservation of solitude as Forest values that motorized use diminishes. In the context of travel management planning, these values are the main source of conflict. However, within these overarching groups, a number of beliefs and attitudes about how the Forest Service should manage Forest resources are present. Group definition is not rigid – many Forest users value elements of both motorized and non-motorized uses. In addition, substantial diversity among specific beliefs and attitudes exist within each group. The proceeding description is meant to clarify primary uses and values attached to the Forest, not to provide a definitive explanation of the public’s lifestyles, values, beliefs, and attitudes.

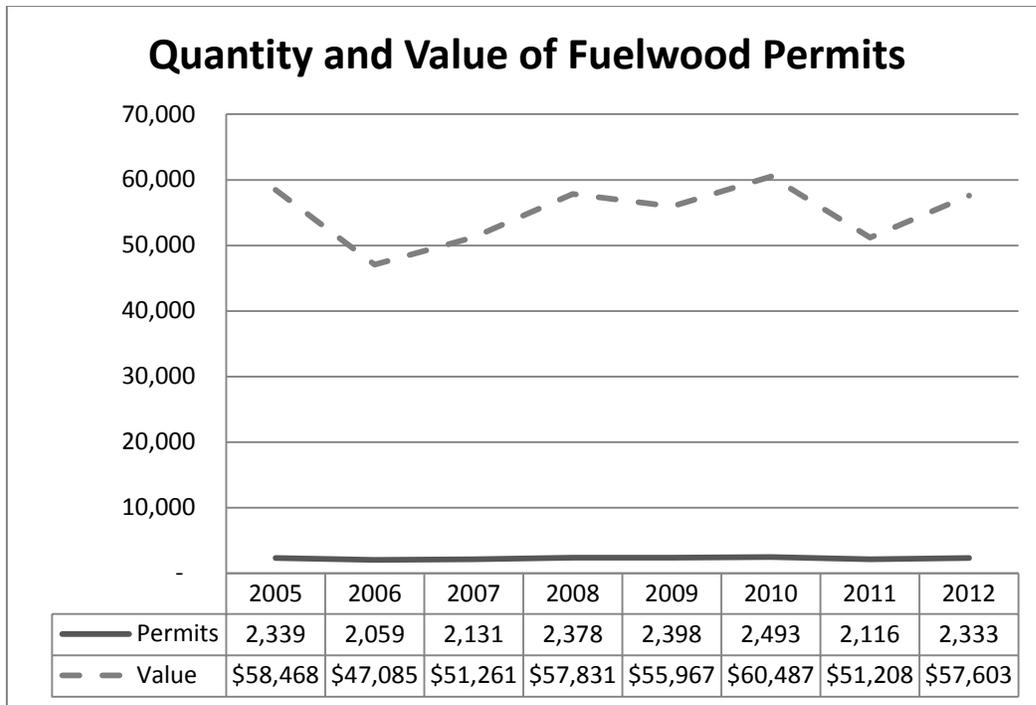
Within the group that primarily values uninhibited motorized access, some members believe that motorized access to public lands is a right, regardless of whether they choose to exercise it. They are likely to have a negative attitude toward regulations that constrain their behavior. This group also contains people who engage in activities on the Forest that require or benefit from motorized access. Fuelwood and piñon nut gathering, access for the elderly and disabled, motorized big

game retrieval, and dispersed motorized camping are the primary Forest uses that benefit from motorized access.

Members of the public who favor restrictions on motorized use are likely to believe that the Forest has intrinsic value, particularly tied to wilderness, which motorized uses disrupt and compromise. Wildlife habitat and pristine areas are generally more important than access to this group. Members of this group may also participate in activities on the Forest that compete with motorized uses, such as bird watching or solitude. Members of this group may emphasize the non-market values that the Forest provides – for instance, the benefits that well-functioning ecosystems offer, such as nutrient cycling and wildlife habitat.

### Gathering of Special Forest Products

Fuelwood gathering on the Forest is particularly tied to livelihoods in some of the surrounding communities. Wood for fires continues to be widely used either aesthetically or as the primary heat source within homes. Approximately 48% of the housing units in Catron County rely on wood as the primary heating fuel type. In Grant, Hidalgo, and Sierra counties, approximately 5 to 12% of the housing units use wood for heat (U.S. Census Bureau 2000). The use of wood for heating homes may be tied to long-term customs, traditions, and culture of the community. Much of the fuelwood gathering on the Forest relies on motorized access for transport. Figure 2 displays the quantity and value (in nominal dollars) of fuelwood permits on the Forest since 2005.



Source: USDA FS, 2010 and 2013

**Figure 2. Quantity and Value of Forest Fuelwood Permits, 2005-2012**

In addition to fuelwood, piñon nuts, greenery, gravel, rocks, and other forest products are gathered on the Forest for both commercial and personal uses. Gathering habits have been part of the customs, tradition, and culture of the people for many years (Russell and Adams-Russell 2006).

## Tribes and Tribal Uses

The eleven federally-recognized tribes identified above in tribal consultation and land use sections may also have economic interests in the Gila NF. As previously stated, these tribes do not have treaty rights on the Gila NF, and the Gila NF is not located adjacent to any tribal lands (trust, reserved, or allotted).

American Indian populations in the four counties where the Gila NF is located range from a low of 0.5% (Hidalgo) to a high of 4.6% (Catron), compared to 9.3% for the entire State of New Mexico (US Census Bureau: 2012).

Because the Gila NF is not adjacent to tribal lands and reservations, long drive times are required to access the Gila NF. This makes visitation to the forest costly for tribal members (gas, vehicle, motel, food, etc.). This situation would remain essentially unchanged under all alternatives, including existing condition.

Data on local tribal businesses are unavailable; such businesses are not known to contribute to sectors of the local economy supported by the Forest. Rather, most tribal members or groups participate in occasional activities on the Gila NF for personal, traditional, community, group or religious reasons and uses. (These have been analyzed as traditional activities under the Contemporary Tribal Land Use section). Locations of such activities may fluctuate, and have not been specifically identified by tribes. Gathering forest products, such as piñon nuts or Emory oak, has not been identified as occurring for commercial resale, and sale of Forest products is not known to supplement tribal household income.

This information supports a conclusion (and observation based on tribal consultation) that visitation to the Gila NF by tribal members is generally less frequent than to places closer to existing tribal lands, and would continue to be so. This visitation appears to be more socially and culturally driven, than economically driven. As such, it is important to the cultural and social fabric of tribes.

Because very few tribal members live and work in the vicinity of the Gila NF compared to other parts of New Mexico and Arizona, changes to tribal economic activities as a result of travel management designation are expected to be minor to none. Tribes would continue to have opportunities to gather culturally important materials on the Gila NF under applicable Forest Service policies (such as FSH 2409.18 on granting permits free of charge to federally recognized tribes to gather forest products for traditional and cultural uses [www.fs.fed.us/cgi-bin/Directives/get\\_dirs/fsh?2409.18](http://www.fs.fed.us/cgi-bin/Directives/get_dirs/fsh?2409.18)).

## Economic Environment

### Industries and Employment

Table 5 displays the relative size of industries in the planning area. More than one-quarter of planning area jobs are in government, making it the largest sector and two-and-one-half times larger than the second largest sector (retail trade).

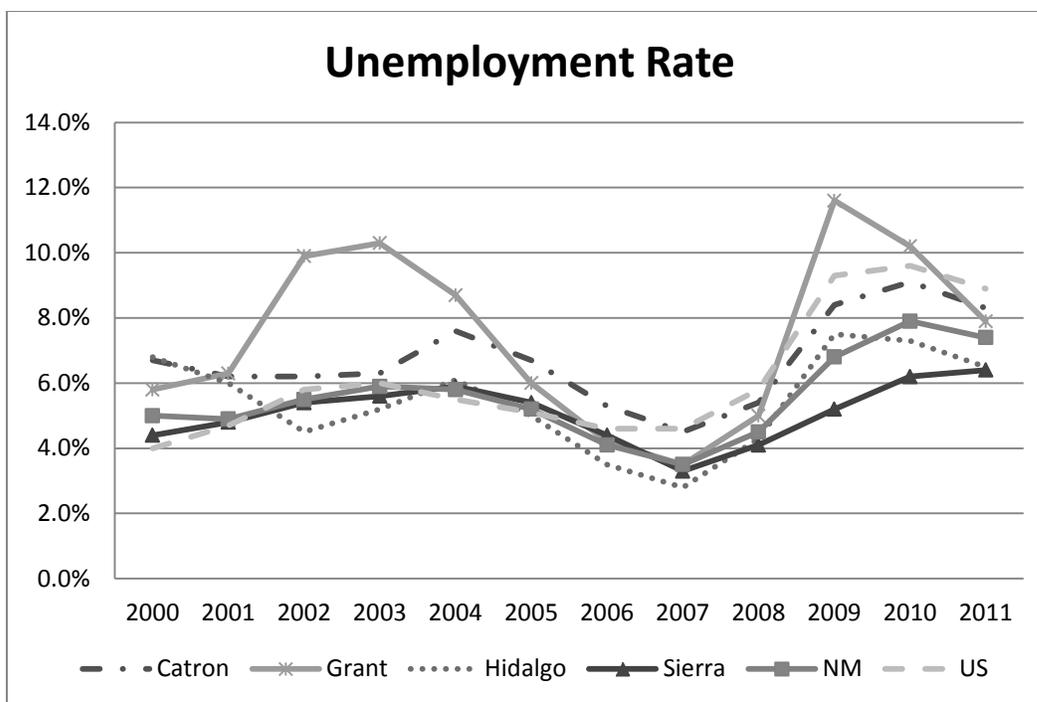
**Table 5. Employment by Industry**

Industry	Employment	Percent of Total
Agriculture, Forestry, Fish & Hunting	1,344	6.0%
Mining	1,009	4.5%
Utilities	105	0.5%
Construction	1,361	6.1%
Manufacturing	326	1.5%
Wholesale Trade	224	1.0%
Retail Trade	2,565	11.5%
Transportation & Warehousing	275	1.2%
Information	213	1.0%
Finance & Insurance	662	3.0%
Real Estate & Rental	642	2.9%
Professional, Scientific & Tech Services	811	3.7%
Management of Companies	195	0.9%
Administrative & Waste Services	413	1.9%
Educational Services	300	1.4%
Health & Social Services	2,061	9.3%
Arts, Entertainment, & Recreation	382	1.7%
Accommodation & Food Services	1,815	8.2%
Other Services	1,333	6.0%
Government	6,177	27.8%

Source: MIG, 2010

Of these industries, travel management on Forest Service lands is most likely to affect agriculture, forestry, fishing and hunting; accommodation and food services; arts, entertainment, and recreation; and public sector employment.

Figure 3 shows the average annual employment rate for the planning area counties, New Mexico, and the US. In general, the state and counties are in line with national trends. However, Grant County's trend shows instability in employment conditions in the county. In 2007, Grant County's unemployment rate was 3.5%; by 2009, unemployment had increased to 11.6% in the county. Although all geographies experienced substantial changes between 2007 and 2009, none are as extreme as the change in Grant County. Major layoffs in the mining sector in Grant County contributed to the rapid increase in the unemployment rate (SWCOG, 2010).



Source: Bureau of Labor Statistics, 2012

**Figure 3. Average Annual Unemployment Rate, 2000-2011, Not Seasonally Adjusted**

In contrast to volatile unemployment rates in Grant County, Sierra County has experienced more muted changes. In 2009, Sierra County's unemployment rate was 5.2%, well below the unemployment rates for the state and nation. At no point during the past decade has Sierra County had an unemployment rate above 6.4%, which may indicate a more stable job market in the area. However, much of the reason for the relatively stable unemployment rate in Sierra County is likely the result of the importance of non-labor income in the economy. Table 7 provides a breakdown of total personal income by labor and non-labor sources. Sierra County has a particularly large share of non-labor income, which accounts for 60% of total personal income. Sierra County is also the oldest county in the area (Table 1), which suggests a substantial retiree population. These factors make Sierra County less susceptible to job market changes.

## Income

Table 6 lists the median household income for planning area counties, the state, and the nation. All counties in the planning area have median household incomes below the state and nation. The un-weighted average of household income in the four-county area is approximately \$10,000 below the state median and nearly \$20,000 below the national median. These data suggest that planning area residents are more likely to be on the economic margins of society. Economic changes (either positive or negative) may have a more pronounced effect the economic well-being of the area.

**Table 6. Median Household Income**

Location	Median Household Income (2011)
Catron County	\$37,857
Grant County	\$36,925
Hidalgo County	\$35,532
Sierra County	\$28,373
New Mexico	\$44,631
United States	\$52,762

Source: U.S. Census Bureau, 2012

Total personal income comprises labor and non-labor income. Labor income is the wage or salary received by an employee or sole proprietor. Non-labor income includes rent, dividends and interest, and transfer payments (e.g., Social Security). Table 7 identifies the division of labor and non-labor income in planning area counties, the state, and the nation.

**Table 7. Share of Labor and Non-Labor Income**

	Labor Income (%)	Non-Labor Income (%)
Catron County	45	55
Grant County	46	54
Hidalgo County	56	44
Sierra County	41	59
<b>FOUR COUNTY AVERAGE</b>	<b>47</b>	<b>53</b>
New Mexico	62	38
United States	65	35

Source: Bureau of Economic Analysis 2010, REIS Table CA30

The four-county planning area is much more reliant on non-labor income than the state and the nation. Total personal income in New Mexico and the US is composed of approximately two-thirds labor income and one-third non-labor income. In contrast, three planning area counties receive more non-labor income than labor income. Sierra County is particularly skewed toward non-labor income. These data suggest that the planning area has a high concentration of retirees. The reliance on non-labor income may also indicate dependence on government transfer payments. Non-labor income may help to stabilize the economy, as it is not tied to employment status. However, non-labor income may fluctuate based on asset market performance (e.g., investments in stocks and bonds) or changes in government policy.

## Payments to States and Counties

The Forest Service provides payments to the state and counties through the following programs:

## Payments in Lieu of Taxes (PILT)

PILT are federal payments to local governments that help offset losses in property taxes due to nontaxable federal lands within their boundaries. PILT payments help local governments fund operations, such as emergency services and road maintenance. Payments are made annually for tax-exempt federal lands administered by the Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service, USDA Forest Service, and for federal water projects and some military installations. Payments to counties are based on population, receipt sharing payments, and the amount of federal land within a county (Table 8).

**Table 8. Payments in Lieu of Taxes (PILT) to the States and Counties, FY12**

Location	Payment	Total Acres
Catron County	\$619,845	2,747,073
Grant County	\$1,827,684	1,180,179
Hidalgo County	\$728,153	823,734
Sierra County	\$1,037,269	1,299,512
State Total	\$32,205,935	22,510,697

Source: U.S. Department of the Interior, 2013a

## Secure Rural Schools Program, 2008-2012

The Secure Rural Schools and Community Self-Determination Act of 2000 (SRS Act) was amended and reauthorized in P.L. 110-343 on October 3, 2008 and in P.L. 112-141 (1 year extension through 2012). These laws ensure counties across the country can receive payments that provide funding for schools and roads and make additional investments in projects that enhance forest ecosystems. The SRS Act authorizes the use of Resource Advisory Committees (RAC) as a mechanism for local communities to collaborate with federal land managers in recommending projects on federal lands or that will benefit resources on federal lands. For the Gila National Forest, the RAC formed via charter on April 23, 2010 and no payments have yet been allocated. The projected payments to the counties within the administrative boundaries of the Gila National Forest for fiscal years 2008-2011 and state are summarized in Table 9.

**Table 9. Secure Rural Schools and Community Self-Determination Act, Projected FY09-11 Payments**

Location	Projected Total State or Transition Payment, 2008-2011
Catron County	\$1,795,796
Grant County	\$411,201
Hidalgo County	\$18,894
Sierra County	\$305,695
Total	\$2,512,692

Source: USDA FS, 2013a

In 2013, the Forest Service asked states to return a portion of their 2012 SRS payments as a result of the automatic federal budget cuts known as sequestration. Since the 2012 SRS payments are provisional, they are not reported here.

## Non-Market Values

Forest lands provide numerous economic values – both market and non-market in nature. Market goods and services, such as timber, are traded in markets. Their values are easily obtained from their market price. Non-market goods and services are not traded in markets, and their value is more difficult to estimate. Scenic vistas, clean water, and cultural/spiritual activities all rely on Forest lands; however, their values are not easily expressed in monetary terms. Given the difficulty and controversy regarding non-market valuation techniques, for the purposes of the travel management plan, non-market values on the Gila National Forest will be considered primarily in qualitative terms.

Unregulated cross-county motorized recreation can affect ecological health by disrupting species habitat, spreading non-native and invasive vegetation, and degrading soil condition. All of these consequences have the potential to reduce non-market values, specifically ecosystem service values. Ecosystem services are the goods and services that nature provides. Many of these services, such as clean water and climate regulation, are essential to life. Direct comparisons between market and non-market goods and services are difficult, particularly where monetary values are not available or reliable. In general, analysis of tradeoffs between market values and non-market values will be descriptive.

## Environmental Justice

In 1994, President Clinton issued Executive Order 12898. This order mandates that all federal agencies analyze the potential for their actions to disproportionately affect minority and low-income populations. The Council on Environmental Quality (CEQ) issued supplemental guidance to assist agencies' compliance (CEQ 1997). The CEQ suggests the following criteria for identifying potential Environmental Justice populations:

- *“Minority population: Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis...”*
- *“Low-income population: Low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty. In identifying low-income populations, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.”*

Above, Table 3 indicates that the racial and ethnic breakdown in the planning area counties is consistent with the racial and ethnic composition in the state. This suggests that the minority population in the affected area is not meaningfully greater than the minority population percentage in the general population [of New Mexico]. However, the sizeable Hispanic populations in Grant and Hidalgo counties may merit consideration as potential environmental justice populations.

Table 10 displays the poverty rate for planning area counties, the state, and the nation. The poverty rate in New Mexico exceeds the national rate by nearly 5 percentage points. Hidalgo and

Sierra counties have the highest poverty rates, with one-fifth or more of residents living in poverty.

**Table 10. Share of Population Living in Poverty**

<b>Location</b>	<b>Persons Below Poverty Level, Percent (2011)</b>
Catron County	15.0%
Grant County	16.6%
Hidalgo County	23.7%
Sierra County	20.0%
New Mexico	19.0%
United States	14.3%

U.S. Census Bureau, 2012

Hidalgo and Sierra counties have poverty rates that may merit environmental justice consideration, particularly where Forest Service management actions may affect employment, income, and other sources of economic well-being attached to the Forest.

## Desired Condition

*The Forest Plan (1986)* includes a Forest-wide goal (p.12) to “Manage Forest human resource programs to provide employment, and economic development opportunities while meeting natural resource goals of the Gila National Forest.” In addition to this broad goal, public involvement has identified social and economic desired conditions related to travel management, including:

- Sustainable employment opportunities
- Access to favorite sites on Forest
- Ability to collect fuelwood and other valued forest products from the Forest
- Preservation of non-market values, including biodiversity, clean air and water, and opportunities for solitude
- Support a diverse range of recreation opportunities on the Forest, including both motorized and non-motorized uses
- Protect Forest resources for use and enjoyment by present and future generations

## Environmental Consequences

### Methodology for Analysis

#### Incomplete and Unavailable Information

National visitor use monitoring (NVUM) results are used to estimate Forest visitation. NVUM provides the best available data on visitation type and quantity. NVUM and IMPLAN are able to produce reliable estimates of the market impact of recreation on the Forest. However, NVUM and IMPLAN are not able to produce estimates of non-market value, such as consumer surplus. Therefore, the economic estimates do not capture “total economic value.”

- (1) While NVUM allows the agency to estimate the market consequences of recreation on the Gila NF, NVUM does not contain information on the non-market value of recreation on the Gila NF. “Total economic value” includes both market and non-market values.
- (2) The cost of collecting reliable and defensible consumer surplus estimates would be prohibitive – the agency would need (a) authorization through the Paperwork Reduction Act to administer a survey, (b) a valid survey instrument, (c) staff to administer survey, (d) staff to input survey results for data analysis, and (e) an economist to analyze the survey results. Furthermore, the reliability of stated preference techniques is contentious.

The Forest Service is not required to provide monetary estimates of non-market values, such as consumer surplus.

The most current NVUM results for the Gila NF do not include the distribution of visits by market segment (i.e., the share of local and non-local visits). Therefore, the distribution provided in NVUM round 2 (FY2006) results is applied to the more current visitation estimates (USDA FS 2012a and USDA FS 2012b). The distribution is as follows;

- Non-local day: 21 percent
- Non-local overnight on the NF: 17 percent
- Non-local overnight off the NF: 11 percent
- Local day: 25 percent
- Local overnight on the NF: 4 percent
- Local overnight off the NF: 1 percent
- Non-primary visits: 21 percent

#### Economic Modeling Limitations

A change in supply (motorized opportunities) will affect quantity demanded (visitation). However, the precise relationship between opportunities and visitation is uncertain. Given data limitations, an assumption of a linear relationship between motorized opportunities and motorized visitation is least likely to bias the analysis toward either motorized or non-motorized interests. If we assume a nonlinear relationship, we would need to know how the rate of change in visitation varies across the function (i.e., between current miles and zero). This information is unknown and cannot be ascertained given available resources. The economic modeling, therefore, makes the simplest and most defensible assumption (linearity). The numerical nature of the economic outputs can give a false sense of precision. Therefore, it is appropriate to heavily weigh the

qualitative social and economic analysis in the evaluation of tradeoffs. The qualitative analysis emphasizes the mitigating factors that would lessen the economic consequences, such as the prevalence of substitution behavior and the potential increased demand for the services of outfitter guides.

## Methodology

IMPLAN Professional Version 3.0 (IMPLAN) was used to assess the economic impacts of the travel management alternatives.

IMPLAN uses county-level input-output data to determine the extent to which activities contribute to the local economy. For this analysis, the local economy includes all counties containing or bordering the Forest – Catron, Grant, Hidalgo, and Sierra counties. IMPLAN considers direct, indirect, and induced impacts:

**Direct impacts** include the economic value generated by the activity itself, such as the value of cattle grazed on the Forest.

**Indirect impacts** include the value generated by purchases to support that activity and the corresponding purchases to support those activities, in perpetuity. For example, indirect impacts would include the value of fencing purchased for ranching, the value of steel purchased to make the fencing, and so on.

**Induced impacts** capture the value of economic activity generated from spending by employees that produce the direct and indirect goods. The ranch employees will purchase food, pay for electricity, etc., all of which generates additional value from the purchases (UNM-BBER, 2007).

IMPLAN only analyzes the economic effects of recreation-based spending. Therefore, this analysis does not give a complete picture of the economic contributions of activities on the Forest. However, the information from IMPLAN is directly relevant for decisions related to travel management planning.

Appendix A: Detailed Economic Impact Procedure provides a systematic overview of the economic analysis steps. The economic analysis incorporates the following information:

- (1) NVUM expenditure profiles specific the Gila NF were used for the analysis
- (2) Visitors to the Gila NF spend less than the average NF visitor (White and Stynes 2010, pg.39)
- (3) Not all of the money stays in the local area, even if it is spent in the local area. For instance, if an OHV user buys \$50 of gasoline, much of that money is lost from the local economy through “leakage.” Therefore, multiplying visitor spending by the number of visitors does not give an accurate portrayal of economic impacts since only a percentage of the money stays in the local economy. This is why IMPLAN is used to estimate the economic consequences. IMPLAN uses trade flow data to determine how much money is recycled through the local economy. Even if an expensive good is purchased in the local area (e.g., an OHV), only a portion of the sales price is cycled through the local economy (retail mark-up). As a result, expenditure data taken alone can be deceiving and should not be conflated with the economic impact.

## Summary of Economic Impacts

Table 11 displays the estimated recreation-related employment and income by alternative. The analysis assumes that jobs and income are proportional to the designated motorized route miles. This assumption was necessary to conduct the analysis, however, the economic consequences of travel management are more complex than this assumption suggests. While travel management planning may reduce some recreation opportunities on the Forest, it also has the potential to increase other recreation opportunities. For instance, outfitters may experience increased business in big game hunting and retrieval due to limitations on motorized retrieval. Other Forest activities, such as non-motorized and wilderness recreation, may be more attractive to additional users, as conflict with off-road motorized users is less likely with travel management planning. In this analysis, the economic contribution of non-motorized recreation is held constant across alternatives. Therefore, the differences in recreation-related employment and income between alternative B and the action alternatives are likely overstated.

**Table 11. Recreation-related Employment and Income by Alternative**

Employment	Alt B	Alt C (93%)	Alt D (66%)	Alt E (50%)	Alt F (76%)	Alt G (76%)
Employment from Motorized Recreation Activities	73 – 138	68 – 128	47 – 89	37 – 69	53 – 101	53 - 100
Labor Income from Motorized Recreation Activities (\$000s)	\$1,532,501 - \$2,884,365	\$1,419,096 - \$2,670,922	\$988,463 - \$1,860,415	\$769,316 - \$1,447,951	\$1,117,193 - \$2,102,702	\$1,107,998 - \$2,085,396
Total Recreation-Related Employment*	279	271	241	226	250	250
Total Recreation-Related Labor Income* (\$000s)	\$5,827	\$5,664	\$5,043	\$4,728	\$5,229	\$5,216
Percent of Total Study Area Employment	1.26%	1.22%	1.09%	1.02%	1.13%	1.13%
Percent of Total Study Area Labor Income	0.78%	0.75%	0.67%	0.63%	0.70%	0.70%

Source: MIG 2010

\*Includes motorized and non-motorized recreation activities. Appendix A provides a breakdown by activity type.

Most of the recreation-related employment occurs in three sectors: accommodation and food services, retail trade, and arts, entertainment, and recreation.

The changes in employment and income are relatively minor, particularly within the context of the regional economy. Under all alternatives, the potential changes in employment and income due to travel management are equivalent to less than one-third of one percent in the local economy. The economic impact estimates are not estimates of visitor expenditures, but rather a reflection of money being introduced and recycled through the local economy. If a visitor

purchases gasoline at a local station for their OHVs, only a fraction of the purchase price remains in the local economy. Much of the money leaks out of the regional economy (e.g., to oil producers in other states or nations).

Two additional reasons for the small economic impact are:

- (1) Access will continue for administrative purposes (e.g., grazing, emergency services).
- (2) Approximately 1 percent of employment and income in the local economy comes from recreation activities on the Gila NF. Therefore, changes will not substantially affect regional employment conditions or county revenue.

Table 12 provides a summary of social and economic effects, by alternative. These effects are discussed in detail below.

**Table 12. Summary of Social and Economic Effects, by Alternative and Issue**

Alternative	Employment and Income	Fuelwood Gathering	Access for Elderly and Disabled	Non-Market Effects
Alt B (No Action)	279 jobs and \$5.8 million in labor income due to recreation on the Gila NF.	No change from current condition.	No change from current condition.	No change from current condition.
Alt C	271 jobs and \$5.7 million in labor income due to recreation on the Gila NF.	Off-road gathering of fuelwood would be limited. However, no decrease in supply of fuelwood is expected; no expected change in number of permits of value of fuelwood collected. However, gathering may be more difficult, requiring adjustment in how and when fuelwood is gathered.	May limit access of elderly and disabled populations to some non-motorized areas. However, in accordance with ADA, mobility devices that are suitable for indoor pedestrian use are permitted on all NFS lands open to foot travel. Furthermore, under all alternatives, diverse motorized options remain.	Travel management has the potential to increase non-market values as a result of improved ecological health (ecosystem service values).
Alt D	241 jobs and \$5.0 million in labor income due to recreation on the Gila NF.			
Alt E	226 jobs and \$4.7 million in labor income due to recreation on the Gila NF.			
Alt F (Proposed)	250 jobs and \$5.2 million in labor income due to recreation on the Gila NF.			
Alt G	250 jobs and \$5.2 million in labor income due to recreation on the Gila NF.			

## Effects Common to Alternatives C - G

### **Fuelwood Gathering**

The elimination of cross-country travel and closing roads to motor vehicle use under all action alternatives may affect the ability of people to collect fuelwood for their homes. Although fuelwood gathering would continue under all alternatives, it will be limited to designated areas. Fuelwood gathering may occur outside of the fuelwood gathering areas; however, motor vehicle access would be limited to roadside parking along designated open roads. Most of the roads that access the Forest will continue to be available within 20 miles of each major community in the Forest in all alternatives. Figure 2 provided the quantity and value of fuelwood permits on the Forest. Under all alternatives, the quantity of fuelwood available is not expected to decrease. However, a change in habits (i.e., where, when, and how fuelwood is collected) may be required. These changes will be required under all action alternatives.

### **Elderly and Disabled Access**

A number of public comments were concerned about the impact of travel management on elderly and disabled populations. Most of the comments were concerned with access to dispersed camping sites, access for game retrieval, and motorized fuelwood gathering. Where possible, these comments were used to develop alternatives. However, all of the action alternatives will affect the ability to travel cross-country by motorized vehicle and could have an effect on people with these concerns. The number of miles of motorized routes varies by alternative and could affect the ability of mobility impaired people to reach their favorite places, where those places are not accessible in any other way.

There is no legal requirement to allow people with disabilities to use motor vehicles in areas that are closed to motor vehicle use. Restrictions on motor vehicle use that are applied consistently to everyone are not discriminatory. Generally, granting an exemption from designations for people with disabilities would not be consistent with the resource protection and other management objectives of travel management and would fundamentally alter the nature of the Forest Service's travel management program (29 U.S.C. 794; 7 CFR 15e.103).

Under section 504 of the Rehabilitation Act of 1973, no person with a disability can be denied participation in a Federal program that is available to all other people solely because of his or her disability. Consistent with 36 CFR 212.1, FSM 2353.05, and Title V, Section 507(c), of the Americans With Disabilities Act, wheelchairs and mobility devices, including those that are battery-powered, that are designed solely for use by a mobility-impaired person for locomotion and that are suitable for use in an indoor pedestrian area, are allowed on all NFS lands that are open to foot travel.

### **Traditional and Tribal Uses**

Motorized access to the Gila NF lands is the most important aspect to Tribal economic activities. Therefore, Alternatives that propose more miles or acres of motorized access provide a better opportunity for such activities. There would be no change in motorized access to the Gila NF under Alternative B. There is potential for minor effects to Tribal economic activities under Alternatives C through G due to the prohibition of motorized cross-country travel and reduction in route mileage which reduces motorized access to some locations on Forest. Alternative E is the most restrictive in terms of motorized access, and could have the greatest effects on Tribal

economics activities. During Tribal consultation, no concern was brought forth about economic effects. Therefore, economic impacts are considered to be minor.

## **Lifestyles, Values, Beliefs, and Attitudes**

By limiting motorized access to designated roads and trails, all action alternatives reduce the probability of user conflict due to incompatible uses at sites on the forest. Individuals who value the forest primarily for resource protection and non-motorized uses are likely to prefer the action alternatives relative to existing conditions. All action alternatives are expected to promote ecological health and provide numerous opportunities for solitude and quiet recreation.

Individuals who value the forest primarily for unfettered access for big game retrieval, dispersed camping, and other motorized recreation activities are likely to feel worse off under the action alternatives. However, all alternatives are expected to support a diverse range of activities – including motorized and non-motorized recreation, firewood gathering, and cultural practices – on the forest. The relationship between these outcomes and routes open to motorized use is uncertain. Alternatives with more motorized opportunities are likely to be preferred by the latter group; however, the precise variation in well-being outcomes between alternatives cannot be assessed given available information.

## **Alternative B – No Action**

Alternative B would make no changes to current management. There would be no changes to road miles or acres of motorized dispersed camping and motorized big game retrieval.

## **Direct and Indirect Effects**

The economic contribution of recreation on the Forest is provided in Table 11.

Table 11 shows that motorized recreation activities on the Forest support 73 to 138 jobs and \$1.5 to \$2.9 million in labor income to the local economy, annually. All recreation activities on the Gila NF (motorized and non-motorized activities) support approximately 279 jobs and \$5.8 million in labor income in the local economy, annually. Recreation on the Gila NF accounts for approximately 1.26 percent and 0.78 percent of total study area employment and labor income, respectively.

These figures do not capture the entire economic value of recreation on the Forest. Many visitors are willing to pay more than required to participate in recreational activities on the Forest. The difference between willingness to pay and actual cost is known as consumer surplus. Although consumer surplus is not captured in the market, it does represent a real economic value to the users. Estimates of consumer surplus by recreation activity on the Gila National Forest are not available; therefore, the total economic value of recreation on the Forest cannot be measured. Nevertheless, it is important to note that the estimates of jobs and income do not completely capture the economic consequences of Forest recreation.

Recreation is not the only activity on the Forest that may be affected by travel management. In particular, fuelwood gathering is not considered in the above economic impact analysis. As Figure 2 reveals, the Forest issues approximately 2,300 fuelwood permits and more than \$50,000 of fuelwood are collected annually. Both personal and commercial uses exist – the fuelwood may be used to heat the permittee’s home or sold to others. Alternative B would not affect the ability of individuals to collect fuelwood from the forest.

Motorized dispersed camping and motorized big game retrieval were identified as major issues with potential social and economic considerations. Alternative B is not expected to change the

social and economic consequences related to motorized dispersed camping and motorized big game retrieval. These issues are analyzed in detail in the recreation specialist report.

## Alternative C

Alternative C would keep approximately 93 percent of the existing road miles, 4.5 percent of the acres open to motorized dispersed camping, and 85 percent of the acres open to motorized big game retrieval.

### Direct and Indirect Effects

Alternative C is expected to reduce motorized recreation-related employment by 5 to 10 jobs and labor income by \$113,000 to \$213,000 relative to alternative B.

## Alternative D

Alternative D would keep 64.5 percent of the existing road miles, 3.5 percent of the acres open to motorized dispersed camping, and 3.5 percent of the acres open to motorized big game retrieval.

### Direct and Indirect Effects

Alternative D is expected to reduce motorized recreation-related employment by 26 to 49 jobs and labor income by \$544,000 to \$1,024,000 relative to alternative B. The decrease in available routes for motorized use may increase other economic values. The Non-Market Values section discussed the potential consequences of unregulated cross-county motorized travel. The limits placed on motorized use under alternative D may increase non-market values, particularly ecosystem service values.

## Alternative E

Alternative E would keep approximately 50 percent of the existing road miles and would eliminate motorized dispersed camping and motorized big game retrieval.

### Direct and Indirect Effects

Alternative E has the fewest miles of designated roads and trails among the considered alternatives. Alternative E is expected to reduce motorized recreation-related employment by 36 to 69 jobs and labor income by \$763,000 to \$1,436,000 relative to alternative B.

Due to the restrictions on motorized use under alternative E, this alternative likely offers the highest protection of non-market/ecosystem service values.

## Alternative F – Modified Proposed Action

Alternative F would keep approximately 73 percent of the existing road miles, 4.3 percent of the acres open to motorized dispersed camping, and 61.7 percent of the acres open to motorized big game retrieval.

### Direct and Indirect Effects

Alternative F, the modified proposed action, represents a mid-point between the high motorized mileage under alternative C and the more limited designations under alternative E. Alternative F is expected to reduce motorized recreation-related employment by 20 to 37 jobs and labor income by \$415,000 to \$782,000 relative to alternative B.

Also, as stated under alternatives D and E, limiting motorized access has the potential to increase non-market and ecosystem service values.

## Alternative G

Alternative G would keep approximately 72 percent of the existing road miles, 3.9 percent of acres open to motorized dispersed camping, and 3.9 percent of the acres open to motorized big game retrieval.

### Direct and Indirect Effects

Alternative G has nearly identical designated motorized route mileage as alternative F. Alternative G is expected to reduce motorized recreation-related employment by 20 to 38 jobs and labor income by \$425,000 to \$799,000 relative to alternative B.

The effects on non-market and ecosystem service values would be similar to the effects of alternative F.

### Cumulative Effects

The spatial scope for the social and economic cumulative effects analysis is Arizona and New Mexico, since recreation opportunities in this area may serve as substitutes. The temporal scope for the social and economic cumulative effects analysis extends from 2005 (the introduction of the Travel Management Rule) through the reasonably foreseeable future (approximately 10 years). All National Forests in the Southwestern Region are either in the process of travel management planning or implementing existing Travel Management Plans. The Bureau of Land Management has also made decisions to designate routes for OHV use. All of the new decisions and the implementation of past land use and travel management decisions are generally resulting in fewer opportunities for cross-country OHV uses and fewer open routes for OHV use. These past decisions include the establishment of wilderness areas and other areas that prohibit motor vehicle recreation, reducing the motor vehicle access to the Forest. The reduction in motorized opportunities on public lands throughout the region may deteriorate the quality of the recreation experience for motorized users and limit opportunities for recreating at alternate sites. These actions may cause a shift toward non-motorized recreation and change the relative contributions of motorized and non-motorized recreation to local economic activity beyond what is estimated in this analysis. However, the range of alternatives provides an array of motorized travel opportunities.

### Environmental Justice

While the share of low-income individuals in the communities surrounding the Gila National Forest is greater than the share of low-income individuals in the state and nation, none of the alternatives are expected to have disproportionately high and adverse human health or environmental effects.

However, potential disproportionate impacts on a vulnerable group are possible in Catron County related to firewood gathering. As noted in the “Lifestyles, Values, Beliefs, and Attitudes” portion of the affected environment section, approximately half of the homes in Catron County rely on wood as the primary heating source. Like all counties in the planning area, a low median household income and a high poverty rate suggest that affordable energy sources are fundamental to individuals’ well-being. Under all action alternatives, motorized gathering would be limited to designated routes. However, the forest is designating areas for personal firewood gathering,

taking into consideration proximity to community centers. The Forest Service may also provide designated woodcutting areas, with the option of allowing off-road travel within those areas. These actions are expected to mitigate any potentially adverse effects on low-income individuals who depend on firewood from the forest.

## Effects of Forest Plan Amendments

Amendments 1 thru 6 to the forest plan may have effects because they propose changes in the management of specific areas of the forest. These effects, like those from the proposed action and alternatives, are disclosed as part of the effects analysis above.

Amendment 7 is administrative in nature and not expected to have effects as a result of this project or future projects. This proposed amendment, for the most part, simply updates and provides consistent direction for application of the Forest Plan with the Travel Management Rule.

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## Appendix A: Detailed Economic Impact Procedure

Some recreation activities are distinctly motorized, e.g., OHV use, and others are distinctly non-motorized, e.g., backpacking. However, many of the recreation activities that occur on the Gila NF do, or could, include both motorized and non-motorized elements. For example, a visitor may hunt on foot, but rely on motorized means to retrieve big game. The table below shows the distribution of recreation activities on the Gila NF and categorizes the activity as motorized, non-motorized, or split between motorized and non-motorized.

**Table 13. Crosswalk of Recreation Activity and Travel Management Issues**

Activity	Recreation Type	% Main Activity
Viewing wildlife	Non-motorized	3.9
Viewing natural features	Non-motorized	12.1
Hiking/walking	Non-motorized	21.4
Driving for pleasure	Motorized	12.0
Relaxing	Split	7.6
Hunting	Split	19.7
Primitive camping	Split	0.1
OHV Use	Motorized	1.8
Picnicking	Split	4.1
Motorized trail activity	Motorized	0.0
Fishing	Split	7.3
Visiting historic sites	Split	0.8
Some Other Activity	Split	6.7
Developed camping	Non-motorized	0.8
Nature Study	Non-motorized	0.0
Gathering forest products	Split	0.1
Nature Center Activities	Non-motorized	0.0
Backpacking	Non-motorized	0.3
Horseback riding	Non-motorized	2.0
Other non-motorized	Non-motorized	0.3
Other motorized activity	Motorized	0.9
Bicycling	Non-motorized	0.2
Resort use	Non-motorized	0.0
Non-motorized water	Non-motorized	0.1
Motorized water activities	Motorized	0.0
Snowmobiling	Motorized	0.0
Downhill skiing	Non-motorized	0.0
Cross-country skiing	Non-motorized	0.0
No activity reported	Split	0.0

Note: "% Main Activity" does not sum to 100 percent due to rounding.

The distribution of activities by recreation type is 46.4 percent split, 14.7 percent motorized, and 41.1 percent non-motorized. In order to estimate the employment and income by recreation type

on the Gila NF, the “split” activities are divided among motorized and non-motorized uses. Since the precise distribution of “split” activities is unknown, a range (25 to 75 percent) is used to capture a reasonable distribution.

The result of this split is motorized activities accounting for 26.3 percent to 49.5 percent and non-motorized activities accounting for 52.7 percent to 75.9 percent of Gila NF recreation.<sup>1</sup>

An analysis of visitor spending data by Forest Service and academic economists has revealed that differences in spending between most activities are not statistically different from each other. As a result, we do not gain precision from modeling activities separately ([http://fsweb.ftcol.wo.fs.fed.us/PAG/Economics\\_Center/software/RECA.shtml](http://fsweb.ftcol.wo.fs.fed.us/PAG/Economics_Center/software/RECA.shtml)).

Therefore, only segment shares<sup>2</sup> are used to model recreation impacts on the Gila NF. The most recent segments shares are available from the 2006 (round 2) National Visitor Use Monitoring survey (NVUM). These segment shares are applied to the total 2011 (round 3) visitation. Surveys show that the Gila NF is a “low spending” forest, meaning that forest visitors spend less, on average. The economic impact of recreation on the Gila NF is modeled in IMPLAN using the “low spending” expenditure profiles.

The total economic impact of recreation (employment and income) is then multiplied by the share of motorized activities on the Gila NF. Table 14 shows the estimated employment associated with motorized recreation on the Gila NF. Alternative B reflects current conditions. The changes between alternatives are linear to the change in motorized route miles (shown in Table 17). Table 15 follows the same steps for income.

**Table 14. Jobs Range by Alternative, Motorized Only**

<b>Jobs Range</b>	<b>Alt B</b>	<b>Alt C</b>	<b>Alt D</b>	<b>Alt E</b>	<b>Alt F</b>	<b>Alt G</b>
50% split	106	98	68	53	77	77
75% split	138	128	89	69	101	100
25% split	73	68	47	37	53	53
Reasonable Range	73 – 138	68 - 128	47 - 89	37 - 69	53 - 101	53 – 100
Change from Alt B	--	5 – 10	26 – 49	36 – 69	20 – 37	20 – 38

Assumption: linear reduction in employment based on change in motorized route miles

<sup>1</sup> Share of split: 46.4; share of motorized: 14.7 (with 50-50 share: 37.9; with 75-25 share:49.5; with 25-75 share:26.3); share of non-motorized: 41.1 (with 50-50 share:64.3; with 75-25 share:75.9%; with 25-75 share: 52.7)

<sup>2</sup> Segment shares are local day trips, local overnight trips on the NF, local overnight trips off the NF, non-local day trips, non-local overnight trips on the NF, non-local overnight trips off the NF, and non-primary visits.

**Table 15. Income Range by Alternative, Motorized Only**

Income Range	Alt B	Alt C	Alt D	Alt E	Alt F	Alt G
50% split	\$2,208,433	\$2,045,009	\$1,424,439	\$1,108,633	\$1,609,948	\$1,596,697
75% split	\$2,884,365	\$2,670,922	\$1,860,415	\$1,447,951	\$2,102,702	\$2,085,396
25% split	\$1,532,501	\$1,419,096	\$988,463	\$769,316	\$1,117,193	\$1,107,998
Reasonable Range	\$1,532,501 - \$2,884,365	\$1,419,096 - \$2,670,922	\$988,463 - \$1,860,415	\$769,316 - \$1,447,951	\$1,117,193 - \$2,102,702	\$1,107,998 - \$2,085,396
Change from Alt B	--	\$113,405 - \$213,443	\$544,038 - \$1,023,950	\$763,185 - \$1,436,414	\$415,308 - \$781,663	\$424,503 - \$798,969

Assumption: linear reduction in income based on change in motorized route miles

Table 16 gives context to the figures presented in Table 14 and Table 15. Currently, recreation on the Gila NF supports approximately 279 jobs and \$5.8 million in labor income, annually. This translates to 1.3 percent and 0.8 percent of all employment and labor income in the economy, respectively. Motorized recreation accounts for between one-quarter to one-half of all recreation on the Gila NF. Under all alternatives, the potential changes in employment and income due to travel management are equivalent to less than one-third of one percent in the local economy.

**Table 16. Economic Contribution of Gila NF Recreation in the Local Economy**

Employment and Income	Total in Local Economy	Gila NF Recreation, All Types	Gila NF Recreation, Motorized
Employment	22,214	279	73 - 138
Employment, % of Total in Local Economy	--	1.3%	0.3 – 0.6%
Labor Income	\$750,278,000	\$5,827,000	\$1,532,501 - \$2,884,365
Labor Income, % of Total in Local Economy	--	0.8%	0.2 – 0.4%

Table 17 shows the change in motorized opportunities, by alternative. Each alternative lists the proportion of miles or acres that continue to be available (relative to alternative B).

**Table 17. Change in Motorized Opportunities on Gila NF**

Motorized Opportunities	Alt C	Alt D	Alt E	Alt F	Alt G
Motorized Routes (Miles)	92.6%	64.5%	50.2%	72.9%	72.3%
Motorized Dispersed Camping (Acres)	4.5%	3.5%	0.0%	4.3%	3.9%
Motorized Big Game Retrieval (Acres)	85.1%	3.5%	0.0%	61.7%	3.9%