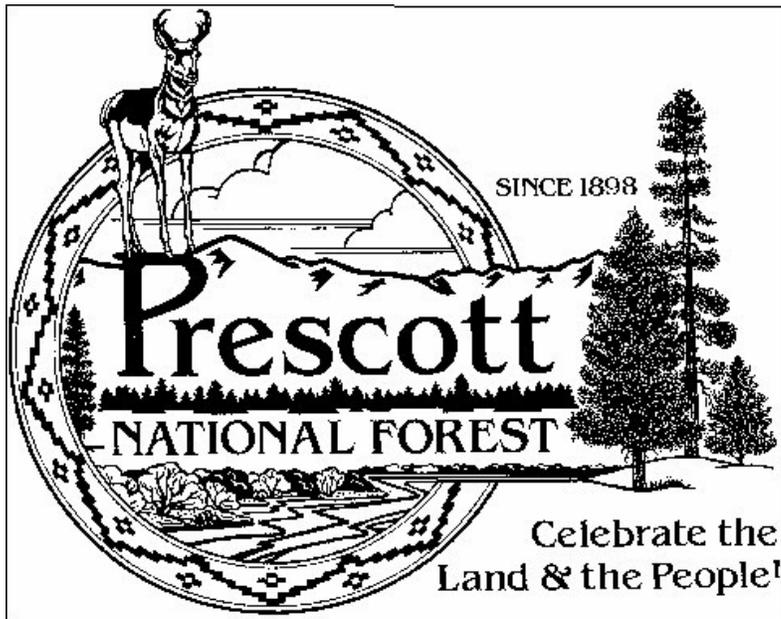




Prescott National Forest

Economic and Social Sustainability Assessment



October 1, 2008

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INTRODUCTION

The 2008 Planning Rule states that National Forests should contribute to sustaining social and economic systems within the plan area. To understand the social and economic contributions that National Forest System lands presently make, and may make in the future, the Forest Supervisor must evaluate relevant economic and social conditions and trends during plan revision processes (Forest Service 2008f). In order to better understand economic and social conditions and trends, several assessments have been carried out for the Prescott National Forest (PNF) by the Southwest Region. They are listed below:

University of Arizona School of Natural Resources. 2005. Socioeconomic Assessment of the Prescott National Forest (SEA) The SEA is based on existing secondary data¹. The secondary data sources consist, for example, of county and State economic data, U.S. Census data, and a wide range of data from Forest Service databases.

Adams-Russell Consulting. 2006. Values, Attitudes, and Beliefs Toward National Forest System Lands: The Prescott National Forest (ABV Focus Group Study). This report documents a focus group study, which provides information about, attitudes, belief, and values related to forest management and resources.

Forest Service 2007. Prescott National Forest Economic Conditions and Trends (ACT). TEAMS Planning Enterprise. Ott, Barbara A. F. This is a summary of the Forest economic conditions and trends, combined with an IMPLAN² economic contribution analysis for the Prescott National Forest, by TEAMS Social Scientist, Barbara Ott. The Forest Service contribution data is provided in a separate report for the Prescott National Forest, as a supplement to the University of Arizona socioeconomic assessments.

Confab 2007. Public Participation Strategy for the Prescott National Forest Plan Revision. This document included information on trends in local social values in addition to that related to public participation.

Much of the social and economic sustainability information in this assessment for the environment surrounding the PNF is based on the analysis of secondary research. Secondary research is data which have been collected and published for different purposes. This information is used as reference material in other reports or documents. Examples of secondary data include demographic and economic information obtained from the United States Census Bureau, and existing Forest Service documents. Primary information gathering included the Values, Attitudes, and Beliefs Study and field interviews and related synthesis of information by Confab.

1 Secondary data sources are books, reports, articles, and data compiled and available on the web, in which other researchers report the results of their research based on primary data or sources. Primary sources, on the other hand, are new data, compiled for the first time through new research, such as direct interviews, focus groups, or new surveys.

2 IMPLAN (IMpact analysis for PLANing, Minnesota IMPLAN Group, Inc.) is a regional economic impact analysis system, that uses county-level, input-output data to determine the extent to which these activities (such as livestock grazing) contribute to the local economy. Input-output analysis is an economist's tool that traces linkages among the structural parts of an economy and calculates the employment, income, and output effects resulting from a direct impact on the economy.

Purpose

The purpose of this assessment is to describe the social and economic relationship between PNF and the surrounding communities, and describe the contribution of the PNF goods and services to local social and economic sustainability. The report documents social and economic conditions and trends of the area surrounding the PNF using data and information sources listed above. This document will assist the PNF in understanding the relationship between National Forest lands and surrounding communities; as well as act as an aid in identifying specific elements of the current forest plan that may need to be changed.

Assessment Area

The assessment area for this document is Yavapai County, Arizona. The geographic area of assessment for the Socio-Economic Assessment for the Prescott National Forest (University of Arizona 2005) included both Coconino and Yavapai Counties. However, data gathered show that Coconino County has little influence on the PNF. National Visitor Use Monitoring data show that only one per cent of recreation visitors come to the PNF from Coconino County. In addition, 96.9% of the Prescott National Forest is located within Yavapai County. The functional economic area impacted by management of the PNF and analyzed in this report is also Yavapai County. Economic impact to Coconino County is small and is limited to payments from the PNF to the County in lieu of taxes for the proportion of the Forest that is located within Coconino County. Coconino County is expected to be less representative of conditions surrounding the PNF than data from Yavapai County and therefore, Coconino County was not included in the assessment area for this document.

In addition, recreational use of the PNF is influenced by forest users from other places. National Visitor Use Monitoring (NVUM) (Kocis et al. 2003) showed that of the recreational users who were surveyed and provided residence information, 19% lived in Yavapai County and 14% in Maricopa County, the first and second highest listed. The City of Phoenix is in Maricopa County. Total demographic information from Maricopa County varies sharply from that of Yavapai County and if added to the assessment area, could skew the data. Therefore Maricopa influences are included in this document, but Maricopa County is not included as part of the formal assessment area.

Organization of Document

This report provides a profile of social and economic conditions and trends considered most relevant to the management of the PNF. The general report organization includes an executive summary, a description of social conditions and trends, and a description of economic conditions and trends.

Within section I, Social Conditions and Trends: 1) Demographic Patterns and Trends, 2) National Forest Land Uses and Users, and 3) Community Engagement with the PNF are addressed. Section II, Economic Conditions and Trends, includes a description of current economic conditions by evaluating the employment, income, and payment to states as well as the PNF contribution to those facets of the economy within the assessment area. A complete list of references is also provided at the end of the document. Appendix A is a cross-walk table between community vision statements and the key trends of this report. Appendix B contains PNF's economic contribution analysis methodology.

EXECUTIVE SUMMARY

The purpose of this assessment is to profile the social and economic environment encompassing the PNF. This assessment describes the relationship between public lands and the surrounding communities and the contribution of the PNF to social and economic sustainability. It also documents baseline social and economic conditions and trends and their impact on the PNF to determine whether the Forest can or cannot influence or support those trends. Specifically, this report discusses the historical context, demographic conditions, uses of the PNF, community engagement, and economic conditions and trends. The quantitative and qualitative socioeconomic data in this report will help PNF determine needs for change and will assist the PNF and citizens to assess management alternatives developed through the process of forest plan revision.

The PNF is largely within Yavapai County; only 3% is within Coconino County. Therefore, the social assessment is limited to Yavapai County (see introduction for more detail). The economic assessment is also limited to Yavapai County with the exception of Payment in Lieu of Taxes information which affects both counties.

Social Conditions and Trends

Demographic Conditions and Trends

Total Population

Population growth in Yavapai County far exceeded the rate of increase in overall state population from 1980 to 2000 (146% versus 89% respectively). Since the last Forest Plan was written most growth has occurred in cities such as Prescott, Prescott Valley, Chino Valley, and Cottonwood-Verde Village between 1980 and 2000, based on the decadal US Census (U.S. Census 2005). Projections indicate that Yavapai County population will increase to 278,000 by 2030 with the rate of increase slowing to approximately 20% per decade in 2000 (Table 1, p. 16).

Age Distribution

The median age for Yavapai County is 45, significantly higher than the state's median age of 34 years and up from 42 in 1990. Although the county's 65 and older population declined from 24% to 22% between 1990 and 2000, the 22% level is substantially higher than the state of Arizona at 13% (Table 2, p. 18).

Racial / Ethnic Distribution

Yavapai County reported an increase in the number of individuals of multiple race and Hispanic origin between 1990 and 2000 from 4% of the population to 9%, showing nearly the same relative increase at the state level over the same period (20% to 24%). Despite substantial increases in individuals of multiple-race and Hispanic ethnicity, whites remain the predominant racial group in the County (Tables 3 and 4, p. 21).

Migration and Movement Trends

Of the increase of 167,517 residents in Yavapai County between 1990 and 2000, 32% moved into Yavapai County from another place. Of those who moved to Yavapai County, 20% moved from a different state and 12% were from the same state but different county (University of Arizona

2005). The pace of population growth may be outpacing the ability of communities to integrate new residents into existing lifestyles and value systems (Adams-Russell Consulting 2006).

Visitors to the PNF

The most recent data available indicates the PNF received approximately 772,000 visits during Fiscal Year 2002 (Kocis et al 2003). A majority of visitors to PNF are male (67%), predominately white (95%), and an estimated 25% of them are between the ages of 50 to 70. Primary activities on the Forest include hiking/walking, overall relaxation, non-motorized activities, fishing and wildlife viewing. According to National Visitor Use Monitoring Results (NVUM) gathered in 2002 and published in 2003, the largest percentage of respondents who provided zip code information was from Yavapai County, accounting for 19% of the survey respondents. Eleven percent of the visitors were from Maricopa County and only 1% of the visitors were from the Flagstaff area³ (Kocis et al. 2003). All of the other visitors were from throughout the nation.

While new National Visitor Use Monitoring data was collected in 2007, the report is not yet available to determine visitor use trends. Arizona Office of Tourism (AZOT) provides tourism information for the state. The Central Territory of Arizona, an area approximately bounded by Maricopa County on the south, Highway 260 on the East, Highway 93 on the west, and Coconino County to the North, showed a 41% increase in domestic overnight leisure visitors from 1993 to 2003 (AZOT 2004). Further, AZOT data show that the Central Territory is a predominantly outdoor-based activity destination with 52% of visitors participating in nature activities such as camping, eco-travel, and visiting national and state parks.

Housing

Housing units increased from 54,805 to 81,730 units in Yavapai County (49% increase) between 1990 and 2000 mirroring the overall population increase. Median home values increased from \$85,300 in 1990 to \$138,000 in 2000 (University of Arizona 2005).

How do trends in Demographic Conditions affect the sustainability of the PNF contribution to the Social condition?

- Yavapai County population growth exceeded growth for the State of Arizona (Table 1, p. 16). This trend is likely to continue but the rate will decline somewhat. Demand for more facilities, such as those related to a variety of trail uses, is expected to increase.
- There has been a small increase in total ethnicity in Yavapai County. The Hispanic population has increased from 6% to 10% of the total population from 1990 to 2000 (Table 4, p. 21). This trend is likely to continue. With increases in ethnic diversity of the population there may be increasing demands for new or different recreation experiences (Chavez 1993).
- With continued migration of retirees to Yavapai County, it is likely that the median age of 45 will remain higher than state's median age of 34 or increase slightly. The general aging of the population in Yavapai County (Headwaters Economics 2007, Yavapai County 2005) may place new demands on the PNF, since recreational uses and interest may shift. Cordell et al (2002) found that those over 65 were more likely to engage in activities such as walking or hunting compared to other age groups.

³ With NVUM data, there is a margin of error for respondents that did not provide zip code information.

- New residents may also have different expectations about uses of the PNF, such as a desire for aesthetics and recreation but little connection to ranching or logging. (McCool and Kruger 2003).
- In addition to an increase in population in the analysis area, visitors to the PNF are also increasing, potentially changing the recreational experience by increasing crowding at popular sites and trails on the PNF. Due to resource limitations, the PNF may not be able to meet all recreation demands.
- Housing units have increased and approval and construction of additional subdivisions within the County will continue this trend in the future (University of Arizona 2005, Yavapai County 2008). With the increase in housing it is likely that more homes will be located in the Wildland Urban Interface. Concerns about maintaining access to PNF lands, protecting structures from fire, and carrying out fuel management activities in that area will increase.

National Forest Land Use and Users Conditions and Trends

Land Use and Land Ownership

As a whole, land ownership within the area of assessment (Table 5, p. 25) closely resembles overall ownership percentages for the state of Arizona. Yavapai County includes 38% Forest Service administered lands, 25% private land, and the balance is either publicly-owned or tribal lands. A higher than average rate of population growth combined with limited lands for development is a characteristic of this social environment that sensitizes residents to land development, land exchange, and land use issues (Adams-Russell Consulting 2006). Land uses range from traditional uses, such as ranching in rural areas, to concentrations of residential and commercial uses near urban centers.

Transportation, Forest Access, and Utility Corridors

With a 100% increase in Vehicle Miles Traveled (Total number of vehicle miles traveled within a specific geographic area over a period of time) in Yavapai County between 1990 and 2000 (ADOT 2000), County and State transportation plans emphasize the need for improved planning through regional approaches linking transportation and desired land use. Some proposed transportation route alternatives pass through PNF (CYMPO 2008). If selected, they could impact open space values or fragment habitat for hunted species.

Utility corridors are also increasing in number to meet the demand of increasing population. Recent utility routes that cross PNF are the Transwestern Pipeline and the 69 KV Copper Canyon powerline.

Access to the PNF raises concerns. Individual property owners sometimes gain access to National Forest Land directly from their homes located on or near the Forest boundary. Damage can occur as motorized or non-motorized traffic creates a “social” trail (i.e., a pathway that is not part of the National Forest trail or road system). A second situation in some locations is roads on State Trust lands are used or informal permission is granted by private land owners to employees to gain access to the PNF for management. As lands become developed or change ownership, the PNF may lose access and formal easements may need to be acquired.

The PNF is preparing a Motorized Vehicle Use Map to ensure compliance with the 2005 Travel Management Rule. Non-essential travel-ways identified in a previous resource access/travel management assessment are being obliterated as funding is available.

Open Space

Preservation of open space is a particularly important land use issue given both the public's desire to maintain the "rural character" of county lands (Appendix A) and the need to accommodate rapidly growing populations and municipalities. Policies aimed at preserving open space have been mentioned in the Yavapai County General Plan and the Verde Valley Regional Land Use Plan (Yavapai County 2003 and 2006). The PNF faces challenges in managing land parcels that are not contiguous with the majority of the PNF. Illegal uses such as unauthorized OHV use and trash dumping make meeting responsibilities for managing such parcels for "Wildland" character difficult and expensive.

Land exchanges or acquisitions may be used as a tool to by the PNF to retain or increase land in "open" condition, however, management concerns would need to be addressed. Demand is also likely to increase for potential land exchanges for development or for associated utilities and access.

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Commodity/Consumptive Uses

Commodity uses historically played a major role in public land management and continue to play a role on the PNF. Recent trends on PNF show grazing permits remaining relatively stable. In 1986, the PNF issued 57 grazing permits; in 2008 54 permittees were issued a total of 60 permits (Forest Service 2008b). Trend for grazing permits is likely to remain stable.

From 1986 to 2002 timber sale contracts issued ranged from zero to two per year totaling 11 contracts. In 2002 pallet mills began operations in Phoenix and Ash Fork. These mills provide a market for forest products produced as a by-product of fuel reduction projects (including salvage of beetle-killed pine), and thinning of Ponderosa Pine stands for habitat and ecosystem restoration. During the period from 2003 through March of 2008, 22 timber sale contracts for 39,021 hundred cubic feet (ccf) were sold. Expectations are that current levels will stabilize at about 3,600 ccf per year.

Current mining activities on the PNF include flagstone, recreational placer mining (mining of gold from alluvial deposits such as panning), **permitted placer and lode claim mining**, and one permitted limestone operation.

Recreation Use

Visitor numbers at PNF developed recreation sites have remained stable or increased slightly over time. Between 2002 and 2007, information on numbers of users paying fees at developed sites ranged from 204,900 (2005) to 219,300 (2004) (Taken from information on fees paid).

In the Prescott Basin, an area that surrounds the city of Prescott, the PNF requires that camping outside of developed campgrounds only take place in designated sites. While recent NVUM data are not yet available, signs of increased use include visual observations that indicate increased use. In addition most, if not all designated dispersed sites are full each weekend in the summer, indicating that demand may be nearing capacity, at least seasonally.

The PNF mix of climate zones allows for year-round recreation leading to a high amount of trail-based recreation. The majority of visitors to the PNF use forest trails; there is high demand for desired experiences on a finite resource. According to Arizona State Parks (2003), nearly 1.2 million OHV Recreation Days occurred in Yavapai County in 2003 and 65% those days were from other Arizona residents traveling to Yavapai County. While recent NVUM data is not yet available, OHV use is increasing, given that OHV recreational use state-wide increased by approximately 350% between 1998 and 2003 (Arizona State Parks 2003).

The PNF includes eight Wilderness areas comprising 116,000 acres. The largest age group visiting these areas was in the 51 to 60 year group and comprised about 25% of use (Kocis et al 2003). Granite Mountain receives the highest visitation, likely due to the close proximity and easy access from Prescott. Use is expected to remain stable or slowly increase.

How do trends in Land Use and Users affect the sustainability of the PNF contribution to the Social condition?

- o National Forest lands account for 38% of land in Yavapai County. With other agencies and tribal ownership providing about 37% ownership, private lands make up only 25% of the County. A high rate of population growth combined with limited lands for development is a noteworthy characteristic of this social environment that also sensitizes residents to land development, land exchange, and land use issues (Adams-Russell Consulting 2006).
- o Additional utility corridors have been implemented (e.g., Transwestern pipeline) and are being proposed (electric services to Yeager Estates and Sycamore Ranch). Increasing numbers of utility and transportation corridors could increase habitat fragmentation for game species like pronghorn and could affect viewsheds.
- o Access to the PNF may be directly affected by increases in population and development. Residents who live near the Forest boundary may create social trails and unintentionally create resource damage. In addition, access for Forest management may be affected as lands change hands and informal agreements to use roads that cross land under non-Forest Service land ownership may require obtaining easements.
- o The PNF, local governments and individuals have interest in retaining lands as open space in areas surrounding communities, especially in the Verde Valley. Land exchanges can be viewed either as a tool to enhance open space retention, or as a means of releasing public land for development and community growth.
- o Timber harvest is carried out primarily to achieve fuel reduction near the wildland-urban interface, to improve habitats, or to restore ecosystems. The need for fuels reduction will continue as beetle-killed pines increase the potential for catastrophic wildfires and the number of people living in the WUI increases. In addition, as concerns about smoke management persist, the PNF may need to address fuel build-up using mechanical means in addition to prescribed fire.
- o Due to population growth in the assessment area there is potential for higher demand for PNF resources, especially those related to recreation. Over the last two decades motorized recreation vehicles have become popular; consequently their uses on the PNF have increased. If not properly managed, overcrowding and resource damage could occur in many areas. Increases in retirement age citizens and seasonal visitors may, in turn, increase demand for age specific recreation opportunities such as desire for walking trails near population centers or providing an increased number of designated dispersed camping areas. (Cordell et al. 2002).

Community Engagement with the PNF

The PNF has a history of building relationships with those who live in and near the Forest. The PNF consults with tribal groups on projects to accommodate special tribal needs. It maintains partnerships with Local, State, and Federal agencies to achieve shared goals. It also has accomplished projects through cooperation with interest groups such as those related to recreation (trails and campground host), trash removal, fire prevention and education, and heritage resource management (site steward program).

Use of volunteers is increasing; total volunteer hours worked increased by 6% from Fiscal Year 2006 to 2007 (Forest Service 2006g and 2007c). With the increase in population and the number of retirees in the local population, there may be people who would like to be involved in Forest Service management, but have not signed up as volunteers.

The Prescott Area Wildland Urban Interface Commission (PAWUIC) cooperates with the PNF, local fire departments, other agencies, and homeowner's associations to raise awareness of risks of living in the WUI and to facilitate fuel reduction activities. Currently, controlled burns are the most cost-effective and ecologically compatible method of decreasing fuels and thus decreasing wildfire risk. With housing increases, many structures lie within the WUI. New residents often find smoke and the risk of escaped fire problematic. With its emphasis on working with homeowners associations, PAWUIC continues to make people aware of risks. However, issues related to smoke management and prescribed burning will persist.

Changing population demographics increase the need to provide information and opportunities to help new residents and visitors understand the PNF and its associated resources. Providing effective communication whether face to face, signs, or publications will continue to be a challenge.

How do the trends in Community Engagement affect the sustainability of the PNF contribution to the Social condition?

- o The PNF recognizes the importance and value of Tribal relationships. As the state's population grows, so will issues of importance to area Tribes. For example, access to important areas is being impacted and may need to be addressed. There will be a corresponding increase in the need for communication and cooperation between the PNF and Tribes.
- o Communities within and surrounding the PNF will continue to interact with and influence management of the PNF. This relationship may intensify as the population grows and more demands are placed on the PNF's resources. Issues related to smoke management and prescribed burning will persist.
- o Although the PNF will continue to provide the resource base for activities and uses, the agency's ability to meet needs of users is limited. Numbers of volunteers are increasing and the PNF's capacity to coordinate volunteer programs may be exceeded. The PNF could enhance its process of working with partners and volunteers to increase its capacity to provide some services.
- o Changing population demographics increase the need to develop improved relationships between the PNF and communities in order to provide information and opportunities for newcomer and visitor understanding of national forests and their resources.

Economic Conditions and Trends

Employment

Economic growth was significant between 1990 and 2000 (Figure 7, p. 42). The sector⁴ showing the greatest rate of growth was wholesale trade, which increased by 127%, followed by the agricultural services, forestry, and fishing sector (92%); construction (88%); finance, insurance, and real estate (81%); and services (80%). The mining sector was the only one to experience a decline in the state, however within Yavapai County, employment in the mining sector increased by 7% (University of Arizona 2005). The sector providing the largest portion of employment was services, followed by retail trade, and government (Figure 6, p. 42). Services and retail trade contain the industries most likely to be impacted by recreation activities on the PNF. The sectors for manufacturing and agricultural services, forestry, fishing and other represented 6% and 1% of total employment respectively and contain the industries most likely impacted by timber and grazing programs. Mining represented 2% of total employment and is the sector most likely impacted by minerals related activities on the Forest (University of Arizona 2005). Yavapai County also reported rates of unemployment that were lower than the state average (University of Arizona 2005). While logging, mining, and livestock grazing were once a mainstay of the local economies, tourism and service-related employment now play a dominant role.

Income

As of 2000, Yavapai County maintained levels of per capita and median family income that were lower than average for Arizona. Yavapai County reported the strongest gains in median family income, of counties in Arizona, between 1990 and 2000 (Figure 11, p. 47) and also saw substantial declines in individual and family poverty that were greater than reductions in poverty at the state level over the same period (Figure 10, p. 46). Yavapai County reported an especially strong increase in tourism employment between 1990 and 2000 (University of Arizona 2005). Retirees obtain much of their income from non-labor sources. The influx of non-labor income into Yavapai County's economy could affect the demand for various services (medical, legal, food industry, landscapers), as well as recreational uses of the PNF. Retirees, who take up residence in the wildland-urban interface, may have concerns regarding management of prescribed burning, related smoke dispersion, and wildfire protection by the PNF.

Payments to States

Yavapai and Coconino Counties receive payments to replace tax revenue from lands that are in the public domain (Table 8, p. 49). From 2002 through 2005, Coconino County received approximately \$60,000 annually and Yavapai County received approximately \$1,200,000 annually from revenues generated on PNF administered lands.

Prescott National Forest Economic Contributions

PNF Contribution to Employment and Labor Income by Industry: Of those economic contributions coming exclusively from the PNF, natural resource related industries constitute a significant portion of the analysis area economy providing approximately 7% of labor and 8% employment (Figures 12 and 13, p. 51). In total, the management activities of the PNF during

⁴ Sector: A distinct subset of a market, society, industry, or economy, whose components share similar characteristics. All corporate and noncorporate private entities organized for profit and certain other entities that are treated as businesses in the national income and product accounts (NIPAs) (U.S. Department of Commerce, Bureau of Economic Analysis). See Appendix B for additional information regarding sectors.

2005 stimulated approximately 2% of jobs and 1% of labor income within the analysis area (Table 14, p. 57). However, some industry sectors appear to have a much higher degree of dependence on the PNF's contributions. The local industries most dependent on the management activities and uses of the PNF are agriculture; mining; arts, entertainment, and recreation; government; and accommodations and food services. Of the total PNF economic contribution to the economy (2% of jobs, 1% of labor income), a 13% contribution to jobs and 10% to labor income is in the agriculture sector (Table 14, p. 57). These contributions would be most closely connected to activities associated with the timber management and grazing program areas. A PNF contribution of 3% to jobs and 4% to labor income is in the arts, entertainment, and recreation industry; 3% of jobs and labor income takes place in the accommodation and food services industries (Table 14, p. 57). Economic contributions to these industries are most closely associated with recreation and fishing, wildlife viewing, and hunting.

*PNF Contribution to Employment and Labor Income by Resource Program*⁵: Approximately 89% of the labor income and 86% of jobs stimulated by activities associated with the PNF represents new money introduced into the economy (Tables 10 and 11, pp. 53 and 54). The operations expenditures by the PNF (salaries, and other operating expenditures) provide the greatest overall stimulus to the local economy by the PNF. The PNF program area that contributed the greatest amount of economic stimulus is recreation, including and/or combined with those activities associated with hunting, fishing, and wildlife viewing. While not all activities in the wildlife program relate to recreation, the wildlife and recreation program areas represent approximately 28% of the PNF's total contribution to labor income and 36% of the employment stimulated. The next largest contributing program area is minerals which stimulates approximately 14% of the PNF's contribution to labor income and 12% of jobs. (Tables 10 and 11, pp. 53 and 54).

Sustainability of the Forest's Contributions to Economic Conditions and Trends

- o Increasing levels of tourism-related visitors will continue to stimulate employment in service industry positions. Service-related industries now employ the most people in the area, followed by retail trade, and government (Figure 6, p. 42). It should be noted that service industries include high-paying (e.g., medical, legal, real estate), as well as lower-paying (e.g., food industry servers, landscapers) employment. These categories of service workers cover a range of income. Services and retail trade contain the industries most likely to be impacted by recreation activities on the PNF.
- o The PNF provides open space and recreational opportunities which are attractive to retirees. Aging populations present new challenges and opportunities for employment and government services, 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 (Wan He et al. 2005). In order to provide the desired level of recreation services, such as more trails or better signs, this group may be willing to contribute their time to achieving that goal. This increasingly urbanized, older population will likely stimulate increased employment for skilled and construction related labor.
- o The influx of non-labor income into Yavapai County's economy could affect the demand for various services, amenities, and uses of the PNF. Retirees, who take up residence in the Wildland Urban Interface, will place increasing demands on the PNF such as the need to

⁵ Resource programs are categories of management activities on the PNF. They include recreation, wildlife and fish, grazing, timber, minerals.

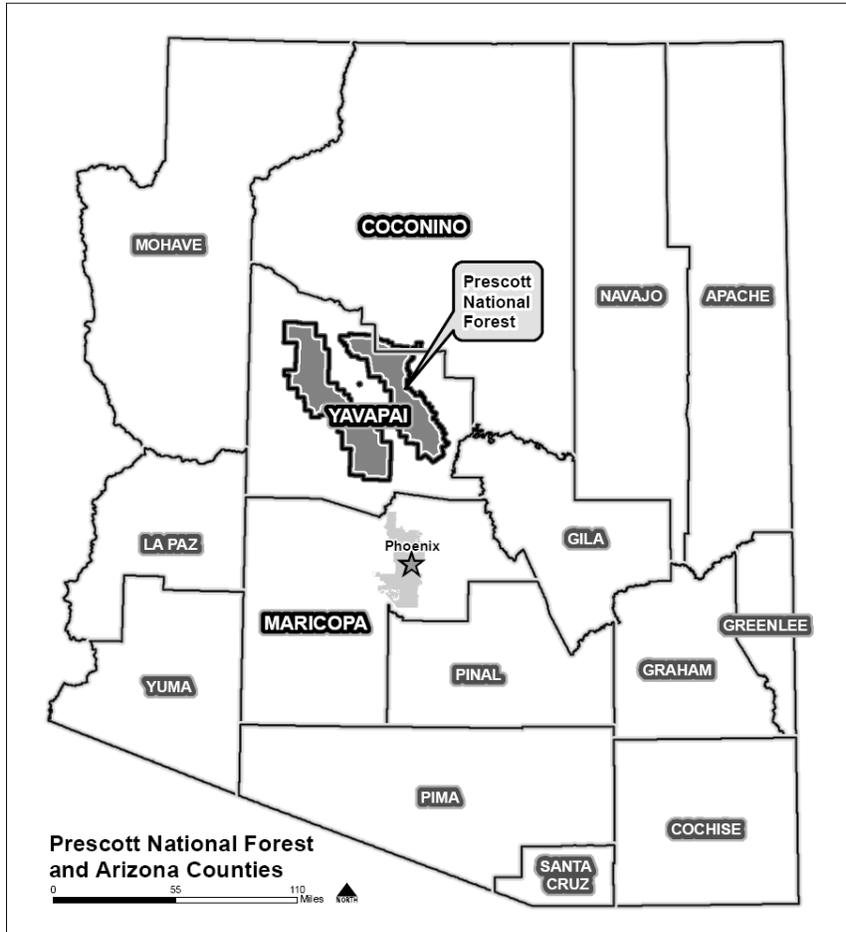
increase awareness of the risks of wildfire, the effectiveness of fuel reduction treatments, and the realities of smoke management.

- o In total, the management activities of the PNF during 2005 stimulated approximately 2% of jobs and 1% of labor income within the analysis area. The local industries most dependent on management activities and uses of the PNF are agriculture; mining; arts, entertainment, and recreation; government; and accommodations and food services. Of the total PNF contribution to jobs and income, the PNF represented 13% of jobs and 10% of labor income in the agriculture sector (Table 14, p. 57).
- o The PNF program area that contributed the greatest amount of economic stimulus is recreation, including those activities associated with hunting, fishing and wildlife viewing. While not all activities in the wildlife program relate to recreation, the wildlife and recreation program areas represent approximately 28% of the PNF's total contribution to labor income and 36% of the employment stimulated. The next largest contributing program area is minerals which stimulates approximately 14% of the PNF's contribution to labor income and 12% of jobs (Table 11, p. 54).

I. SOCIAL CONDITIONS AND TRENDS

This section focuses on the profile of the social environment surrounding the PNF. Figure 1 shows the boundaries of the PNF. The boundaries of PNF extend into Coconino and Yavapai Counties in northern and central Arizona. With approximately 1.25 million acres, the PNF is the second smallest national forest in the Southwestern Region and the sixth largest in total area of the national forests in Arizona. The PNF managed lands are in two roughly equal land segments in Yavapai County. The majority of the PNF is located in Yavapai County and a small portion (approximately 3% of the Forest) of the northeast corner is in Coconino County.

Figure 1. Map of Forest Boundaries and Counties



The social assessment area is Yavapai County. Coconino County was excluded due to the small percentage of Forest land that is within Coconino County and the lack of visitors from Coconino County. The Recreational Uses section includes Maricopa County information because there are visitors that travel from that area to recreate on the PNF.

The Social Conditions and Trends section of this document will focus on three areas:

- o **Demographic Conditions and Trends** (total population, male and female population, age distribution, race and ethnic distribution, migration, visitors to the PNF, and housing)
- o **National Forest Land Uses and Land Users Trends** (land use and ownership, transportation and corridors, land and special uses, open space, commodity industries, and recreation use)
- o **Community Engagement with the PNF** (this section describes the interaction between community groups and the Forest)

The PNF evaluated the contribution to sustainability of each of these three areas by determining if the trend was stable or changing and if the PNF can or cannot influence or support the trend.

Historical Context

Archaeological remains suggest that Arizona was first occupied by American Indians about 12,000—8,000 B.C. The earliest people to occupy central Arizona were hunters and gatherers known to archaeologists as Paleo-Indian. These people lived a highly mobile lifestyle, and expended effort hunting large mammals like mastodons and mammoths. Following the Paleo-Indian period, another hunter and gatherer group known as “Archaic” emerged. They too lived a mobile lifestyle, but these people tended to focus their hunting opportunities on smaller game since by that time the large Pleistocene mammals had disappeared. This nomadic way of life was thought to have lasted about 8,000 years, or from about 8,000 B.C to 100 A.D.

The introduction of agriculture may have occurred in central Arizona about 2,000 years ago, but there is clear evidence of agricultural settlements during what is termed the ‘formative period’, or about 100 A.D to 800 A.D. The introduction of agriculture gave rise to more aggregated, sedentary settlements in the Prescott area which are associated with what archaeologists refer to as the “Prescott Culture.” Early Prescott Culture occupations, which tend to date from about 800A.D. to 1150 A.D., consisted of pithouse hamlets, followed in later years--1150A.D. to around 1300 A.D.--by larger multi-roomed and multi-storied pueblos. Sometime around 1300 A.D., the American Indian population in and around the Prescott region seemed to have declined, or at least reshuffled, for reasons not entirely understood.

The first Spanish explorer to enter Arizona (circa 1536) was likely Cabez de Vaca. Franciscan friar Marcos de Niza reached the state in 1539; he was followed by Francisco Vásquez de Coronado, who led an expedition from Mexico in 1540 in search of the seven legendary cities of gold, reaching as far as the Grand Canyon. Despite extensive exploration, the region was neglected by the Spanish in favor of the more fruitful area of New Mexico. Father Eusebio Kino, a Jesuit, founded the missions of Guevavi (1692) and Tumacacori (1696), near Nogales, and San Xavier del Bac (1700), near Tucson. The Spanish Empire, however, expelled the Jesuits in 1767, and those in Arizona subsequently lost their control over the indigenous people.

The Arizona region came under Mexican control following the Mexican War of Independence from Spain (1810–1821). In the early 1800s, mountain men, trappers and traders such as Kit Carson, trapped beaver in the area, but otherwise there were few settlers. In the Treaty of Guadalupe Hidalgo (1848), ending the Mexican War (1846–1848), Mexico relinquished control of the area north of the Gila River to the United States. This area became part of the U.S. Territory of New Mexico in 1850. The United States, wishing to build a railroad through the area south of the Gila River, bought the area between the river and the south boundary of Arizona from Mexico in the 1853 Gadsden Purchase (University of Arizona 2005, Columbia Electronic Encyclopedia 2007).

In 1863 Arizona was organized as a separate territory, with its first, temporary capital at Fort Whipple in Prescott. Prescott became the capital in 1865. The capital was moved to Tucson in 1867, back to Prescott in 1877, and finally to Phoenix in 1889.

The region had been held precariously by U.S. soldiers during the intermittent warfare (1861–1886) with the Apaches, who were led by Cochise and later Geronimo. General George Crook led the battle against the Apaches in 1882–1885, and in 1886 Geronimo surrendered to federal troops. In 1875 The U.S. Army transferred an estimated 1,500 Yavapai and Dilzhe'e Apache from the Rio Verde Indian Agency to the San Carlos Indian Agency 180 miles away. They remained at San Carlos for 25 years; when finally released only a fraction made it back to their homeland. Upon arrival they learned their land was taken over by Anglo settlers and was no longer controlled by their people (University of Arizona 2005, Yavapai County 2006).

In 1863 when gold was discovered in the Bradshaw Mountains surrounding Prescott. The mountains were then heavily mined and timber was severely cut. This occurred despite federal laws forbidding the cutting of timber from the public domain (Wilson 1990).

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While the problem of wide-spread timber theft was remedied fairly quickly, problems of grazing and overgrazing continued for years. The area's cattle industry began in 1869 when James Baker drove a herd of 300 cattle from New Mexico into the upper end of the Verde River, north of Jerome. In response to heavy demands for beef, thousands of head of cattle were brought into the area. Within 6 years, livestock was one of Arizona's leading industries (Forest Service 2006f).

In 1891, Congress passed legislation authorizing the president to set aside from the public domain, forest reserves to protect timberlands and watersheds. The Prescott Forest Reserve, predecessor to the PNF, was established on May 10, 1898, by a proclamation issued by President William McKinley. The establishment of the Reserve came in response to the community's need to protect its domestic watershed. In October, 1899, the Reserve was greatly enlarged to offer additional protection for the timberlands (Forest Service 2006f). In 1908, the PNF (Reserves were established as National Forests in 1905) absorbed the Verde National Forest. The Verde National Forest was established the previous year to protect the watershed of the Verde River (Forest Service 2006f).

The PNF management emphasis during World Wars I and II was on commodity production to support the war efforts. The Civilian Conservation Corp was active on the PNF during the Great Depression constructing facilities such as Horse Thief Basin Recreation Area. With the rapid growth of Phoenix metropolitan area since the 1960s, Crown King and Prescott have become

popular summer home areas. With the development and wider use of off-highway vehicles (OHVs) in the 1980s, demand for motorized recreation began a rapid increase that continues to present. Rapid population increase during the 1980s and especially the 1990s brought increased demand for a wide variety of uses on PNF (Wilson 1990) (ATV Info 2008).

Today, the PNF is 1.25 million acres and lies within Yavapai and Coconino Counties. Administratively, the PNF is comprised of three Ranger Districts: the Bradshaw Ranger District, the Chino Valley Ranger District, and the Verde Ranger District. Roughly half of the Forest lies west of the city of Prescott, Arizona, in the Juniper, Santa Maria, Sierra Prieta, and Bradshaw Mountains. The other half of the Forest lies east of Prescott and takes in the Black Hills, Mingus Mountain, Black Mesa, and the headwaters of the Verde River. (Forest Service 2006f).

Demographic Conditions and Trends

Total Population

According to U.S. Census figures from 1980 to 2000, Yavapai County population grew by 146% (from 68,145 to 167,517), which exceeded the state’s population growth. Data from the 1980 to 2000 census and population projections from 2010 to 2030 are presented in Table 1 in the form of total population, percentage change, and population projections for Yavapai County and the state of Arizona. Table 1 suggests that population growth at the county and state level is expected to continue although at a somewhat lower rates than were experienced over the last two decades. Yavapai County is projected to increase to 278,426 and will see growth at 41%.

Table 1. 1980 – 2030 Decennial Population for County, Place and State

Decennial County, Place, Population & Population Projections 1980 – 2030						
County/Place/State	1980	1990	2000	Projected 2010	Projected 2020	Projected 2030
Yavapai County	68,145	107,714	167,517	198,052	240,849	278,426
Prescott	20,055	26,427	33,938	---	---	---
Prescott Valley	2,284	8,858	23,535	---	---	---
Arizona	2,718,215	3,665,228	5,130,632	6,145,108	7,363,604	8,621,114

1980-2030 Percent Change						
County/Place/State	1980-1990	1990-2000	2000-2010	2010-2020	2020-2030	
Yavapai County	---	58%	56%	18%	22%	16%
Prescott	---	32%	28%	---	---	---
Prescott Valley	---	288%	166%	---	---	---
Arizona	---	35%	40%	20%	20%	17%

Source: NRIS Human Dimensions 2008 <http://www.city-data.com/city/Arizona.html>

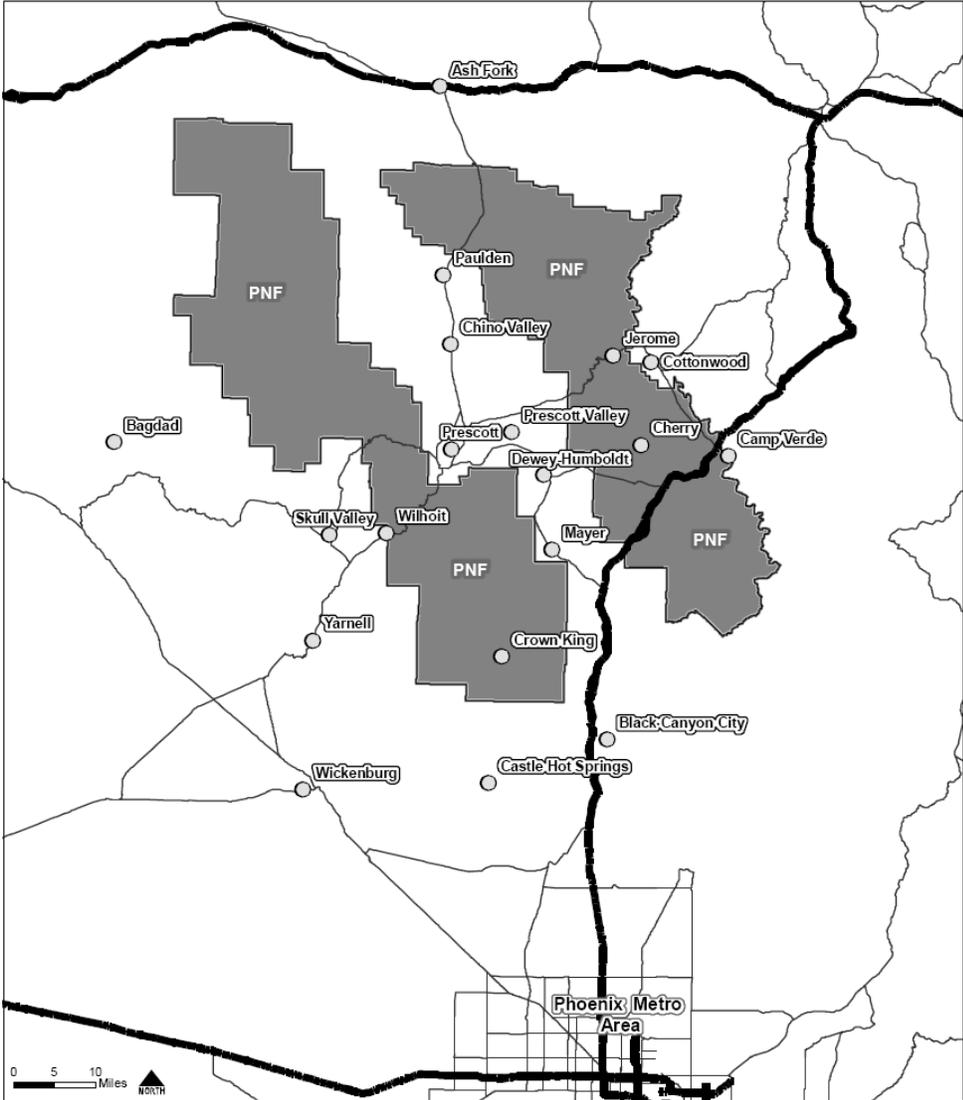
The demographic history of the area surrounding the PNF, and the region as a whole, represents one of sustained and rapid growth. Yavapai County has, in general, grown steadily over the past ninety years with the exception of fluctuations during the 1940s and 1950s. The state has grown from 120,000 residents to well over 5 million (U.S. Census Bureau 2005). Yavapai County itself has grown from 13,799 residents at the turn of the 20th Century to 68,000 in 1980 to nearly 170,000 today (U.S. Census Bureau 1995 and 2005).

In 2006, Adams-Russell Consulting identified and interviewed focus group members within the PNF. Participants of the ABV Focus Group (Adam-Russell Consulting 2006) were asked open ended questions about changes in local communities within the past twenty years. Participants described population growth in Yavapai County as “explosive”, “like a people bomb went off,” and in other terms indicating an assessment of a social environment feeling the effects of population growth.

Analysis of U.S. census and county demographic data show that most of the growth in the County has occurred and will likely continue in the towns of Prescott, Prescott Valley, Chino Valley,

Dewey Humboldt, Clarkdale, Cottonwood, Camp Verde, and the nearby unincorporated areas near these communities (Figure 2). Limited private lands combined with increasing population suggest there will be an increased demand for access, recreation, and other uses of PNF resources.

Figure 2. Map of Communities near the Prescott National Forest



Age Distribution

The age distribution was divided into three categories: the 0-14 cohort⁶ represents the non-working population; the 15-64 cohort represents the workforce population; and the 65 years and older cohort represents the retired population.

Table 2 shows the percentages within each cohort from the 1990 and 2000 Censuses. Yavapai County and Arizona both saw a decline that was less than 1% in the 0-14 cohort from 1990 to 2000. Yavapai County 0-14 age cohort is below the state percentage.

Yavapai County's workforce population (15-64) increased from 58% to 61%. Compared to the state's workforce population at 65 %, Yavapai County falls below the percentage at 61 %.

In Yavapai County, the population has gotten older since 1990. The median age in 2000 was 45 years, up from 42 in 1990 and higher than the state's median age of 34 (Headwaters Economics 2007, Yavapai County 2005).

From 1990 to 2000 the 65 and over population declined from 24 % to 22 %. Although Yavapai County declined in the 65 and over age cohort, the county's 22 % is significantly higher than the state at 13 %.

There is a general aging of the population and it may be expected to place new demands on PNF, since recreational uses and interests may change.

Table 2. Age as a Percentage of Population

Age Group		1990			2000		
		Total	Male	Female	Total	Male	Female
Yavapai County	Total	100%	49%	51%	100%	49%	51%
	0 - 14	18	9	9	17	9	8
	15 - 64	58	29	29	61	30	31
	65 yrs & over	24	11	13	22	10	12
ARIZONA	Total	100%	49%	51%	100%	50%	50%
	0 - 14	23	11	11	22	11	11
	15 - 64	64	32	32	65	33	32
	65 yrs & over	13	6	6	13	6	7

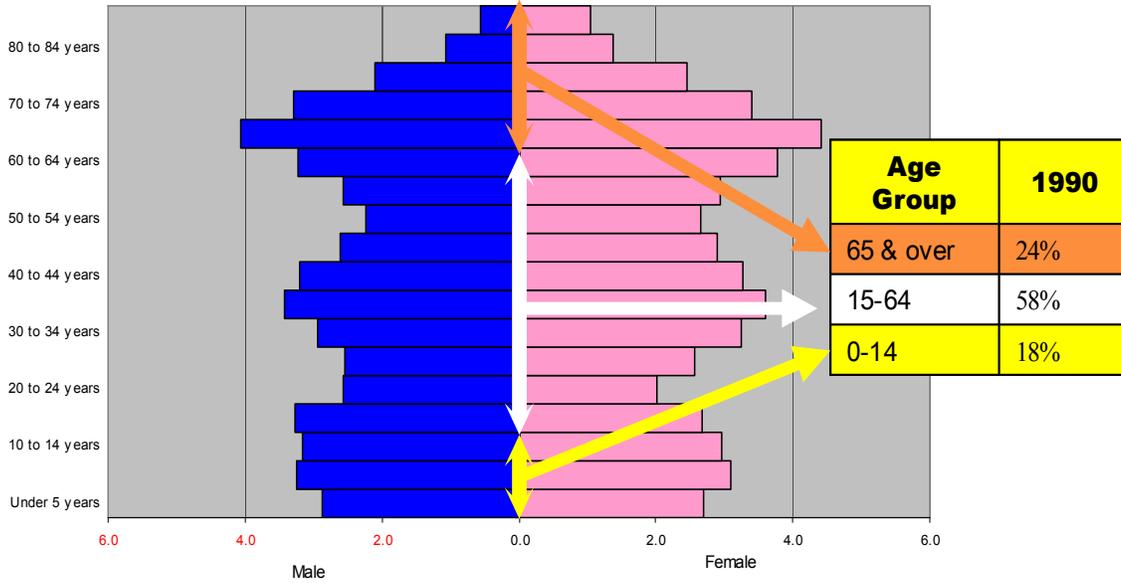
Source: www.census.gov - QTP1 Age Group and Sex: 1990 & 2000

Figures 3 and 4 show population pyramids with percentages within each age cohort from the 1990 and 2000 censuses. Population pyramids illustrate the total population in five year age cohorts by age and sex. This is a tool for understanding the structure and composition of populations because they graphically illustrate many aspects of a population. This can give insight into trends over time by their portrayal of the relative number of people in a particular age cohort. The blue (left)

⁶ Age Cohort in this section is referring to a group of persons sharing a demographic characteristic such as gender, educational attainment, or age group. In this case age cohort is referring to three age groups: 0-14, 15-64, and 65 and over age groups.

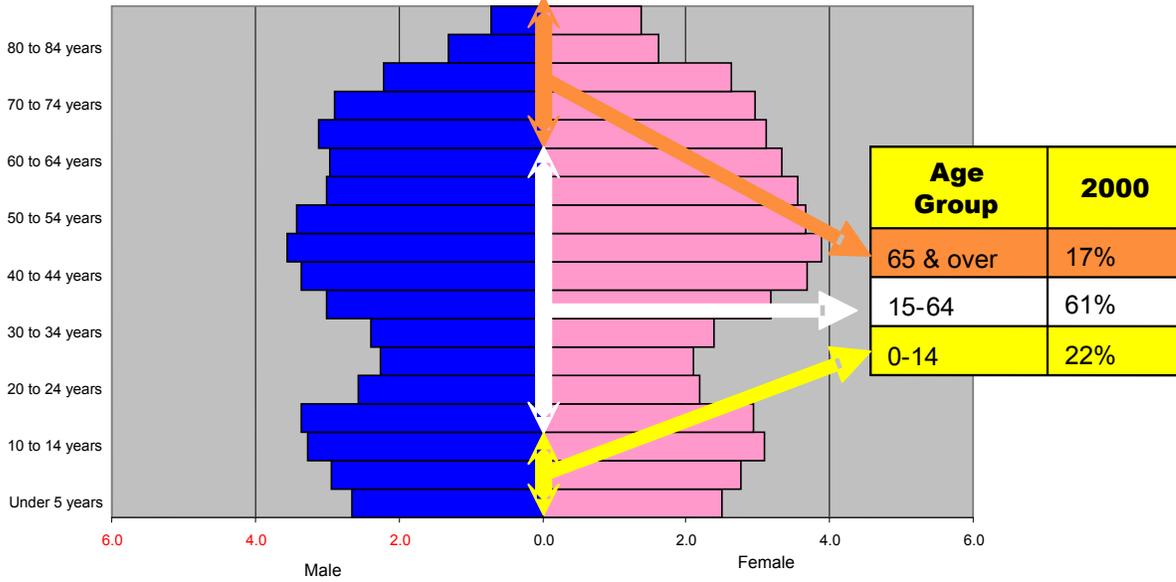
portion of the pyramid reflects the male population and the pink (right) portion of the pyramid reflects the female population. The population pyramids are based on the total population for Yavapai County in 1990 and 2000.

Figure 3. 1990 Yavapai County Population Pyramid



Source: www.census.gov - 1990 Table QT-P1: Age Groups & Sex

Figure 4. 2000 Yavapai County Population Pyramid



Source: www.census.gov - 2000 Table QT-P1: Age Groups & Sex

Figures 3 and 4 show that the Yavapai County's population is concentrated at about 40 years and older; this is an indicator of an aging population. This could affect the demand for various services, amenities, and uses of the PNF. Examples might include the shifting demand for types of motorized recreation and demand for "quiet". The migration of retirees, and particularly those who reside in the wildland-urban interface, will place new demands on the PNF, such as interactions related to smoke management and prescribed burning. The population in the assessment area may be expected to place new demands on the PNF⁷. For example there is high representation of people aged 25 or less compared to their share of the population in recreational pursuits such as team sports and driving off-road. On the other hand, recreational pursuits with high representation of those 65 and older are walking, big game hunting, and motor boating. (Cordell et al 2002). In addition, retirees may have the leisure time to volunteer their services or may become involved in partnerships with the PNF. Finally aging populations present new challenges for 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 (Wan He et al. 2005). A high level of services may be expected, while PNF management capacity may not allow for fulfilling that expectation.

The Confab group (2007) concluded from their field work that Yavapai County is experiencing the early stages of the expected "baby boomer" retirement bulge. People are beginning to retire (or semi-retire) at a relatively young age, moving into the study area, and bring their retirement and investment incomes with them.

Race and Ethnic Distribution

Race and ethnicity are defined as separate concepts by the U.S. Census Bureau. People of a specific race may be of any ethnic origin, and people of a specific ethnic origin may be of any race. Racial groups in this section include the following six groups: White, African American, American Indian, Asian and Pacific Islander, Other, and Multiple Races. The population of Hispanic origin is defined by the U.S. Census Bureau for statistical purposes as a separate group and may be of any race (Hobbs and Stoops 2002, Leefers et al. 2004).

The past fifty or sixty years have seen only moderate racial diversification in the state of Arizona. Of the total population in Arizona, the Hispanic population has increased from 19% in 1990 to 25% in 2000 (Table 4). Despite an especially rapid influx in the two decades following WWII and an average population growth rate of 49% per decade, African Americans remained static at 3% of the population in 2000, less than 1% above their relative numbers in 1940. Although the percentage of Native Americans in the Arizona population has decreased, the absolute number is now greater than six times the 1940 figure. What makes the percentage appear to decrease is the fact that Arizona's total population has grown from 499,261, in 1940, to an estimate of more than 6,000,000, in 2006.

As shown in Table 3, between 1990 and 2000, the Hispanic population increased by 164% in Yavapai County, increasing their share of the total population from 6% to 10%.

⁷ The relationships 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 (Bergstrom 1991, Cordell 2002).

Table 3. Racial/Ethnic Composition by County, and State

1990	ETHNICITY		RACIAL GROUP					Total
	Non-Hispanic	Hispanic	White	African American	American Indian	Asian or Pacific Islander	Other	
Yavapai County	100,815	6,899	103,106	321	1,740	490	2,057	107,714
Arizona	2,976,890	688,338	2,963,186	110,524	203,527	55,206	332,785	3,665,228
2000								
Yavapai County	151,141	16,376	153,933	655	2,686	989	9,254	167,517
Arizona	3,835,015	1,295,617	3,873,611	158,873	255,879	98,969	743,300	5,130,632

Source: NRIS - Human Dimensions & 1990 and 2000 Census Bureau

Table 4 shows the percentage by racial and ethnic composition for Yavapai County and the state of Arizona. Despite substantial increases in individuals identifying themselves as “Other” or more than one race and Hispanic ethnicity, whites remain the predominant racial group in the State and Yavapai County.

Table 4. Percent Racial/Ethnic Composition by County and State

1990	ETHNICITY		RACIAL GROUP					Total
	Non-Hispanic	Hispanic	White	African American	American Indian	Asian or Pacific Islander	Other	
Yavapai County	94%	6%	96%	0%	2%	0%	2%	100%
Arizona	81%	19%	80%	3%	6%	2%	9%	100%
2000								
Yavapai County	90%	10%	91%	0%	2%	1%	6%	100%
Arizona	75%	25%	76%	3%	5%	2%	14%	100%

Source: NRIS - Human Dimensions & 1990 and 2000 Census Bureau

With increases in ethnic diversity of the population there may be increasing demands for new or different recreation experiences (Chavez 1993). Field interviews with members of the Hispanic Chamber of Commerce of Prescott Valley and discussions with PNF employees suggest that, while there is interest in the PNF when the subject is raised, the Hispanic community is not aware of available opportunities the PNF could provide them and little communication exists with PNF (Forest Service 2008g).

Migration and Movement Trends

Net migration data show that population growth (people moving from outside the area) in Yavapai County has been especially strong. Between 1990 and 2000 Yavapai County’s total population

grew by nearly 56%, or an increase of 167,517 residents. Of that growth, 32% moved into Yavapai County (in migration). Of the 32% of new residents, 20% moved from a different state and 12% were from the same state but different county⁸ (University of Arizona 2005).

The greatest numbers of individuals moving from out of state came from the West and the Midwest; however, Yavapai County reported a significant increase in the number of migrants from the Northwest between 1990 and 2000. Finally, Yavapai County also reported significant increases in the number of individuals migrating from “elsewhere” (different countries) over the same period.

Confab (2007) concluded that many new residents interviewed have little or no connection to the local geography, did not have a connection to national forests where they came from and have little first-hand experience with forest management. However, many newcomers have time, energy, and resources to recreate on the PNF.

In addition, Adams-Russell Consulting (2006) reported that participants in focus groups suggested that the volume and pace of population growth is outpacing the ability of communities to integrate new residents into existing lifestyles and value systems. They suggested that a result is some noticeable “social fragmentation” and conflicts with traditional lifestyles. Some newer residents were perceived not to appreciate issues about water, fire susceptibility and other environmental characteristics. Others were perceived to lack a “land ethic” that was often taught as part of the experience of growing up in these rural communities. These differences were perceived to contribute to some of the “abusive” uses of forest lands; and to interfere with productive harmony.

Although population growth can potentially enhance the economic vitality of rural areas through greater employment opportunities and an expanding tax base, it can also challenge the capacity of rural communities (i.e. schools, water systems, and medical facilities) and public land managers to provide for the wide array of services, such as protection from wildfire. This is particularly true in areas where potential conflicts in value systems between established community interests and recently arrived new residents can create friction over natural resource management. For example, “many newer migrants and visitors place higher importance on aesthetic values and recreation while potentially lacking the historical and cultural connection to a working landscape characteristic of farmers, ranchers, and loggers” (McCool and Kruger 2003).

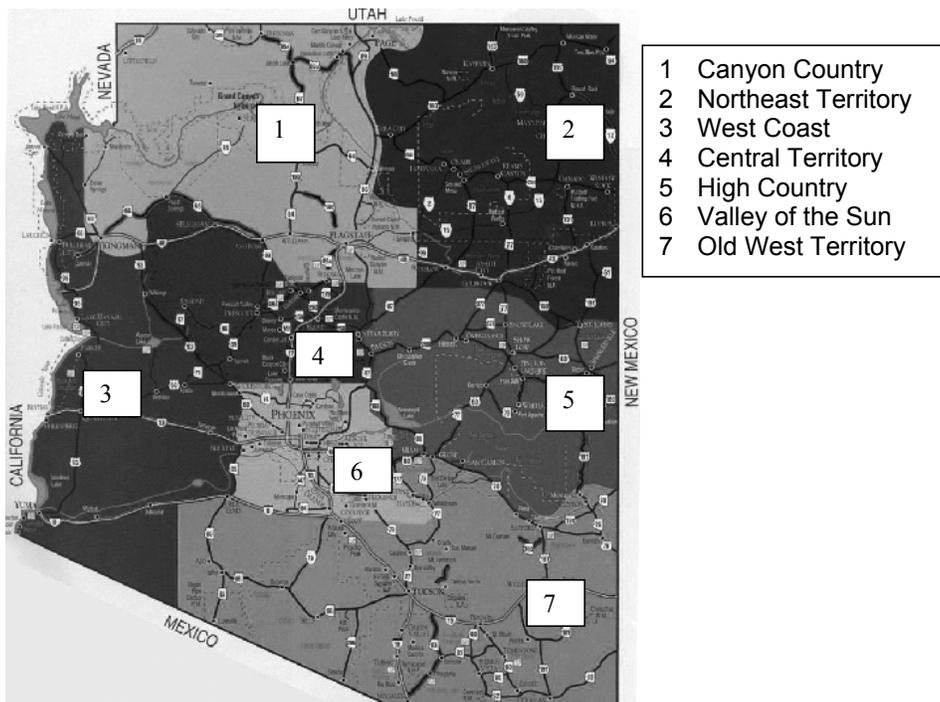
Visitors to Prescott National Forest

The Arizona Office of Tourism (AZOT) has seven distinct tourism regions. Figure 5 is a map of the seven regions located in Arizona. AZOT has traditionally gathered and reported visitation statistics within these regions rather than by counties. The area of assessment of the PNF is located primarily within the region referred to as the “Central Territory.” The 2003 profile for the Central Territory reported 1.9 million domestic overnight leisure visitors, representing a 41% increase over the 1.35 million domestic overnight leisure visitors a decade earlier. This placed the Central Territory as the fifth most visited region in the state in terms of the number of domestic overnight visitors. Approximately 77% of Central Territory visitors came to the area for leisure while the

⁸ Unlike the population pyramids, the in-migration calculations do not include the five and under age group. In each decennial Census (1990 and 2000), respondents are asked about their county and state of residence in the previous five years. Thus information on in-migration reflects only those who are five years and older.

remaining 23% were visiting on business (AZOT 2004). This suggests that visitor use is increasing in the area, and of those using the PNF, recreational activities exceed those related to business.

Figure 5. Map of Arizona Tourism Regions



In 2002, 40% of domestic visitors to the Central Territory came from within Arizona while 25% were visitors from California. New Mexico, Nevada, Texas, Washington, and Florida also contributed significant numbers of tourists. AZOT data confirm that the Central Territory is a predominantly outdoor-based activity destination with 59% of visitors engaging in sightseeing and 52% participating in nature activities (camping, eco-travel, visiting national and state parks). The flow of visitors is greatest during spring and summer with 55% of FY 2002 visits taking place between the months of April and September (AZOT 2004a).

According to National Visitor Use Monitoring (NVUM) data, the 1.25 million acres of the PNF received approximately 772,000 visits during fiscal year 2002. While only one NVUM survey has been performed, this was completed during an atypical year—due to severe drought and fire danger, the Forest was closed for over six weeks. The majority of visitors to PNF are male (67%). Visitors are predominately white (95%). Most visitors, an estimated 76%, are between the ages of 31 and 70, and an estimated 25% are over the age of 50. None of the visitors interviewed in NVUM surveys were from a foreign country (Kocis et al. 2003). According to NVUM, the largest percentage of respondents who provided zip code information was from Yavapai County,

accounting for 19% of the survey respondents. Eleven percent of the visitors were from Maricopa County and only 1% of the visitors were from the Flagstaff area (Forest Service 2007b).

Visitor trends for the PNF are not clear. The most recent NVUM data for FY2002 was utilized; new NVUM data is now being collected but is not yet available. However, AZOT and Arizona State Parks information shows increasing numbers of visitors to the area.

Housing

Housing characteristics for the area of assessment supply further evidence of a trend towards rapid growth. In Yavapai County, the decade between 1990 and 2000 saw significant increases in total housing units (49%), seasonal housing units, and median home value (62% from \$85,300 to \$138,000), compared to a 52% total housing change for the State of Arizona. As would be expected, the number of housing units in all counties has increased as population has increased. The housing stock (the total number of residential units, including mobile homes, available for non-transient occupancy) expanded by 33% in Yavapai County (University of Arizona 2005).

Attitudes towards housing development vary. Some see increased housing as an opportunity for jobs and other economic benefits while others see it as loss of open space. The Attitudes, Beliefs, and Values (ABV) focus group participants expressed opinions that the change in demographics prevented integrating new residents into community values. An added contribution to the lack of productive harmony expressed by project participants was an assessment of what is sometimes termed the “gangplank syndrome.” One participant described this as follows: *“They come here and then they don’t want to see any more development. They want everything that brought them here to stay the same and they don’t want anyone else to come. They are slamming the door behind them.”* (Adams-Russell Consulting 2006).

As a result of continued growth, city boundaries are continuing to expand and overtake rural areas. Unincorporated areas are experiencing continued residential development, including both planned subdivisions and unplanned lot-splitting (dividing a parcel of land into five or fewer parcels). Proposed developments like Yavapai Ranch could result in “new towns” in relatively remote rural settings. Development on lands adjacent to PNF will continue to place significant demands on Forest resources. A primary example is the expansion of the wildland urban interface. This has increased concerns for protecting homes from wildfires in the forest. It also has increased the difficulty of restoring fire to forest ecosystems while reducing smoke impacts to nearby residents whose homes are most at risk

How do trends in Demographic Conditions affect the Sustainability of the PNF contribution to the Social condition?

- Yavapai County population growth exceeded growth for the State of Arizona (Table 1, p. 16). This trend is likely to continue but the rate will decline somewhat. Demand for more facilities, such as those related to a variety of trail uses, is expected to increase.
- There has been a small increase in total ethnicity in Yavapai County. The Hispanic population has increased from 6% to 10% of the total population from 1990 to 2000 (Table 4, p. 21). This trend is likely to continue. With increases in ethnic diversity of the population there may be increasing demands for new or different recreation experiences (Chavez 1993).
- With continued migration of retirees to Yavapai County, it is likely that the median age of 45 will remain higher than state’s median age of 34 or increase slightly. The general aging

of the population in Yavapai County (Headwaters Economics 2007, Yavapai County 2005) may place new demands on the PNF, since recreational uses and interest may shift. Kordel et al (2002) found that those over 65 were more likely to engage in activities such as walking or hunting compared to other age groups.

- New residents may also have different expectations about uses of the PNF, such as a desire for aesthetics and recreation but little connection to ranching or logging. (McCool and Kruger 2003).
- In addition to an increase in population in the analysis area, visitors to the PNF are also increasing, potentially changing the recreational experience by increasing crowding at popular sites and trails on the PNF. Due to resource limitations, the PNF may not be able to meet all recreation demands.
- Housing units have increased and approval and construction of additional subdivisions within the County will continue this trend in the future (University of Arizona 2005, Yavapai County 2008). With the increase in housing it is likely that more homes will be located in the Wildland Urban Interface. Concerns about maintaining access to PNF lands, protecting structures from fire, and carrying out fuel management activities in that area will increase.

National Forest Land Use and Users Trends

Land Use and Land Ownership

National forest lands account for 15% of the land in Arizona. The PNF is located primarily within Yavapai County and a small portion of Coconino County. As a whole, land ownership within Yavapai County closely resembles overall ownership patterns for the state of Arizona. PNF managed lands account for the largest percentage of total land ownership in Yavapai County and private lands are 25% of the total county land area (Table 5). This suggests the potential for intensive public interest about PNF management issues.

ABV focus group participants noted that population growth exists in relationship to limited private land for development. About 25% of the lands in Yavapai County are in private ownership and the remainder is either public or Indian owned lands. A high rate of population growth combined with limited lands for development is a noteworthy characteristic of this social environment that also sensitizes residents to land development, land exchange, and land use issues. For example, participants suggest they expect “substantial” population growth and increased development in the Chino Valley portion of the county, which is also perceived to result in increased urban interface with PNF lands (Adams-Russell Consulting 2006).

Table 5. County Land Ownership

County	BLM	FS	State	Private	Indian	Other Public Lands	Total Area (acres)
Yavapai	12%	38%	24%	25%	<1%	1%	5,200,000

Source: University of Arizona 2005

Some citizens in local communities have expressed concerns to the PNF for retaining National Forest lands within or adjacent to their communities in order to prevent development and retain open space. Verde Valley citizens, in particular, want to retain the viewsheds around their area as unchanged (Yavapai County 2006). Concerns over PNF land exchanges may be associated more with the potential land uses and not the actual acreages involved. Land exchanges from 1988 to April 2008 have resulted in approximately 3,487 acres being acquired by PNF and 2,487 acres being conveyed to other ownership (Forest Service 2008d). Land exchanges have been completed to address consolidation of Forest ownership, fulfill legislative mandates, acquire lands that are of high resource value, or to address municipal purposes (i.e. provide land for a regional landfill).

Yavapai County land use ranges from traditional uses such as ranching in rural areas to denser concentrations of residential, industrial, and commercial uses in and around urban centers. Preservation of open space is a particularly important land use issue given both the desire by some to maintain the “rural character” of county lands and the need to accommodate rapidly growing populations and municipalities. The provision of adequate, affordable infrastructure and sufficient water supplies is also a growing concern for planners, residents, and land managers throughout the region. Additional information on infrastructure related to the PNF is discussed in the following section.

The ABV focus groups (Adams-Russell Consulting 2006) stated that traditional lifestyles, closely associated with the land, once characterized this region. Cattlemen, miners, and those who made a living from the land contributed essential values to community lifestyles. In addition, ranching has been an important contribution to the history, values, and lifestyles in local communities. However, ranching is perceived to be in decline. Some ranches have been sold for subdivision and development.

Smaller communities are considering incorporation to protect their interests as development increases adjacent to their boundaries. Examples are Dewey-Humboldt (incorporated 2004), Black Canyon City (incorporation vote failed 2005), and Cordes Lakes (incorporation vote failed 2008). Inclusion of PNF administered lands within city boundaries, demand for land and increasing infrastructure needs all impact PNF. If PNF ownership and private ownership are intermixed, increasing development leads to difficulty of managing PNF lands and potential demands for land exchanges by developers.

Transportation, Forest Access, and Utility Corridors

Yavapai County and ADOT are responding to the increased demand for transportation from the increasing population. Some proposed alternatives have roads and infrastructure potentially crossing the PNF. The Central Yavapai Metropolitan Planning Organization (CYMPO), Arizona Department of Transportation (ADOT), and the Verde Valley Regional Land Use Plan cite the difficulty of transportation planning in the region given its vast geographic scale, population growth and pace of development, and constrained transportation funding (ADOT 2004; CYMPO 2007; Yavapai 2006).

Yavapai County saw a 100% increase in Vehicle Miles Traveled⁹ (VMT) between 1990 and 2000, mirroring the region's relatively strong population growth over the same period (ADOT 2000). County comprehensive plans suggest that the current road system is inadequate to meet future needs. Some alternative options pass through the PNF where they could impact open space values as well as fragment habitat for hunted species. (CYMPO 2008).

As populations grow and as private lands and State Trust lands are developed, recreation use will shift to and intensify on nearby public and National Forest lands. These trends will continue. One consequence of this shift in ownership patterns has been that local hunters and recreationists have lost some traditional national forest access across those lands.

An access issue for the PNF concerns private property owners adjacent to forest boundaries. Individual property owners adjacent to the PNF sometimes create private access to the national forest, creating social trails and illegal motorized trails. While motorized access of this type is an illegal use, non-motorized access is not prohibited but may result in resource damage.

A second access issue is the need to acquire easements across non-Forest Service lands to gain access to the PNF for management purposes. Historically, roads on State Trust lands may have been used for access or informal permission was granted by private land owners. As these lands become developed or change ownership, the PNF may lose access. Overall, county and state roads provide adequate access to the majority of the Forest; however, there may be cases where the PNF will need to acquire easements.

The PNF is one of the few forests in Region 3 to have completed a comprehensive roads analysis; motorized cross-country travel has been restricted. The 1986 PNF Land and Resource Management Plan was amended to restrict motorized use to designated roads and trails (Forest Service 2004). The PNF is currently preparing a Motorized Vehicle Use Map to ensure compliance with the 2005 Travel Management Rule (TMR) (Forest Service 2005). Non-essential and non-system roads are being obliterated as funding is available. This may conflict with the trend in demand for increased motorized use on the PNF (See Recreation Use, p. 30).

Utility corridors are increasing to meet local, regional and national needs. Many of these corridors cross the PNF. Current examples include the Transwestern Pipeline and the 69kV Copper Canyon powerline. Fiber optic service to Poquito Ranch development and electric services to Yeager Estates and Sycamore Ranch developments are being proposed. Proposals for utility corridors to housing developments are increasing. Utility companies have expressed interest in additional utility corridors across the PNF.

Lands and Special Uses

Special-use authorizations include permits, term permits, leases, and easements, which allow occupancy, use and privileges on NFS land. The authorization is granted for a specific use of the land for a specific period of time. Uses include commercial filming, camps, access roads across Forest lands to private in holdings, easements for utility corridors, outfitter & guide services, research, mineral exploration and development, and recreation residences.

⁹ VMT-- A measure of the extent of motor vehicle operation; the total number of vehicle miles traveled within a specific geographic area over a given period of time.

The PNF has one permitted shooting range. When the permit expires in 2014 for this facility and it is not expected to be renewed. Concerns over safety and noise by owners of adjacent homes that were built long after the shooting range was in operation have influenced the decision by the PNF not to renew the permit. Shooting range advocates are seeking other sites on the PNF to locate a new, permitted facility.

Open Space

Preservation of open space is an important land use issue within the Forest Service (Forest Service 2006). The Forest Service Open Space Conservation Strategy includes Forest Service participation in community growth planning to reduce ecological impacts and wildfire risks. (Forest Service 2007)

Local governments in Yavapai County are also concerned about open space. Policies aimed at preserving open space have been mentioned in the Yavapai County General Plan. These methods include the encouragement of “clustered development,” the purchase of development rights, and the dedication of land such as conservation easements (Yavapai County 2003). In addition, the Verde Valley Regional Land Use Plan (Yavapai County 2006) in its mid- and long-term implementation actions includes consultation with PNF to find ways of preserving open space. One mid-term action is to seek to have the PNF avoid exchange of existing PNF parcels to acquire land elsewhere in the State.

Other discussions indicate that people associate conversion of public to private land with concerns about water availability, protecting viewsheds, and maintaining a rural character (Appendix A). These concerns can be related to retaining open space, since people associate change from public to private ownership as a precursor to development, especially where landownership is intermixed between the PNF and private ownership.

The PNF faces challenges in managing land parcels that are not contiguous with the majority of the PNF. Illegal uses such as unauthorized OHV use and trash dumping make meeting responsibilities for managing such parcels for “wildland” character difficult and expensive.

It is possible that land exchanges or acquisition through the Land and Water Conservation Fund and Forest Legacy programs may be used as a tool by the PNF to retain or increase land in “open” condition, however, management concerns would need to be addressed. Demand is also likely to increase for potential land exchanges for development or for associated utilities and access.

Commodity/Consumptive Uses

Commodity/consumptive uses have played a major role in public land management throughout the area of assessment. National studies show, however, that land uses such as livestock grazing, timber harvest, and mining are being slowly succeeded in policy and management by an emphasis on non-consumptive uses (Davis 2001). Available information from the PNF only partly substantiates these national trends. Permitted Animal Unit Months ¹⁰(a calculated number that reflects the different needs of cows, cows with calves, yearlings, etc.) ranged from 56,700 (2003) to 164,400 (2007) over the period from 1998 to 2007 (Forest Service 2008b). Over the same

¹⁰ Animal Unit Month (AUM) - The unit of measure of the feed required for an animal unit (which is defined as a mature cow weighing 1,000 lbs. or its equivalent) on the range for 1 month. This is further defined as 800 pounds of air-dried forage.

period of time, actual use varied from 53,600 (2003) to 146,000 (2001). Timber harvest from PNF lands has increased slightly in recent years.

Livestock Grazing: In fiscal year 2002, 7,750 operators were permitted to graze livestock on a total of about 95 million acres of available FS-administered land nation-wide (Vincent 2008).¹¹ As Davis (2001) notes, the number of permits issued for livestock grazing on public lands has decreased slightly overall in recent years; the PNF mirrors this trend. Grazing permits are usually 10 year term permits. The 1986 PNF Land and Resource Management Plan identified 977,000 acres as being capable and suitable for livestock grazing and this acreage has remained relatively stable. In 1986, the PNF issued 57 grazing permits. In 2008, 54 permittees were issued a total of 60 permits (Forest Service 2008b).

Forest Products and Timber Production: The goal of forest management on the PNF is to achieve and maintain forest health, and achieve resource benefits such as fuels reduction in the WUI and ecosystem restoration. Commercial products from these activities include sawtimber, small-diameter wood, and fuelwood. Permits in 2000 for both small-diameter wood (1,562 ccf, hundred cubic feet) and commercial fuelwood (1,575 ccf) have increased since 1990; there have been commercial fuelwood contracts every year since 1990 on the PNF.

From 1986 through the 1991, the PNF issued seven timber sale contracts, selling 7,580 ccf. From 1991 to 2000, there was only one small sale due to the lack of market for the timber in the area. There were three additional sales from 2000 through 2002.

In 2002 a pallet mill opened in Phoenix and one in Ash Fork in 2007; these mills provide a market for forest products and timber sales increased slightly. Additionally, in 2003 the Healthy Forest Restoration Act and Healthy Forest Initiative were passed to assist the national forests in achieving fuels reduction. This was at approximately the same time as a peak bug kill on the PNF. During the period from 2003 through the 2nd quarter of 2008, the PNF issued 22 timber sale contracts for 39,021 ccf. Much of this volume was in salvage timber sales as fuel reduction (Forest Service 2008c). Current levels are now expected to stabilize at about 3,600 ccf per year.

The need for fuels reduction will continue as beetle-killed pines increase the potential for catastrophic wildfires, ongoing drought is likely to continue and the number of people living in the PNF wildland-urban interface increases. Timber sales are expected to continue in the Camp Wood, Mingus Mountain, and Prescott Basin ponderosa pine areas but at a slightly lower level to maintain lowered tree densities. Opportunities for fuel reduction and restoration using timber management are limited to areas of gentler slopes mostly near WUI areas. Operability in other areas, such as the Bradshaw Mountains, is often limited due to steep slopes.

From 2001 through 2nd quarter of 2008, the PNF issued 7,428 firewood permits, trending upward from 679 in 2001 to 1,207 in 2007. The PNF also issues 450 Christmas tree permits annually (Forest Service 2008c). Illegal timber cutting is a common infraction. The Law and Regulations Offense Statistics (Forest Service 2005a) reported that there were 326 incidents of illegal cutting or damaging trees or other forest products between 1995 and 2005. This type of activity appears to be trending upward with an average of 33 incidents per year reported for the period between 1995 and 2004 and 123 occurring in 2005 (Forest Service 2005a).

¹¹ Data given are the most recent available.

Mining: Currently, mining activities on the PNF include flagstone, recreational gold placer mining, and one permitted limestone operation. In addition, there are 1,800 active placer¹² claims and 1,484 active lode¹³ claims with 10 tunnel site claims. Claims can be up to 20 acres per placer or lode claim. Saleable¹⁴ permits have decreased from an annual average of 60 issued between 2003 and 2005 to 37 permits in 2007 (USDI 2008).

Recreation Use

Increased population growth in Yavapai County has the potential to put a higher demand on PNF recreation opportunities such as camping areas and trails. If not properly managed, overcrowding and resource damage could occur in some areas. With increasing demand, and subsequent crowding, wilderness use could increase as people seek new areas to recreate. Displacement of recreation users could occur and wilderness use could increase. Over the last two decades motorized vehicle recreation use has become popular and has increased on the PNF. Increases in retirement age citizens and seasonal visitors may, in turn, increase demand for age specific recreation opportunities such as a shift to more motorized recreation or a desire for quiet recreation that is less remote.

Unmanaged recreation has also been identified by the FS as one of four “key threats” to the nation’s forests and grasslands. As participation in outdoor recreation increases, the FS predicts that recreation pressure on undeveloped areas in most of the Southwest and Rockies regions will be heavy. Much of this pressure can be traced back to increasing population trends throughout the West. The use of OHVs (discussed below) is seen as a major component of unmanaged use (Forest Service 2005c).

Recreation use has increased steadily throughout the history of the national forests. Over the past few decades, the growth in recreation has been truly extraordinary. Participation in camping has increased from about 13 million people in 1960 to 19 million people in 1965 to almost 58 million people in 1994-95 (Cordell et al. 2004). Nationally, there were 209 million national forest visits in 2001. The forests of the Southwest Region (Region 3) received 19.5 million visits (Forest Service 2001e).

The PNF has a unique mix of climate zones that provide for a “cool zone” relief from the Arizona sun in the summer and a “warm zone” in the winter. This allows for year-round recreation on the PNF (Forest Service 2008e). The PNF recreational niche identifies trail and day use as a primary use by visitors; 50% of these visitors are from within a 20-mile radius. The PNF had 771,772 annual visitors in 2002 (Kocis et al. 2003). Primary recreational activities on the Forest include hiking/walking, overall relaxation, nonmotorized activities, fishing and wildlife viewing. Driving for pleasure is a common use on the PNF; NVUM data reported that 20% of those surveyed participated in this activity with 5% of respondents reporting driving for pleasure as their primary activity (Kocis et al. 2003).

¹² Mining of material from alluvial deposits (i.e. panning). Deposits in unconsolidated material and many nonmetallic bedded or layered deposits, such as gypsum and high calcium limestone, are also considered placer deposits.

¹³ Deposits in veins or well defined boundaries.

¹⁴ Saleable mineral materials include common variety of sand, stone, gravel, pumice, pumicite, clay, rock, and petrified wood.

Developed Recreation Sites: The PNF has eighteen developed sites where facilities are provided and most have a fee associated. The most highly used developed areas are Granite Basin Recreation Area, Thumb Butte, and Lynx Lake Recreation Area, the latter receiving by far the most visitors of any developed site on the PNF. Lynx Lake Recreation Area has three fee areas which have received over 65,000 visitors annually for the past 5 years. Total visitation at developed sites, including campgrounds, trailheads, and day use areas, has remained relatively stable in recent years ranging from 204,900 in 2005 to 219,300 in 2004 during the period between 2002 and 2007 (Taken from information on fees paid).

Dispersed Recreation Sites: Designated dispersed sites are found in the Prescott Basin, surrounding the town of Prescott. These are areas where no fee is required, there are no facilities; and visitors may only camp where posted. In the area outside the Prescott Basin dispersed recreation use is more flexible. Camping is allowed for up to 14 days without a permit or fee and does not need to be in a designated area.

While recent NVUM data is not yet available, signs of increased use include visual observations at designated dispersed campsites as well as many popular dispersed sites, such as on Mingus Mountain. These sites show signs of compaction and the site's disturbance footprint appears to be expanding with increased use. In addition, most, if not all designated dispersed sites are full every weekend in the summer. This indicates that demand may be nearing capacity.

OHV Users: The 2005 Travel Management Rule provides regulations to help manage OHV use on the National Forests. Implementing the rule, forests would establish a system of roads, trails, and areas designated for motor vehicle use and would prohibit OHV use that is off the designated system or inconsistent with the designations. The PNF has restricted cross-country travel by OHVs since 1989 (Forest Service 2004) and is currently working on issuing a motorized vehicle use map that will implement the 2005 Travel Management Rule. Forests adjacent to the Prescott (Tonto, Coconino, and Kaibab) are also implementing the 2005 Travel Management Rule.

On public lands throughout the country, the use of OHVs has increased in popularity and is now a major concern to many forest managers. Between 1982 and 2000, OHV users increased more than 109% nationally (Cordell et al. 2004). In 1995, a GAO study found OHV use on federal lands to be generally under-managed.

OHV recreational use state-wide has increased by roughly 350%, or nearly 39% per year since 1998 (Arizona State Parks 2003). During this time funding for OHV recreation has grown by an average of 4%, essentially only keeping pace with inflation. The funding and OHV recreation management is not keeping pace with the dramatic increase in OHV recreation in Arizona.

According to Arizona State Parks (Arizona State Parks 2003):

- 27% of households in Yavapai County are OHV users; state percentage is 21%.
- 9% of all Arizona OHV trip destinations for past 12 months were to Yavapai County
- 1,195,742 OHV Recreation Days occur annually in Yavapai County; 10% of Arizona's total
- 416,824 OHV Recreation Days (35%) are from Yavapai County residents.
- 778,918 OHV days (65%) are from other Arizona residents traveling to Yavapai County

According to FY2002 NVUM, 5% of PNF visitors identified OHV travel as their primary activity but only about 1% used designated OHV facilities, such as Alto Pit play area. Current NVUM data is being collected but is unavailable at this time to determine trend. However, based on State Parks data above, it is likely that OHV use is increasing on the PNF. This assumption is supported by observations of areas such as Crown King, where OHVs clog roads and trails on summer weekends.

Additionally, the increasing land development near Phoenix means that less land is available with more people trying to use it. The sheer pressure of numbers as well as new restrictions in Maricopa County for fugitive dust control (Arizona State Parks 2007) appears to be bringing more OHV users to the PNF.

As numbers of OHV users increase, the PNF will likely see an increase in user conflicts (motorized vs. nonmotorized). Demand for additional designated motorized trails could also increase when neighboring Forests implement prohibition of cross-country travel by OHVs.

Wilderness Users: With the Wilderness Act of 1964, Congress laid the foundation for a National Wilderness Preservation System comprised of federal lands, “where the earth and its community of life are untrammelled by man, where man himself is a visitor and does not remain”. Wilderness areas are designated by Congress and are generally protected from commercial enterprises, road construction, mechanical vehicles, and structural development.

As a result of these management requirements, wilderness areas are open to some uses (e.g., primitive camping, backpacking, horseback riding, hunting, and fishing) and closed to others (many extractive uses, bicycling, and off-highway vehicles). For those reasons, the decision to designate a roadless area as Wilderness can be controversial. However, many forest users value the solitude and isolation, closeness to nature, and self-reliance experienced in wilderness areas. Activities available in wilderness or primitive areas attract millions of visitors nationally.

The Forest has eight separate wilderness areas, comprising almost 116,000 acres. NVUM data for the PNF included 147 interviews over 32 days. From this information, there were 60% male and 40% female visitors with 97% in the white race/ethnicity category. The largest age group of visitors (25.4%) was 51-60 years old. PNF annual data collected for the wilderness areas show the Granite Mountain wilderness area receiving by far the highest visitation, likely due to the close proximity and easy access from the city of Prescott. Voluntary sign-in forms for Granite Mountain counted 5,644 visitors in 2006 and 4,474 visitors in 2007; however, it is estimated that only 10-15% of visitors sign in. Overall, the number of visitors to Wilderness has been fairly stable over the last 4 years that data has been collected by the PNF.

Wildlife Users: Wildlife viewing is a more common activity than fishing or hunting on the PNF. NVUM data from 2002 show that 60% of the visitors interviewed participated in some sort of wildlife viewing activity; however, only 6% described it as their primary activity. Approximately 9% of visitors interviewed fished (with nearly all of those describing it as their primary activity), and about 6% hunted. Five percent used a developed fishing site or dock (Kocis et al. 2003a). The demand for wildlife viewing opportunities on the PNF is expected to remain stable.

How do trends in Land Use and Users affect the Sustainability of the PNF contribution to the Social condition?

- o National Forest lands account for 38% of land in Yavapai County. With other agencies and tribal ownership providing about 37% ownership, private lands make up only 25% of the County. A high rate of population growth combined with limited lands for development is a noteworthy characteristic of this social environment that also sensitizes residents to land development, land exchange, and land use issues (Adams-Russell Consulting 2006).
- o Additional utility corridors have been implemented (e.g., Transwestern pipeline) and are being proposed (electric services to Yeager Estates and Sycamore Ranch). Increasing numbers of utility and transportation corridors could increase habitat fragmentation for game species like pronghorn and could affect viewsheds.
- o Access to the PNF may be directly affected by increases in population and development. Residents who live near the Forest boundary may create social trails and unintentionally create resource damage. In addition, access for Forest management may be affected as lands change hands and informal agreements to use roads that cross land under non-Forest Service land ownership may require obtaining easements.
- o The PNF, local governments and individuals have interest in retaining lands as open space in areas surrounding communities, especially in the Verde Valley. Land exchanges can be viewed either as a tool to enhance open space retention, or as a means of releasing public land for development and community growth.
- o Timber harvest is carried out primarily to achieve fuel reduction near the wildland-urban interface, to improve habitats, or to restore ecosystems. The need for fuels reduction will continue as beetle-killed pines increase the potential for catastrophic wildfires and the number of people living in the WUI increases. In addition, as concerns about smoke management persist, the PNF may need to address fuel build-up using mechanical means in addition to prescribed fire.
- o Due to population growth in assessment area there is potential for higher demand for PNF resources, especially those related to recreation. Over the last two decades motorized recreation vehicles have become popular; consequently their uses on the PNF have increased. If not properly managed, overcrowding and resource damage could occur in many areas. Increases in retirement age citizens and seasonal visitors may, in turn, increase demand for age specific recreation opportunities such as desire for walking trails near population centers or providing an increased number of designated dispersed camping areas. (Cordell et al. 2002).

Community Engagement with Prescott National Forest

The purpose of this section is to describe the relationship between the PNF and its neighboring communities of place and interest and to identify whether current trends may lead to a need for change. Knowledge of local communities is of interest to the PNF due to the importance of the reciprocal relationship that exists between the Forest and these communities. In addition, in some instances, there are legal authorities that require interaction with external communities.

Communities of Interest and Forest Partnerships

Since Congress set aside the Prescott Forest Reserve in 1891, communities within and adjacent to the PNF boundary have had close relationships with the Forest. Traditionally, the PNF served as the source of natural resources for families and employment. Uses such as mining, timber harvest, and grazing have relied upon the forests. While these uses have decreased in number and size,

some communities still have this relationship. The recreation and open space the PNF provides is used by communities to draw newcomers to settle in the area. The Forest Service manages watersheds that contribute to surface water reservoirs and aquifers. PNF recreational opportunities, open space, and attractive viewsheds also contribute to the quality of life enjoyed by residents of Yavapai County.

Government to Government Relationships

Tribal use of National Forest lands includes activities such as gathering resources for traditional medicines, ceremonial items, craft items, and other traditional uses, and collecting resources such as pinyon nuts and fuel wood for personal use. Some tribal members relate experiences where increased housing near the PNF has blocked access to traditional areas (Forest Service 2008a)

In 2003, the National Tribal Relations Task Force recommended a legislative proposal to make provisions for traditional tribal use on Forest Service land. These provisions include: (a) authorization to provide Forest products free of charge, when used for traditional and cultural purposes, (b) authorization to temporarily close from public access National Forest System land for traditional and cultural purposes, and (c) an exemption from the Freedom of Information Act to protect confidential information relating to reburials, sites, or resources of traditional or cultural importance. The Farm Bill authorizing this proposal was enacted on May 22, 2008 as Public Law 110-234.

The PNF Heritage program works closely with local Tribes to consult on projects, and to work through the FS processes to accommodate special needs. While the PNF routinely consults with the Hopi Tribe, the Hualapai Tribe, the Yavapai Prescott Indian Tribe, the Yavapai-Apache Nation, the Fort McDowell Indian Community, and the Tonto Apache Tribe, more could be done to develop a relationship that allows people to more freely interact and share their needs and concerns. Individuals from various tribal entities assist the PNF as volunteers, but there is no formal partnership agreement that addresses the relationship with the PNF. This trend is expected to remain stable. Engaging the tribes in forest planning could provide a means to improve relationships.

Local, State, and Federal Agencies

Partnerships have been developed with local communities, county governments and state and federal agencies. These partnerships provide expertise, expanded understanding of forest management, and enhance the ability of finding grant funding for activities in the PNF. Examples include the following:

- **Wildlife Habitat**--The PNF cooperates with state and federal agencies, adjacent forests, and non-profit conservation organizations to improve wildlife habitat. An example is the current project to improve habitat for pronghorn on the PNF in conjunction with Bureau of Land Management (BLM) and private lands. Participating agencies include Arizona Game and Fish, Bureau of Land Management, and Tonto National Forest.
- **Wildfire Protection**--Cooperative efforts are focused on coordinating wildfire protection and prevention including fuels reduction programs through the Yavapai Communities Wildfire Protection Plan. Agencies participating include Yavapai County; Central Yavapai Fire District; City of Prescott; Volunteer Fire Departments of Crown King, Mayer, Cherry, Skull Valley, Groom Creek and others; Bureau of Land Management (BLM); Bureau of

Indian Affairs; Arizona State Land Department Division of Forestry; and multiple Homeowners groups.

- Community Planning--The PNF participates with the Verde Valley Regional Planners Group in sharing information of interest to those in the Verde Valley, interacting with government entities, and discussing land use concerns related to the Verde Valley Regional Land Use Plan. Issues of interest include transportation, open space, housing, and interaction with land management agencies. Representatives include Yavapai County; City of Sedona; Town of Camp Verde; Town of Clarkdale; City of Cottonwood; Town of Jerome; Communities of Cornville, Beaver Creek, Big Park, Red Rock/Dry Creek; and the Yavapai Apache Nation.
- Heritage--The Heritage Site Steward Program coordinates volunteers as part of an agreement between the PNF and the State Historic Preservation Office.
- Trails--Yavapai County provides equipment and materials to assist with construction of selected trail heads such as the Aspen Creek trail head.

Trends for accomplishing forest management with agencies are expected to remain stable or increase slightly depending on issues to be resolved and funding opportunities.

Interest Groups

Special interest groups provide hours of needed work that might not be done otherwise. Information for Fiscal Year 2007 indicates that approximately 30,500 hours of work were accomplished by individual or group-sponsored volunteers (Forest Service 2007c). Accomplishing work with groups and individuals helps to build relationships with people and provide an avenue for information exchange and increased understanding of aspects of forest management. An overview of activities and interest groups is provided below.

Recreation-related interests

- Many groups have assisted in trail management in some way. The Back Country Horsemen, Yavapai Trails Association, and Arizona Wilderness coalition have cooperated with the PNF to construct and maintain trails and trailheads in the Granite Mountain and Juniper Mesa Wilderness.
- The Arizona Off-Highway Vehicle Coalition participates in maintenance and construction of motorized trails including trail construction at Alto Pit and in the Williamson Valley area.
- A group of retired individuals called the Over the Hill Gang maintain and construct trails as volunteers.
- Arizona Volunteers Outdoors recently did trail maintenance and construction near Lynx Lake at Salida Gulch.
- Volunteers have acted as Campground Hosts at all developed campgrounds on the PNF for years. Others volunteer to clean and check on designated camp sites (dispersed) within the Prescott Basin.

Trash

- Stewards of Public Lands, Upper Agua Fria Watershed Partnership, Paulden Area Community Organization, and others have organized trash pick-up days including the use of heavy equipment and disposal of tons of waste from the PNF.

Fire prevention

- The Prescott Area Wildland Urban Interface Commission promotes wildfire prevention, shares the value of restoring controlled fire to ecosystems with others, and provides information and assistance to homeowners to do fuel reduction within the Wildland Urban Interface.
- Individual volunteers assist in finding campfires that are left burning and with fire prevention education, especially during periods of extreme fire danger.

Heritage

- Volunteers coordinated through the Site Steward Program visit known cultural resource sites to record potential changes or additional needs for protection.
- The PNF has an agreement with Prescott College, Yavapai College, and Sharlot Hall museum to maintain and operate the Walnut Creek Station—an historic ranger station that sponsors educational sessions related to cultural resources.

Trends indicate that the number of volunteers is increasing; total volunteer hours worked increased by 6% from Fiscal Year 2006 to 2007 (Forest Service 2006g and 2007c). It also appears that with the increasing interest in management of the PNF, organized groups have specific activity-oriented interests. For example, people are not only interested in trails, but separate interest groups focus on horseback riding, OHV riding, 4-wheel drive vehicle use, hiking, or mountain biking.

Challenges related to Community Engagement

Information gathered on the nature of the relationships between the PNF and communities reveals a complex mix of both formal and informal networks with interests and issues regarding forest management. In addition to wider public concern for issues such as water availability, open space, wildlife protection, and fire prevention (Appendix A), a growing number of special advocacy groups are seeking to participate directly with the PNF Forest Plan Revision and implementation activities.

Volunteers

Numbers of volunteers and organized interest groups have been increasing as a result of two demographic changes: 1) increase in population in Yavapai County and 2) higher proportion of people within the county over the age of 65 compared to the state of Arizona (Tables 1 and 2, pp. 16 and 18). Volunteer demographics indicate that approximately 80% of current volunteers are age 55 and older (Forest Service 2006g and 2007c)

People 55 and older may have more time to participate in PNF natural resource management. Work by Komar and Shultz (Confab, 2007) suggests that there are more individuals in communities that would like to be involved as volunteers to assist in Forest management activities than have been signed up as volunteers. Examples of areas where people would like to help include increased participation in trail planning, maintenance, and construction; addressing litter and illegal trash dumping; and developing and providing environmental education, especially for children. While the Forest has a relatively large number of volunteers assisting with land

management, it lacks the capacity to coordinate a volunteer program of the size that communities could potentially provide.

Wildland Urban Interface

The Prescott Area Wildland Urban Interface Commission (PAWUIC), begun in 1990, has been successful in raising awareness of the need for fuel reduction in the Wildland Urban Interface (WUI) as well as promoting the need for controlled burns as a fuel reduction method and restoration tool. The PNF participates with PAWUIC members in fuel reduction coordination and joint training, as well as wildfire response coordination and ensuring use of standardized fire-fighting equipment.

Currently, controlled burns are the most cost-effective and ecologically compatible method of decreasing fuels and thus decreasing wildfire risk in areas surrounding communities. Given housing increases of 49% between 1990 and 2000 in Yavapai County, many of these structures lie within the WUI. In addition, with the movement of people from other places to Yavapai County (32% of the 56% increase in population from 1990 to 2000), some newcomers have little understanding of the risks of living in the WUI. It appears that smoke aversion and the risk of escaped prescribed fires are more problematic to them than the risk of wild fire. With its emphasis on working with homeowners associations, PAWUIC assists in making people aware of risks. However, issues related to smoke management and prescribed burning will persist.

Communication of Appropriate Forest Uses

Changing population demographics increase the need to provide information and other opportunities to help newcomers and visitors understand national forests and the resources associated with them. With the movement of people to Yavapai County and the increased recreational activities from Phoenix visitors, many do not understand the need to protect resources and are not knowledgeable of the rules that limit or mitigate effects of PNF's uses. Providing effective communication will continue to be a challenge.

How Does Community Engagement affect the Sustainability of PNF Contributions to the Social Condition?

- o The PNF recognizes the importance and value of Tribal relationships. As the state's population grows, so will issues of importance to area Tribes. For example, access to important areas is being impacted and may need to be addressed. There will be a corresponding increase in the need for communication and cooperation between the PNF and Tribes.
- o Communities within and surrounding the PNF will continue to interact with and influence management of the PNF. This relationship may intensify as the population grows and more demands are placed on the PNF's resources. Issues related to smoke management and prescribed burning will persist.
- o Although the PNF will continue to provide the resource base for activities and uses, the agency's ability to meet needs of users is limited. Numbers of volunteers are increasing and the PNF's capacity to coordinate volunteer programs may be exceeded. The PNF could enhance its process of working with partners and volunteers to increase its capacity to provide some services.
- o Changing population demographics increase the need to develop improved relationships between the PNF and communities in order to provide information and opportunities for newcomer and visitor understanding of national forests and their resources.

II. ECONOMIC CONDITIONS AND TRENDS

The description and analysis of the economic environment of the PNF is based on the examination and analysis of existing data collected and published for a variety of purposes. The bulk of the data used in this document was obtained from Socioeconomic Assessment of the Prescott National Forest (University of Arizona 2005). Data from this report is summarized in this document and supplemented where appropriate. The PNF lies primarily within Yavapai County and a small portion of Coconino County. The functional economic area impacted by management of the Forest and analyzed in this report is Yavapai County.

The Economic Conditions and Trends section of this document will focus on four areas:

- o **Employment**
- o **Income**
- o **Payments to States**
- o **Economic Contribution of the PNF**

The Forest evaluated the sustainability of each of these four areas by determining if the trend was stable or changing and if the Forest can or cannot influence or support the trend. Additional information about the PNF Economic Contribution Analysis Methodology is in Appendix B.

Historical Context

Arizona has undergone a relatively rapid transformation over the past century. During the first half of the century, mining, agricultural, and ranching industries dominated the economy. The state's population has increased dramatically following World War II and continues to increase today. Economic dominance has shifted to a mix of urban and rural industries that cover nearly every sector¹⁵. Industrial diversity increased from the 1970s until it peaked in the mid-1980s and has now fallen well below other states to 0.45 on the Industrial Diversity Index¹⁶ (University of Arizona 2005).

Per capita¹⁷ personal income in Arizona has generally followed national trends, although it has shown greater fluctuation in the short term. Labor force¹⁸ growth has slowed since the 1970s

¹⁵ Sector: A distinct subset of a market, society, industry, or economy, whose components share similar characteristics. All corporate and noncorporate private entities organized for profit and certain other entities that are treated as businesses in the national income and product accounts (NIPAs) (U.S. Department of Commerce, Bureau of Economic Analysis). See Appendix B for additional information regarding sectors.

¹⁶ An index of 1.0 represents a state of industrial diversity that is equal to the United States as a whole. Although Arizona's economy is no longer limited to agricultural and mining interests, it is still restricted in its industrial array. By contrast, states like Texas and Illinois have indexes near 0.8, suggesting a much broader industrial foundation.

¹⁷ Per capita personal income is defined as the average obtained by dividing aggregate income by total population of an area

¹⁸ The labor force includes all people classified in the civilian labor force, plus members of the U.S. Armed Forces (people on active duty with the United States Army, Air Force, Navy, Marine Corps, or Coast Guard).

when it peaked at an annual rate of 3%. It slowed to 2% in the 1980s and to 1% in the 1990s. The impact of education on economic standing has increased with the wages of college educated workers increasing dramatically. Since 1975 the increases in wages for college-educated workers is 85% greater than the wage increase for workers with only a high school education. Poverty¹⁹ rates have remained relatively stable over the last three to four decades, remaining between 14 to 16% (University of Arizona 2005).

Mining represented 3% of the State's per capita income in the late 1960s, but had dropped to a fraction of a percent by 2002. Agriculture also represents less than 1%. Manufacturing and trade/utilities have either remained static or dropped slightly in the second half of the past century. The service industry however, jumped from 13% in 1969 to more than 20% in 2002. This trend is due largely to the increasing urbanization of the state, with 88% of the population living in urban areas according to the 2000 Census. The concentration of economic activity in metro areas is reflected in a per capita personal income of \$27,285 compared to \$18,992 in non-metro areas, a 30% differential, up from 23% in 1970 (University of Arizona 2005).

The PNF has provided economic stimulus to the local economy through both consumptive and non-consumptive uses. Consumptive uses include timber harvest, domestic livestock grazing, and mineral materials such as sand and gravel, dimension stone, and landscaping rock. Residents and visitors hunt, fish, and gather plant materials for recreational, cultural, and subsistence uses. Non-consumptive recreational uses such as hiking, camping, and sightseeing attract visitors stimulating the tourism industry. These same amenities also attract new residents as well as help to maintain the long-term resident population. The National Forest provides important open space and respite to residents of a part of the state that has experienced population growth rates that far exceed state and national averages.

¹⁹ The Census Bureau uses a set of money income thresholds that vary by family size and composition to detect who is poor. If the total income for a family or unrelated individual falls below the relevant poverty threshold, then the family or unrelated individual is classified as being "below the poverty level."

Employment

Current condition

Total employment in Yavapai County was 70,286 in 2000. Wage and salary employment²⁰ accounted for nearly 74% of that. Farm proprietor self-employment²¹ was 0.8%. The sector providing the largest portion of employment was services, followed by retail trade, and government. Services and retail trade contain the industries most likely to be impacted by recreation activities on the Forest. The sectors for manufacturing and agricultural services, forestry, fishing and other represented 6% and 1% of total employment respectively and contain the industries most likely impacted by timber and grazing programs. Mining represented 2% of total employment and is the sector most likely impacted by minerals related activities on the Forest (University of Arizona 2005).

The unemployment rate was 3% in Yavapai County in 2004, compared to 5% in the State of Arizona. Within the communities of Yavapai County, the highest average unemployment rate occurred in Chino Valley with 4% and the lowest in Sedona with 2% (University of Arizona 2005).

Trends

Table 6 displays employment for the years 1990 and 2000, as well as the percentage of employment by type. Employment growth between 1990 and 2000 exceeded that of the State as a whole. The greatest growth occurred in wage and salary employment, which increased by 75% compared to 47% for the State. Farm proprietor employment²² in Yavapai County increased by a modest 4% compared to a decline state-wide. Concurrently, non-farm proprietor income increased by 45% over the ten-year period, which was about 10% lower than that experienced state-wide (University of Arizona 2005).

²⁰ Wage and salary employment, also referred to as wage and salary jobs, measures the average annual number of full-time and part-time jobs in each area by place-of-work. All jobs for which wages and salaries are paid are counted. Full-time and part-time jobs are counted with equal weight.

²¹ Farm self-employment is defined as the number of non-corporate farm operators, consisting of sole proprietors and partners. A farm is defined as an establishment that produces, or normally would be expected to produce, at least \$1,000 worth of farm products, crops, and livestock in a typical year. Because of the low cutoff point for this definition, the farm self-employment estimates are effectively on a full-time and part-time basis. The estimates are consistent with the job-count basis of the estimates of wage and salary employment because farm proprietors are counted without regard to any other employment.

²² Nonfarm proprietor's employment consists of the number of sole proprietorships and the number of individual business partners not assumed to be limited partners. The nonfarm self-employment estimates resemble the wage and salary employment estimates in that both series measure jobs, as opposed to workers, on a full-time and part-time basis. However, because of limitations in source data, two important measurement differences exist between the two sets of estimates: 1) the self-employment estimates are largely on a place-of-residence basis rather than on the preferred place-of-work basis; 2) the self-employment estimates reflect the total number of sole proprietorships or partnerships active at any time during the year, as opposed to the annual average measure used for wage and salary employment.

Table 6. Total Employment and Employment by Type

Location	Yavapai County	Arizona
Employment		
1990	42,555	1,909,879
2000	70,286	2,819,302
% Change	65%	47%
Wage and Salary Employment		
1990	29,717	1,607,628
2000	51,881	2,355,299
% Change	75%	47%
Farm Proprietor Employment		
1990	509	8,027
2000	527	7,572
% Change	4%	6%
Non-Farm Proprietor Employment		
1990	12,329	294,224
2000	17,878	456,431
% Change	45%	55%

Figures 6 and 7 display the change in industry employment from 1990 to 2000. The sector showing the greatest rate of growth was wholesale trade, which increased by 127%, followed by the agricultural services, forestry, and fishing sector (92%); construction (88%); finance, insurance, and real estate (81%); and services (80%). The mining sector was the only one to experience a decline in the state, however within Yavapai County, employment in the mining sector increased by 7% (University of Arizona 2005).

Figure 6. Yavapai County Employment by Industry, 1990-2000

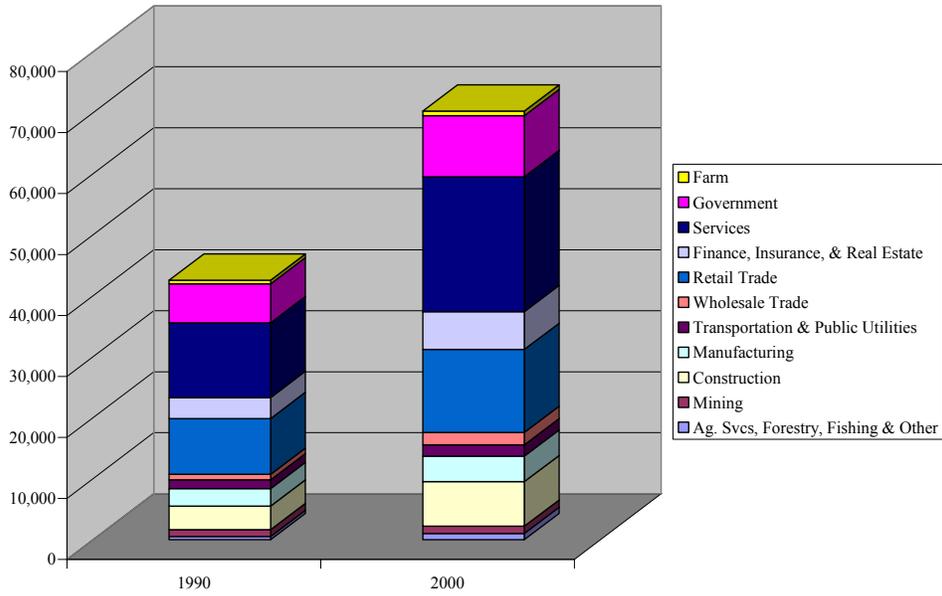
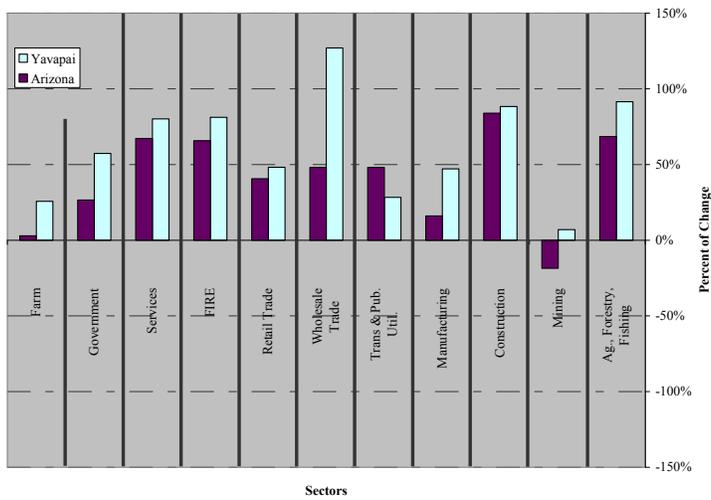


Figure 7. Percentage Change in Industry Employment in Yavapai County and Arizona, 1990 to 2000²³

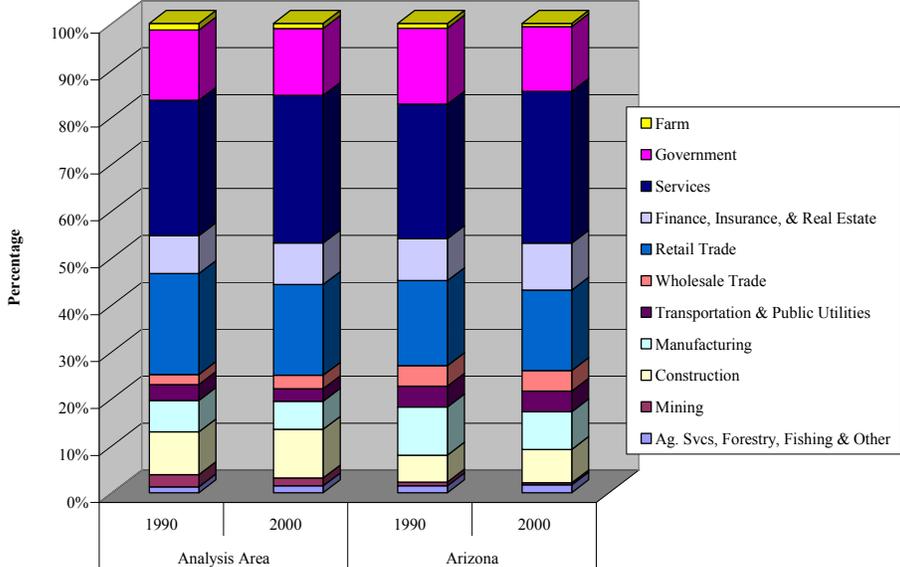


²³ Farm proprietors' income is that earned by farm enterprises (farm owners). Farm industrial income, as mentioned here, is from those who work in farming (farm laborers) (Headwaters Economics 2008).

Figure 8 shows that the distribution of employment between industries in Yavapai County has remained relatively constant. Small decreases in the share of total employment occurred in the mining, manufacturing, transportation and public utilities, retail trade, government, farm sectors. The share of all other sectors increased slightly. The direction of change in all sectors reflected that of the state. At 31%, the services sector represents a largest portion of employment within the analysis area followed by retail trade (University of Arizona 2005).

The average unemployment rates from 1980 through 2004 ranged from a high of 8% in 1980 to a low of 2.8% in 2000. The average was 4%, 1% lower than the state average of 5% (University of Arizona 2005).

Figure 8. Yavapai County and Arizona Industry Distribution: 1990-2000



Employment Sustainability

As the above described trends indicate, the analysis area, along with the United States as a whole, is continuing to become less and less dependent on extractive industries (Power 1996, Sonoran Institute 2004). However, communities such as Bagdad that have mining as their primary economic base do not reflect this. As dependence on extractive industries has been associated with slower economic growth (Rasker 2006), this is a positive trend for the economy overall and for economic diversity, although troubling for individuals currently employed in these industries.

Service-related industries now employ the most people in the area, followed by retail trade, and government. It should be noted that service industries include high-paying (e.g., medical, legal,

real estate), as well as lower-paying (e.g., food industry servers, landscapers) employment. These categories of service workers cover a range of income. Services and retail trade contain the industries most likely to be impacted by recreation activities on the PNF.

Across the West, significant levels of employment growth are expected in service related industries (Sonoran Institute 2004). Growth in tourism experienced from 1990 to 2000 in Yavapai County is expected to continue, stimulating employment in tourism related industries. Other service sectors are also expected to increase. While the rural population exceeded the urban population in 1980, in 1990 that situation has changed to a majority of urban residents.

Additionally, Yavapai County has experienced high levels movement into the area, and the portion of the population age 65 and over is increasing at a higher rate than at the state level. The migration of retirees, and particularly those who take up residence in the wildland-urban interface, will place new demands on the PNF. The aging of the population in the assessment area may be expected to place new demands on the PNF, since recreational uses and interests may change. Aging populations present new challenges and opportunities for employment and government services, 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 (Wan He et. al 2005). This increasingly urbanized, older population will likely stimulate increased employment for skilled and construction related labor.

Income

Current Condition

The 2005 per capita personal income (PCPI) of Yavapai County was \$24,521, ranking 6th in the state. This PCPI represents 82% of the state average and 71% of the national average. However, the average annual rate of PCPI growth has been quite low compared to other counties over the past decade; ranking next to last at only 3.5 % compared to 4% for the state and 4% for the nation (US Department of Commerce 2007).

Approximately 12% of the county's population had incomes below poverty level in 1999, below the average for the State (14%). Table 7 below, displays the percentage of the population below poverty level by race across the analysis area in 1999. The level of poverty is highest among native Hawaiian and other Pacific Islanders, followed by black or African Americans, and American Indians²⁴.

²⁴ For racial and ethnic demographics see Table 3, "Racial/Ethnic Composition by County, and State," in the demographics section of this report. "For a breakdown of race and ethnicity in absolute numbers see race and ethnicity in the demographics section on page 17. US Census poverty estimates compare family income in 1999 to the corresponding 1999 poverty thresholds. Poverty estimates, therefore, are based on family income, not on individual income or on individual, absolute demographic statistics (see Alemayehu Bishaw. 2000. Areas with Concentrated Poverty 1999, Census 2000 Special Reports. U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau)."

Table 7. Poverty Levels by Race/Ethnicity, 1999.

Location	White	Black or African American	Am. Indian & Alaska Native	Asian	Native Hawaiian & Other Pacific Islander	Some Other Race	Two or More Races	Hispanic or Latino
United States	9%	25%	26%	13%	18%	24%	18%	23%
Arizona	10%	20%	37%	12%	16%	25%	19%	25%
Yavapai County	11%	38%	28%	20%	41%	22%	24%	23%

Source: U.S. Census Bureau 2000a

Figure 9 illustrates that the distribution of household incomes in the analysis area is generally reflective of the State. Approximately 12% of individuals have incomes below poverty level (as depicted in Figure 10), which is lower than the State’s average of 14% (Figure 11). However, only 15% of households had incomes of \$75,000 or more compared to 21% for the State (U.S. Census Bureau 2000).

Figure 9. Household Income Distribution, 1999

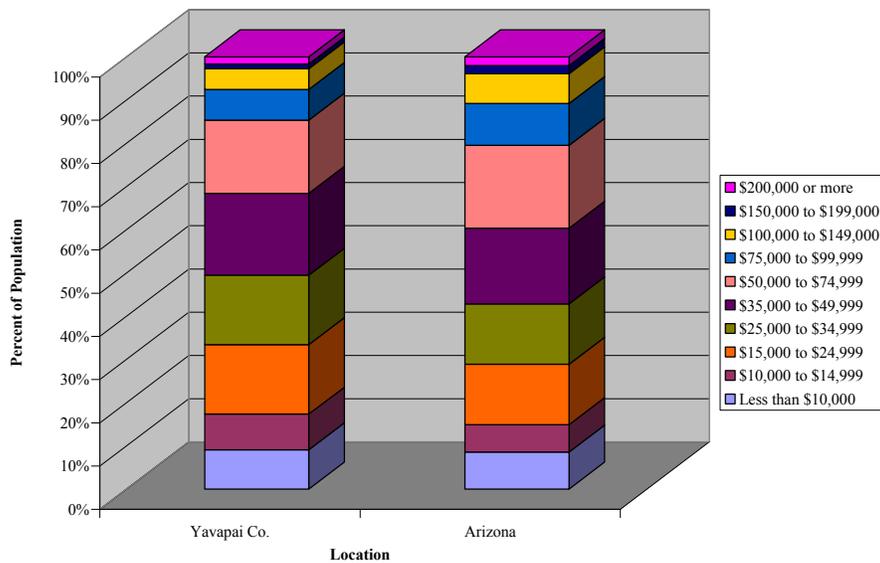
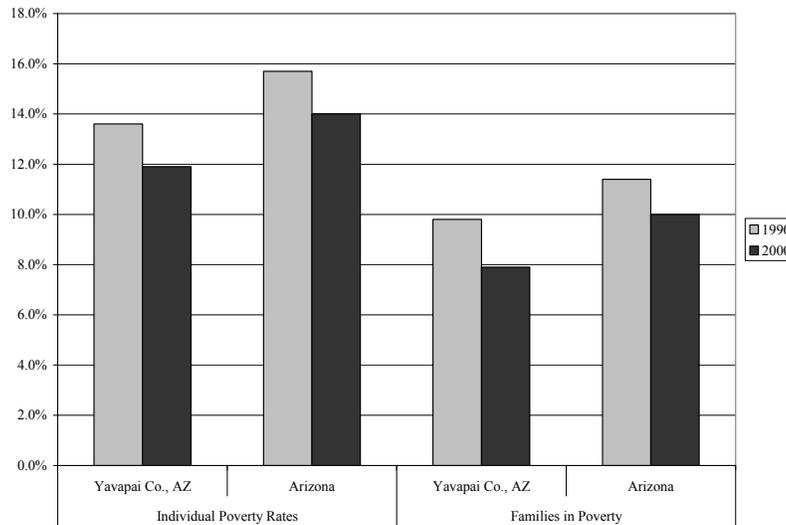


Figure 10: Individual Poverty Rates and Families in Poverty 1990 and 2000

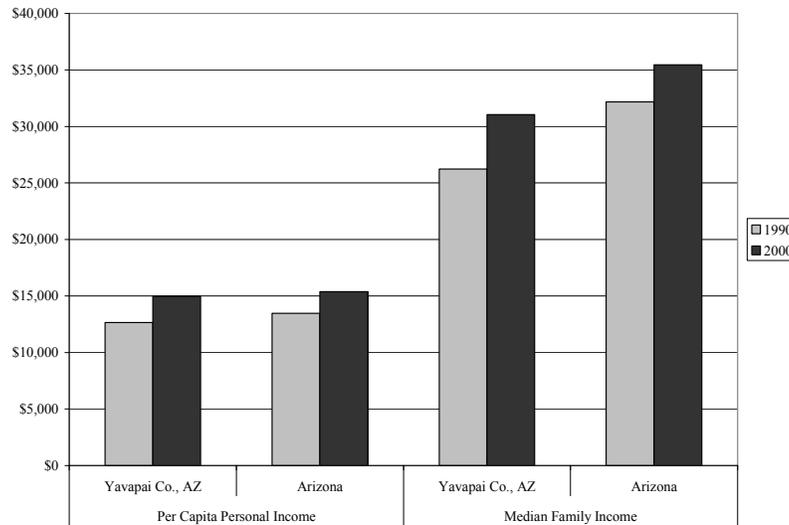


Trends

Arizona’s per capita personal income (PCPI) growth continues to be strong; it nonetheless remains behind Yavapai County as a whole in individual economic status (BEA 2007a and BEA 2007b). Service industries represent the largest portion of employment in the analysis area. However, Yavapai County is also seeing a high influx of retirement-age people, who tend to stimulate high-paying (e.g., medical, legal, real estate), service-related jobs. Additionally, from 1990 to 2000 Yavapai County reported strong increases in tourism related employment, exceeding the state level of growth by over 70% (University of Arizona 2005). When considered in combination, these generally lower-paying, recreation-related (e.g., food industry servers, landscapers) jobs, along with the higher-paying service jobs, are providing a range of income levels for Yavapai County.

Figure 11 displays the per capita personal income and median family income for the county and for the state. Relative increases in per capita and median family incomes were somewhat larger in the county than in the state from 1990 to 2000. Despite these increases however, per capita income was 6% lower than the state average. In addition, median family income was 18% lower than the state average as of 2000. A lower portion of both individuals and families were in poverty within the county when compared to the state. Approximately 12% of individuals and 8% of families in Yavapai County had incomes below poverty level compared to 14% and 10% respectively for the state (University of Arizona 2005).

Figure 11. Per Capita Personal Income and Median Family Income, 1990 and 2000



Non-labor income for Yavapai County has risen 20% faster than labor income (wages). The term "Non-Labor Income" is also referred to by some economists as "Non-Earnings Income". It consists of Dividends, Interest and Rent (collectively often referred to as money earned from investments) and Transfer Payments (payments from governments to individuals, age-related, including Medicare, disability insurance payments, and retirement) (Confab 2007).

Income Sustainability

Increasing levels of tourism-related visitors will continue to stimulate employment in service industry positions, many related to recreation on the PNF. Although these lower wage, recreation-related jobs may exert downward pressure on per capita and average household incomes, higher-paying service jobs push that average upward. Service industries include high-paying (e.g., medical, legal, real estate), as well as lower-paying (e.g., food industry servers, landscapers) employment, and provide a range of income levels in the analysis area. High-paying service professions, such as health care providers, or real estate professionals, are more likely to have disposable income for high-cost recreation. This range of income may also increase the demand for a greater range of recreational opportunities on the PNF. Additionally, high-income residents may have more leisure time to spend on volunteer activities related to management of the PNF (Confab 2007).

Like the United States as a whole, the population of Yavapai County will likely continue to age as the baby boom generation reaches retirement age. This is exacerbated by high levels of in-migration of retirees seeking the milder climates of the Southwest. The increase in those over the age of 65 will mean that an increasing portion of the population will obtain their income from non-

labor sources, rather than from local employment. Personal current transfer receipts²⁵ in Yavapai County increased by 74% in real dollars between 1995 and 2005. This exceeds the increase state-wide of 72%. Both rates are much higher than the national average of 42% for the same period (BEA 2007c). Many of these transfer payments will likely be obtained from sources outside the local economy, but will stimulate employment and income when spent locally.

The influx of non-labor income into Yavapai County's economy could affect the demand for various services, amenities, and uses of the PNF. Retirees, who take up residence in the wildland-urban interface, will place new demands on the PNF. Retiree income will likely stimulate demand for types of motorized recreation, along with the demand for "quiet" and other quality of life and amenities. Recreational uses and interests may change with the aging of the assessment area population and place new demands on the PNF as proximity to National Forest Lands become part of the values placed on real estate.

As described above under employment, the population of the county is also becoming increasingly urban. This aging and increasingly urban population will drive an increased demand for services. These factors will combine to stimulate increased demand for professional and skilled labor such as health care and construction. Many of these jobs tend to be high wage positions which will push per capita and average household incomes higher. Again, higher income, and more leisure will likely result in greater demand for recreational opportunities on the PNF.

Payments to States

Current Condition

Counties receive Payment in Lieu of Taxes (PILT) to replace tax revenue lost due to the public nature of lands administered by federal agencies (1976 Payments in Lieu of Taxes Act). The amount is based on the amount of acreage administered by certain federal agencies, population, a schedule of payments, the Consumer Price Index, other federal payments made in the prior year, and the level of funding allocated by Congress. These payments are not affected by changes in the Forest Plan.

In addition to PILT payments, counties receive a portion of the revenues generated on National Forest System lands. Historically, counties have received 25 Percent Fund payments. These payments returned 25% of all revenues generated from forest activities, with the exception of certain mineral programs, and were paid based on the number of National Forest System lands within each county. These funds are used for the upkeep and maintenance of public schools and roads. These payments are affected by changes in resource output levels as a result of direction provided in the Forest Plan.

²⁵ Personal current transfer receipts are defined by the Bureau of Economic Analysis as payments to persons for which no current services are performed. It consists of payments to individuals and to nonprofit institutions by Federal, state, and local governments and by businesses. Government payments to individuals include retirement and disability insurance benefits, medical benefits (mainly Medicare and Medicaid), income maintenance benefits, unemployment insurance compensation, veteran's benefits, and Federal education and training assistance. Government payments to nonprofit institutions exclude payments by the Federal Government for work under research and development contracts. Business payments to persons consist primarily of liability payments for personal injury and of corporate gifts to nonprofit institutions.

In 2000, however, Congress enacted the Secure Rural Schools and Community Self-Determination Act (SRS). This Act was designed to stabilize annual payments to states and counties for the next six years beginning in 2001. The formula for computing annual payments is based on averaging a state's three highest payments between 1986 through 1999 to arrive at a compensation allotment or "full payment amount." The Act also creates citizen advisory committees and gives local communities the choice to fund restoration projects on federal lands or in counties. The SRS requires a county that elects to receive its share of the full payment amount to spend no less than 80% and no more than 85% of the funds in the same manner as the 25 Percent Fund payments are expended. The balance of the payment must be reserved for special projects on federal lands or for county projects, or the reserved fund must be returned to the General Treasury. If a county's share of the full payment amount is less than \$100,000 all of the funds may be spent in the same manner as the 25 Percent Fund payments. Changes in the Forest Plan do not affect the level of these payments.

Counties could choose to continue to receive payments under the 25 Percent Fund or to receive the county's proportionate share of the state's full payment amount under SRS. Yavapai and Coconino Counties elected to receive their proportionate share of the State's full payment amount.

Trends

Table 8 displays the PILT and SRS payments to the counties from 2002 through 2005 that were associated with National Forest System Lands administered by the PNF. Payments under PILT have tended to fluctuate more from year to year as these payments are dependent on annual Congressional allocations. Payments under SRS have increased slightly each year, increasing by 1% to 2% annually. In the fiscal year that ended June 30, 2005, Yavapai County reported general revenues totaling \$71,812,872 and Coconino County reported \$44,995,566 in general fund revenues (Coconino County 2005 and Yavapai County 2005). The estimated PILT and SRS payments attributed to the PNF represent approximately 2% and less than 1% respectively of Yavapai and Coconino Counties general fund revenues.

Table 8. Estimated PNF Associated PILT and SRS Payments by County

	2002	2003	2004	2005
Coconino County, AZ				
PILT	\$12,315	\$7,945	\$8,287	\$8,646
SRSCS	\$51,415	\$52,032	\$52,709	\$53,903
Total	\$63,730	\$59,977	\$60,996	\$62,549
Yavapai County, AZ				
PILT	\$733,113	\$672,995	\$591,874	\$660,968
SRSCS	\$528,576	\$534,901	\$541,828	\$554,286
Total	\$1,261,689	\$1,207,896	\$1,133,702	\$1,215,254

Source: (Forest Service 2002, 2003, 2004a, 2006a and USDI 2006)

Payments to States Sustainability

SRS expired at the end of fiscal year (FY) 2006. To provide ongoing support to rural communities that SRS has provided, The National Forest Land Adjustment for Rural Communities Act was included in the proposed FY 2008 budget. The ten-year average for receipts from 1990-1999 are displayed by county in Table 9 below, along with the resulting estimated payment that each county

would be expected to receive if payments under the 25 Percent Fund were to resume. Receipts estimated below are total National Forest receipts, and include receipts from other forest units beside the PNF.

Table 9. Ten-Year Average Forest Receipts by County and Estimated 25% Fund Payments

County	Average Forest Receipts 1990-1999 (2006 Dollars)	Estimated Payment Under 25 Percent Fund (2006 Dollars)
Coconino County, AZ	\$2,340,424	\$585,106
Yavapai County, AZ	\$575,794	\$143,949

Source: University of Arizona School of Natural Resources 2005

Prescott National Forest Contribution

The analysis of the contribution of current Forest activities to the analysis area economy utilizes 2003 IMPLAN data, the most recent data available, to develop response coefficients (rates of economic activity for national forest-related activities) for estimating the economic impact of forest activities. These response coefficients were applied to forest outputs and budget expenditures from 2005 to estimate the Forest’s overall contribution to the local economy.

The following two pie charts display the relative size of the natural resource-related sectors to the economy of the analysis area as a whole.

Figure 12 displays labor income and Figure 13 displays employment. Labor income from natural resource related sectors represents 7% of the totals for the analysis area, and approximately 8% of employment. It should be remembered that the contributions of the PNF represent only a portion of the economic activity reflected in the natural resource related sectors.

Figure 12. Analysis Area Labor Income Distribution by Industry, 2004 (IMPLAN)

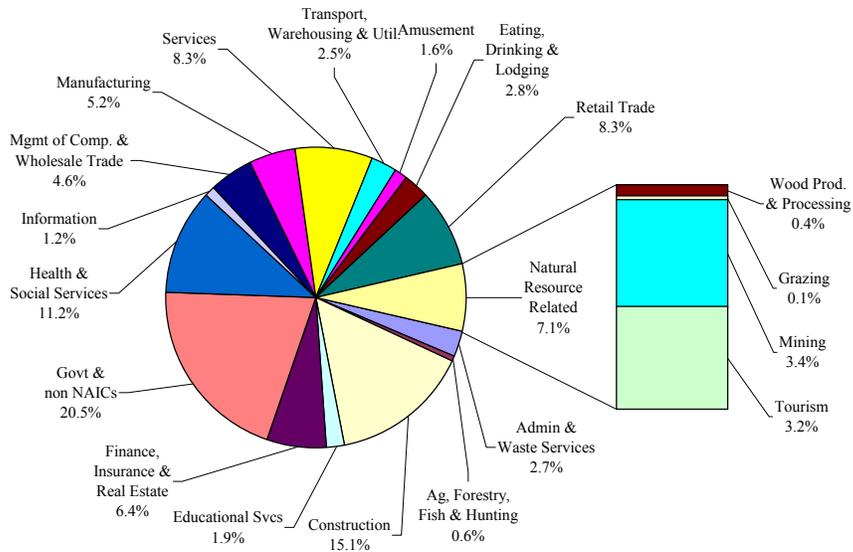
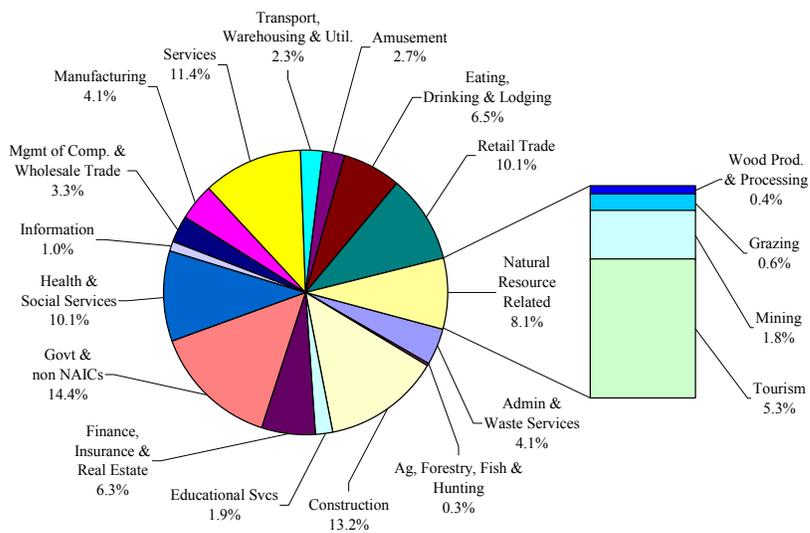


Figure 13. Analysis Area Employment by Industry, 2004 (IMPLAN)



The above information reflects only the direct effects of a given sector. Direct impacts, are the response of an industry to demand for the goods or services it produces. The employment and labor income that result from the production of output to meet demand are direct effects. However, direct effects are only a part of the picture. The dynamics of a regional economy can be more fully understood by looking at the complex linkages and interdependencies among businesses, consumers, and the natural resources on which economic activity depends. IMPLAN modeling allows a more complete examination of these complex linkages. In addition to direct effects, each sector also has indirect and induced effects. Indirect effects are produced when a sector must purchase supplies and services from other industries in order to produce output sufficient to meet demand.

Another factor considered when estimating economic impacts is commonly referred to as “leakage.” Part of the monies spent by businesses and individuals is spent within the local economy, while a portion of those monies is exported, or spent outside of the local economy. The money expended outside of the local economy is referred to as leakage. By the same token, economic activity is introduced when goods and services produced within the local area are exported and purchased by those from outside the local economy, thereby introducing new money into the local economy.

IMPLAN attempts to estimate these complex economic relationships in order to approximate the effect of each sector on the economy as a whole. Multipliers are developed as a means to estimate the change in direct, indirect, and induced effects as a result of an adjustment in the level of final demand for the goods or services provided by a given sector of the economy. These multipliers also take into account the effects of leakage and exports. Some sectors may have a large multiplier, while others may have a very small one. The size of a sector’s multiplier, however, is not a direct indicator of the significance of its economic impact.

The employment and labor income generated in other industries as a result are referred to as indirect effects. Induced effects represent the employment and labor income stimulated throughout the local economy as a result of the expenditure of new household income generated by direct and indirect employment. In Tables 10 and 11 indirect and induced impacts are referred to as “secondary” impacts. Tables 10 and 11 display the total estimated direct, indirect, and induced labor income and employment contributions of current activities on the PNF.

The employment estimated in Table 11 is defined as any part-time, seasonal, or full-time jobs. The recreation program area stimulates the greatest level of employment and labor income of the forest programs. However, 14% of the estimated employment and 11% of the estimated labor income are attributed to the recreation activities of local residents. While providing recreation opportunities to local residents is an important contribution, the recreation expenditures of locals do not represent new money introduced into the economy. If national forest related opportunities were not present, it is likely residents would participate in other locally based recreation activities and this money would still be retained in the local economy.

Approximately 86% of the jobs and 89% of the labor income are generated from expenditures by non-local visitors, bringing new money into the area. Expenditures of the Forest Service as an entity that hires employees and pays fixed costs (buildings, maintenance, etc.) provides more jobs and labor income than any one individual program that is shown in Tables 10 and 11. Of the

natural resource programs, recreation shows the highest contribution to labor income and number of jobs.

Table 10. PNF Estimated Labor Income Contribution by Resource Program

Resource	Thousands of 2007 Dollars		
	Total Program	Estimated Impact of the Recreation Activities of Local Residents ⁺	Total Forest Program Excluding Recreation by Local Residents
Recreation			
Direct Impact	\$5,995	\$2,415	\$3,580
Secondary Impact	\$2,259	\$879	\$1,380
Total Recreation Impacts	\$8,254	\$3,294	\$4,960
Wildlife			
Direct Impact	\$1,127	\$507	\$620
Secondary Impact	\$435	\$194	\$241
Total Wildlife Impacts	\$1,562	\$701	\$861
Grazing			
Direct Impact	\$169	NA*	\$169
Secondary Impact	\$478	NA	\$478
Total Grazing Impacts	\$647	NA	\$647
Timber			
Direct Impact	\$442	NA	\$442
Secondary Impact	\$404	NA	\$404
Total Timber Impacts	\$847	NA	\$847
Minerals			
Direct Impact	\$3,555	NA	\$3,555
Secondary Impact	\$1,214	NA	\$1,214
Total Minerals Impacts	\$4,769	NA	\$4,769
Payments to States/Counties			
Direct Impact	\$3,135	NA	\$3,135
Secondary Impact	\$870	NA	\$870
Total Pymt. Impacts	\$4,005	NA	\$4,005
Forest Service Expenditures			
Direct Impact	\$11,833	NA	\$11,833
Secondary Impact	\$3,031	NA	\$3,031
Total FS Expend. Impacts	\$14,863	NA	\$14,863
Total Forest Management			
Direct Impact	\$26,256	\$2,922	\$23,334
Secondary Impact	\$8,691	\$1,073	\$7,618
Total Mgmt. Impact	\$34,947	\$3,995	\$30,952
Percent of Total Labor Income Contributed	100%	11%	89%

+ If local residents could not recreate on the National Forest, they would likely find other forms of recreation in the area and continue to spend their recreation dollars in the local economy. Therefore, this portion of labor income is not necessarily dependent on the existence of the National Forest or the opportunities it provides.

* Not applicable to recreational activities impact.

Source: IMPLAN

Table 11. PNF Estimated Employment Contribution by Resource Program

Resource	Number of Jobs Contributed		
	Total Program	Estimated Impact of the Recreation Activities of Local Residents ⁺	Total Forest Program Excluding Recreation by Local Residents
Recreation			
Direct Impact	233	89	144
Secondary Impact	74	29	45
Total Recreation Impacts	307	118	189
Wildlife and Fish			
Direct Impact	45	20	25
Secondary Impact	14	6	8
Total Wildlife Impacts	59	26	33
Grazing			
Direct Impact	28	NA*	28
Secondary Impact	19	NA	19
Total Grazing Impacts	47	NA	47
Timber			
Direct Impact	22	NA	22
Secondary Impact	15	NA	15
Total Timber Impacts	37	NA	37
Minerals			
Direct Impact	85	NA	85
Secondary Impact	40	NA	40
Total Minerals Impacts	125	NA	125
Payments to States/Countries			
Direct Impact	103	NA	103
Secondary Impact	28	NA	28
Total Pymt. Impacts	131	NA	131
Forest Service Expenditures			
Direct Impact	209	NA	209
Secondary Impact	101	NA	101
Total FS Expend. Impacts	310	NA	310
Total Forest Management ²			
Direct Impact	725	109	616
Secondary Impact	291	35	256
Total Mgmt. Impact	1,016	144	872
Percent of Total Employment Contributed	100%	14%	86%

+ Recreation expenditures by local residents do not introduce "new" money into the local economy. If residents could not recreate on the National Forest, they would likely find other forms of recreation in the area and continue to spend their recreation dollars in the local economy. Therefore, this portion of labor income is not necessarily dependent on the existence of the National Forest or the opportunities it provides.

* Not applicable to recreational activities impact.

Note: Some totals may not agree due to rounding.

Source: IMPLAN

The estimate of labor income generated by sectors is displayed in Table 12. The largest amount of labor income is generated in the government sector, followed by mining and accommodation and food services.

Table 12. PNF Forest Estimated Labor Income Contribution by Industry

Industry	Thousands of 2006 Dollars		
	Total Program	Estimated Impact of the Recreation Activities of Local Residents	Total Forest Program Excluding Recreation by Local Residents
Agriculture	\$1,666	\$27	\$1,639
Mining	\$3,648	\$33	\$3,615
Utilities	\$18	\$2	\$16
Construction	\$1,176	\$20	\$1,156
Manufacturing	\$216	\$59	\$157
Wholesale Trade	\$1,427	\$424	\$1,003
Transportation & Warehousing	\$722	\$142	\$580
Retail Trade	\$2,563	\$619	\$1,944
Information	\$221	\$40	\$181
Finance & Insurance	\$476	\$61	\$415
Real Estate & Rental & Leasing	\$584	\$77	\$507
Prof. Scientific, & Tech. Services	\$837	\$99	\$738
Mgmt. of Companies	\$35	\$6	\$29
Admin., Waste Mgmt. & Rem. Service	\$417	\$63	\$354
Educational Services	\$259	\$30	\$229
Health Care & Social Assistance	\$1,591	\$174	\$1,417
Arts, Entertainment, and Rec.	\$574	\$183	\$391
Accommodation & Food Services	\$3,057	\$777	\$2,280
Other Services	\$716	\$106	\$610
Government	\$14,744	\$1,052	\$13,692
Total Forest Management	\$34,947	\$3,995	\$30,952
Percent of Total	100%	11%	89%

Note: Some totals may not agree due to rounding.

Source: IMPLAN

Table 13 shows the PNF's contribution to employment by sector. PNF activities generated the most jobs in the government sector followed by accommodations and food services. The large number of jobs relative to labor income generated in the accommodation and food services sector reflects lower paying service industry jobs. These numbers are consistent with National Forest lands that are primarily utilized for recreation and wildlife viewing. Timber and grazing activities are most closely associated with jobs generated in the agriculture and manufacturing sectors. Relatively few jobs are stimulated in manufacturing, because once harvested, approximately half the timber from the PNF is processed outside of the analysis area.

Table 13. PNF Estimated Employment Contribution by Industry

Industry	Total Number of Jobs Contributed		
	Total Program	Estimated Impact of Recreation Activities by Local Residents	Total Forest Program Excluding Recreation by Local Residents
Agriculture	91	1	90
Mining	89	2	87
Utilities	0	0	0
Construction	29	0	29
Manufacturing	7	2	5
Wholesale Trade	30	9	21
Transportation & Warehousing	20	4	16
Retail Trade	97	24	73
Information	6	1	5
Finance & Insurance	14	2	12
Real Estate & Rental & Leasing	15	2	13
Prof. Scientific, & Tech. Services	24	3	21
Mgmt. of Companies	1	0	1
Admin., Waste Mgmt. & Rem. Service	19	3	16
Educational Services	7	1	6
Health Care & Social Assistance	40	4	36
Arts, Entertainment, and Rec.	33	10	23
Accommodation & Food Services	180	49	131
Other Services	38	6	32
Government	277	20	257
Total Forest Management	1017	143	874
Percent of Total	100%	14%	86%

Note: Some totals may not agree due to rounding.

Source: IMPLAN

Table 14 shows the estimated employment and labor income generated by activities on the PNF relative to the regional economy as a whole. Overall, the largest sector in the analysis area economy is government, which is also where the activities of the PNF have the largest impact. However, the agriculture sector is most dependent on forest related activities followed by mining; arts, entertainment and recreation; government; and accommodation and food services. In total, the management of the PNF is estimated to be responsible for 2% of jobs and 1% of jobs and labor income within the regional economy.

Table 14. Current Role of PNF Contributions to Local Economy

Industry	Employment (jobs)			Labor Income (Thousands of 2007 ^Δ Dollars)		
	Area Totals	PNF Related	% of Total	Area Totals	PNF Related	% of Total
Agriculture	689	91	13%	\$16,101	\$1,666	10%
Mining	1,273	89	7%	\$83,380	\$3,648	4%
Utilities	112	0	0%	\$4,551	\$18	<1%
Construction	9,247	29	<1%	\$367,199	\$1,176	<1%
Manufacturing	3,167	7	<1%	\$137,026	\$216	<1%
Wholesale Trade	2,251	30	1%	\$107,933	\$1,427	1%
Transportation & Warehousing	1,734	20	1%	\$66,489	\$722	1%
Retail Trade	7,934	97	1%	\$227,144	\$2,563	1%
Information	723	6	1%	\$29,953	\$221	1%
Finance & Insurance	1,969	14	1%	\$66,298	\$476	1%
Real Estate & Rental & Leasing	2,457	15	1%	\$89,322	\$584	1%
Prof. Scientific, & Tech. Services	2,817	24	1%	\$104,188	\$837	1%
Mgmt. of Companies	55	1	<1%	\$3,046	\$35	1%
Admin., Waste Mgmt. & Rem. Service	3,201	19	1%	\$72,575	\$417	1%
Educational Services	1,557	7	<1%	\$52,332	\$259	1%
Health Care & Social Assistance	7,064	40	1%	\$273,347	\$1,591	1%
Arts, Entertainment, and Rec.	1,057	33	3%	\$15,277	\$574	4%
Accommodation & Food Services	7,191	180	3%	\$120,412	\$3,057	3%
Other Services	5,321	38	1%	\$101,410	\$716	1%
Government	10,081	277	3%	\$499,336	\$14,744	3%
Total	69,898	1017	2%*	\$2,437,319	\$34,947	1%*

Note: Some totals may not agree due to rounding.

Source: IMPLAN

* PNF total contribution to the analysis area economy

^Δ 2004 IMPLAN data adjusted to 2007 dollars.

Within individual communities, dependency on natural resource industries may be greater. Small changes in Forest activities have the potential result in more noticeable localized effects. Because Forest outputs could not be attributed to each county or community, it is not possible to analyze the contributions to jobs and labor income to individual communities.

PNF Contribution to Employment and Labor Income by Industry: Natural resource related industries constitute a significant portion of the analysis area economy providing approximately 7% labor income and 8% of employment (Figures 12 and 13, p. 51). In total, the management activities of the PNF during 2005 stimulated approximately 2% of jobs and 1% of labor income within the analysis area. However, some industry sectors appear to have a much higher degree of dependence on the PNF contributions. The local industries most dependent on the management activities and uses of the PNF are agriculture; mining; arts, entertainment, and recreation; government; and accommodations and food services. It is estimated that the contribution from the PNF represented 13% of jobs and 10% of labor income in the agriculture sector. These contributions would be most closely connected to activities associated with the timber management and grazing program areas. The PNF contributes an estimated 3% of jobs and 4% of labor income respectively in the arts, entertainment, and recreation industry; and 3% of jobs and labor income in the accommodation and food services industries. Economic contributions to these industries are most closely associated with the recreation and the fish and wildlife program areas (Table 14).

PNF Contribution to Employment and Labor Income by Resource Program: Approximately 89% of the labor income and 86% of jobs stimulated by activities associated with the PNF represents new money introduced into the economy. The operations expenditures by the PNF (salaries, and other operating expenditures) provide the greatest overall stimulus to the local economy by the PNF. The forest program area that contributed the greatest amount of economic stimulus is recreation, including those activities associated with hunting, fishing, and wildlife viewing. While not all activities in the wildlife program are related to recreation, recreation and wildlife program areas represent approximately 28% of the PNF's total contribution to labor income and 36% of the employment stimulated. The next largest contributing program area is minerals which stimulates approximately 14% of the PNF contribution to labor income and 12% of jobs (Tables 10 and 11, pp. 53 and 54).

Sustainability of the Forest's Contributions to Economic Conditions and Trends

- o Increasing levels of tourism-related visitors will continue to stimulate employment in service industry positions. Service-related industries now employ the greatest number of people in the area, followed by retail trade, and government (Figure 6, p. 42). It should be noted that service industries include high-paying (e.g., medical, legal, real estate), as well as lower-paying (e.g., food industry servers, landscapers) employment. These categories of service workers cover a range of income. Services and retail trade contain the industries most likely to be impacted by recreation activities on the PNF.
- o The PNF provides open space and recreational opportunities which are attractive to retirees. Aging populations present new challenges and opportunities for employment and government services, 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 (Wan He et al. 2005). In order to provide the desired level of recreation services, such as more trails or better signs, this group may be willing to contribute their time to achieving that goal. This increasingly urbanized, older population will likely stimulate increased employment for skilled and construction related labor.
- o The influx of non-labor income into Yavapai County's economy could affect the demand for various services, amenities, and uses of the PNF. Retirees, who take up residence in the Wildland Urban Interface, will place increasing demands on the PNF such as the need to

increase awareness of the risks of wildfire, the effectiveness of fuel reduction treatments, and the realities of smoke management.

- o In total, the management activities of the PNF during 2005 stimulated approximately 2% of jobs and 1% of labor income within the analysis area. The local industries most dependent on management activities and uses of the PNF are agriculture; mining; arts, entertainment, and recreation; government; and accommodations and food services. Of the total PNF contribution to jobs and income, the PNF represented 13% of jobs and 10% of labor income in the agriculture sector (Table 14, p. 57).
- o The PNF program area that contributed the greatest amount of economic stimulus is recreation, including those activities associated with hunting, fishing and wildlife viewing. While not all activities in the wildlife program relate to recreation, the wildlife and recreation program areas represent approximately 28% of the PNF's total contribution to labor income and 36% of the employment stimulated. The next largest contributing program area is minerals which stimulates approximately 14% of the PNF's contribution to labor income and 12% of jobs (Table 11, p. 54).

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References

- Adams-Russell Consulting. 2006. Focus Group Study Report of Values, Attitudes, and Beliefs toward National forest System Lands: Prescott National Forest.
- Alig, R.J., and B.J. Butler. 2004. Area changes for forest cover types in the United States, 1952 to 1997, with projections to 2050. Gen. Tech. Rep. PNW-GTR-613. Portland, OR: U.S. Dept. of Agriculture, Forest Service, Pacific Northwest Research Station. 106p.
<http://www.treearch.fs.fed.us/pubs/viewpub.jsp?index=7303>
- Alig, R.J., A.J. Plantinga, S. Ahn, and J.D. Kline. 2003. Land use changes involving forestry in the United States: 1952 to 1997, with projections to 2050. Gen. Tech. Rep. PNW-GTR-587. Portland, OR: U.S. Dept. of Agriculture, Forest Service, Pacific Northwest Research Station. 92p. http://www.fs.fed.us/pnw/pubs/pnw_gtr587.pdf
- Arizona ATV Riders. 2008. www.azatvriders.org
- ADEQ (Arizona Department of Environmental Quality). 2008. Prescott Active Management Area. <http://www.azwater.gov/dwr/WaterManagement/content/amas/PrescottAMA/default.htm>
- ADOT (Arizona Department of Transportation). Data Team Reports 1990-2000. <http://tpd.az.gov/data/reports>
- ADOT. 2004. MoveAZ long range transportation plan. Synthesis of Issues Papers. <http://azmemory.lib.az.us/cgi-bin/showfile.exe?CISOROOT=/statepubs&CISOPTR=2460&filename=2532.pdf>
- ATV Info. 2008. <http://www.atv.info/page.cfm?name=ATV%20Facts>
- AZOT (Arizona Office of Tourism). 2004. AZ Regional Profiles. <http://www.azot.gov/section.aspx?sid=37>
- AZOT. (Arizona Office of Tourism) 2004a. Arizona Tourism Statistical Report, 2003. 47 p. http://www.azot.gov/documents/Research/2003_Statistical_Report.pdf
- Arizona State Parks. 2007. Arizona Statewide Comprehensive Outdoor Recreation Plan. Partnerships Division, Arizona State Parks and Land and Water Conservation Fund. pp. 93-96. http://www.pr.state.az.us/partnerships/planning/SCORP_2008_Final.pdf
- Arizona State Parks. 2003. Economic Importance of Off-Highway Vehicle Recreation to Arizona State Parks 2003. http://www.azstateparks.com/partnerships/ohv/OHVEcon/az_ohv_econ.pdf
- Baker, R.D., R.S. Maxwell, V.H. Treat, and H.C. Dethloff. 1988. Timeless heritage: A history of the Forest Service in the Southwest. FS-409. College Station, TX: Intaglio, Inc. 208 p. <http://www.fs.fed.us/r3/about/history/timeless/index.shtml>

- BEA (Bureau of Economic Analysis) 2007. U.S. Department of Commerce. Regional Economic Accounts. BEARFACTS 1995-2005.
- BEA (Bureau of Economic Analysis) 2007a. U.S. Department of Commerce. Regional Economic Accounts BEARFACTS 1995-2005, Yavapai, Arizona.
- BEA (Bureau of Economic Analysis) 2007b. U.S. Department of Commerce. Regional Economic Accounts BEARFACTS 1979-1989, Yavapai, Arizona.
- BEA (Bureau of Economic Analysis) 2007c. U.S. Department of Commerce. Table CA35 – Personal Current Transfer Receipts. Accessed July 3, 2007.
<http://www.bea.gov/regional/reis/default.cfm?&catable=CA35>
- BEA (Bureau of Economic Analysis). 2008. Regional Economic Information System (REIS) U.S. Department of Commerce. <http://bea.gov/index.htm>
- Bergstrom, John C. and Cordell, Ken H. 1991. An Analysis of the Demand for and Value of Outdoor Recreation in the United States,” Journal of Leisure Research 23, no. 1, pp. 67-86.
- Booth, D.E. 2002. Searching for Paradise: Economic Development and Environmental Change in the Mountain West. Rowman & Littlefield Publishers, Inc., Lanham, Maryland. 288p.
- Bureau of Land Management. 2006. US Department of the Interior Payments in Lieu of Taxes (PILT). Accessed 11/03/2006. <http://www.doi.gov/pilt/>.
- Bureau of Land Management. 2008. US Department of the Interior LR2000 Database; Mining claim information for the Prescott National Forest. Data retrieved by Frances Alvalarado, Geologist, July 2008.
- Case, P., and G. Alward. 1997. Patterns of demographic, economic and value change in the western United States: Implications for water use and management. Report to the Western Water Policy Review Advisory Commission. U.S. Dept. of Agriculture, Forest Service. 70p. http://www.fs.fed.us/institute/news_info/wwprc_1.html
- CYMPA (Central Yavapai Metropolitan Planning Organization), April 2007. Transit Needs Study, Final Report.
- CYMPO. 2008. Proposed Great Western Road and Road 5 South Corridor. January 2008.
- Chavez, Deborah J. 1993. Visitor perceptions of crowding and discrimination at two National Forests in southern California. Res. Paper PSW-RP-216. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture; 17 p.
- Coconino County. 2003. Coconino County Comprehensive Plan: A Conservation-Based Planning Partnership. Coconino County, AZ. 122p.
<http://www.coconino.az.gov/comdev.aspx?id=142>
- Coconino County. 2005 Coconino County Single Audit year ending June 30 2005.

Comment [shs3]: Was A, changed it to O

http://auditor.gen.state.az.us/Reports/Counties/Coconino/Financial_Audits/Single_Audit_June_30_2005/Coconino_County_June_30_2005_Single_Audit.pdf

Columbia Electronic Encyclopedia. 2007. Arizona: History.
<http://www.infoplease.com/ce6/us/A0856705.html>

Confab. 2007. "Public Participation Strategy for the Prescott National Forest Plan Revision". Parts I, II and III. June 28, 2007. Hamilton, MT. www.confabmt.net

Cordell, H.K., J. Teasley, and G. Super. 1997. Outdoor recreation in the United States: Results from the National Survey on Recreation and the Environment (All Forest Service Regions). Prepared by the Outdoor Recreation and Wilderness Assessment Group. Dept. of Agriculture and Applied Economics, University of Georgia. 209p.
<http://www.srs.fs.usda.gov/trends/fsoutrec.html>

Cordell, H. K., B. L. McDonald, et al. 1999. Outdoor Recreation Participation Trends. Outdoor Recreation in American Life: A National Assessment of Demand and Supply Trends. H. K. Cordell, C. J. Betz, J. M. Bowker et al. Champaign, IL, Sagamore Publishing: 219-321.

Cordell, H. K., Gary T. Green, and Carter J. Bentz. 2002. "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.

Cordell, H. K., C. J. Betz, et al. 2004. Outdoor Recreation for the 21st Century America: A Report to the Nation: The National Survey on Recreation and the Environment. State College, PA, Venture Publishing, Inc. 316 p.

Davis, C. 2001. Introduction: The context of public lands policy change, pp. 1-8. In: C. Davis (ed), *Western Public Lands and Environmental Politics* (2nd Ed.). Westview Press, Boulder, CO. 240pp.

Forest Service. 2002. U.S. Department of Agriculture. Payment to States from National Forest Receipts: Fiscal Year 2002.

Forest Service. 2002a. U.S. Department of Agriculture. Forest Insect and Disease Conditions in the Southwestern Region, 2002. R3-03-01.

Forest Service. 2003. U.S. Department of Agriculture Payments to States from National Forest Receipts: Fiscal Year 2003.

Forest Service. 2004. U.S. Department of Agriculture. Land and Resource Management Plan, Republished with Amendments 1-12. <http://www.fs.fed.us/r3/prescott/plan-revision/forestplan.shtml>

- Forest Service. 2004a. U.S. Department of Agriculture. Payments to States from National Forest Receipts: Fiscal year 2004.
- Forest Service. 2005. U.S. Department of Agriculture. Travel Management Final Rule. Federal Register Notice, Vol. 70, No. 216 pp. 68264-68290.
<http://www.fs.fed.us/recreation/programs/ohv/final.pdf>
- Forest Service. 2005a. U.S. Department of Agriculture LEIMARS Law and Regulations Offense Statistics 01-01-1995 to 2004 and 01-01-1995 to 2005).
- Forest Service. 2005b. U.S. Department of Agriculture. Timber Cut and Sold on National Forests Under Sales and Land Exchanges, Fiscal Year 2005.
- Forest Service 2005c. U.S. Department of Agriculture. Four threats-QuickFacts-Unmanaged Recreation. U.S. Department of Agriculture, Forest Service Website.
<http://www.fs.fed.us/projects/four-threats/facts/unmanaged-recreation.shtml>
- Forest Service. 2005d U.S. Department of Agriculture. Prescott National Forest Official Website. U.S. Department of Agriculture. <http://www.fs.fed.us/r3/prescott/index.shtml>
- Forest Service. 2006. U.S. Department of Agriculture. Chief's Four Threats.
<http://www.fs.fed.us/projects/four-threats/>
- Forest Service. 2006a. U.S. Department of Agriculture. All Service Receipts Final Title I, II, and III Report: Fiscal Year 2005.
- Forest Service. 2006b. U.S. Department of Agriculture. Inventory and Monitoring Institute website "Financial Information for Forests." Financial data for use with 2001 and later IMPLAN models.
http://fsweb.ftcol.wo.fs.fed.us/imi/economic_center/flps_home_after_2001.html
- Forest Service. 2006c. U.S. Department of Agriculture Forest Economic Analysis Spreadsheet Tool (FEAST).
- Forest Service 2006d. U.S. Department of Agriculture. *Grazing Statistical Summary FY 2003*. p. 25. http://www.fs.fed.us/rangelands/ftp/docs/graz_stat_summary_2003.pdf
- Forest Service. 2006e. U.S. Department of Agriculture. Mineral Materials Production Report, Fiscal Year 2004. http://www.fs.fed.us/geology/mgm_salable.html
- Forest Service. 2006f. U.S. Department of Agriculture. Prescott National Forest webpage: About Us - History. <http://www.fs.fed.us/r3/prescott/about/history.shtml>
- Forest Service. 2006g. U.S. Department of Agriculture. Prescott National Forest Fiscal Year 2006 Volunteer Hours. Prescott NF, Bradshaw RD. Compiled by Dorothy Baxter, Natural Resources Planner, September 2008.

- Forest Service. 2007. U.S. Department of Agriculture. Prescott National Forest Economic Conditions and Trends (ACT). TEAMS Planning Enterprise. Barbara Ott, Social Scientist.
- Forest Service. 2007a. U.S. Department of Agriculture. Forest Economic Analysis Spreadsheet Tool (FEAST) for Prescott National Forest, analyst: TEAMS Planning Enterprise. Barbara Ott, Social Scientist.
- Forest Service. 2007b. U.S. Department of Agriculture. Natural Resource Information System: National Visitor Use Monitoring. Version 1.2.0.
- Forest Service. 2007c. U.S. Department of Agriculture Prescott National Forest Fiscal Year 2007 Volunteer Hours. Prescott National Forest, Bradshaw RD. Compiled by Dorothy Baxter Natural Resources Planner, September 2008.
- Forest Service, 2007d. U.S. Department of Agriculture. Forest Service Open Space Conservation Strategy. Cooperating Across Boundaries to Sustain Working and Natural Landscapes.
- Forest Service. 2008. U.S. Department of Agriculture The Southwest Region and Climate Change. A Summary of Overall Ecological and Socioeconomic Conditions Based on Large-Scale Syntheses and Regional Studies.
- Forest Service. 2008a. Feedback Form for Recording Informal Discussion. Yavapai Prescott Tribe Meeting. April 10, 2008. Documented by Charles Pregler. PNF Supervisor's Office.
- Forest Service. 2008b. U.S. Department of Agriculture Information from I-Web. Prescott National Forest, Chino Ranger District. August 2008.
- Forest Service. 2008c. U.S. Department of Agriculture Information from TIM (Timber Information Management Database). Prescott NF, Bradshaw RD. July 2008.
- Forest Service. 2008d. U.S. Department of Agriculture Region 3 Donations, Sales, Condemnations, Exchanges and Purchases database. Prescott National Forest, Bradshaw Ranger District. July 2008.
- Forest Service 2008e. U.S. Department of Agriculture PNF Recreational Niche <http://www.fs.fed.us/r3/prescott/projects/rfa/5-year-proposed-program-of-work.pdf>
- Forest Service 2008f. U.S. Department of Agriculture 2008 Planning Rule, 219.10(a). http://www.fs.fed.us/emc/nfma/2008_planning_rule.html
- Forest Service. 2008g. Feedback Form for Recording Informal Discussion. Hispanic Chamber of Commerce Meeting. November 20, 2007. Documented by Charles Pregler. PNF Supervisor's Office.

- GAO. (General Accounting Office). 1988. Rangeland management: More emphasis needed on declining and overstocked grazing allotments. GAO/RCED 88-80. Report to Congressional Requesters. 71p. <http://archive.gao.gov/t2pbat17/136027.pdf>
- GAO. (General Accounting Office). 1991. Forest Service: Difficult choices face the future of the recreation program. GAO/RCED 91-115. Report to the Chairman, Subcommittee on National Parks and Public Lands, Committee on Interior and Insular Affairs, House of Representatives. 28p. <http://archive.gao.gov/t2pbat8/143648.pdf>
- GAO. (General Accounting Office). 1995. Federal Lands: Information on the use and impact of off highway vehicles. GAO/RECE 95-209. Report to Bruce F. Vento, House of Representatives. 77 p. <http://www.gao.gov/archive/1995/rc95209.pdf>
- GAO. (General Accounting Office). 1996. U.S. Forest Service: Fees for recreation special-use permits do not reflect fair market value. GAO/RCED 97-16. Report to the Chairman, Subcommittee on Oversight of Government Management and the District of Columbia, Committee on Governmental Affairs, U.S. Senate. 27pp. <http://www.gao.gov/archive/1997/rc97016.pdf>
- GAO. (General Accounting Office). 1998. Recreation fees: Demonstration fee successful in raising revenues but could be improved. GAO/RCED 99-7. Report to Congressional Requesters. 116p. <http://www.gao.gov/archive/1999/rc99007.pdf>
- Gorte, R.W. 2004. Below-cost timber sales: An overview. CRS Report RL32485. congressional Research Service, Library of Congress. 11 pp. <http://www.ncseonline.org/NLE/CRSreports/04Jul/RL32485.pdf>
- Gucinski, H., M.J. Furniss, R.R. Ziemer, and M.H. Brookes (eds.). 2001. Forest roads: A synthesis of scientific information. Gen. Tech. Rep. PNW-GTR-509. U.S. Dept. of Agriculture, Forest Service, Pacific Northwest Research Station. 103pp. <http://www.fs.fed.us/pnw/pubs/gtr509.pdf>
- Haynes, R.W. (Tech. Coord.). 2003. An analysis of the timber situation in the United States: 1952 to 2050. Gen. Tech. Rep. PNW-GTR-560. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 254pp. <http://www.treesearch.fs.fed.us/pubs/viewpub.jsp?index=5284>
- Headwaters Economics. 2007. A SocioEconomic Profile; Coconino, Arizona. November 2007. 41pp. http://www.headwaterseconomics.org/profiles/p_Coconino_County_Arizona.pdf
- Headwaters Economics. 2007a. A SocioEconomic Profile; Yavapai County, Arizona. November 2007. 41pp. http://www.headwaterseconomics.org/profiles/p_Yavapai_County_Arizona.pdf
- Hobbs, F. and N. Stoops. 2002. Demographic trends in the 20th Century. U.S. Census Bureau. Census 2000 Special Reports, Series CENSR-4. U.S. Government Printing Office, Washington, DC. 228 p. <http://www.census.gov/prod/2002pubs/censr-4.pdf>

- Humphries, M., and C.H. Vincent 2008. Mining on federal lands. CRS Issue Brief for Congress. National Library for the Environment. Resources, Science, and Industry Division.
<http://ncseonline.org/NLE/CRs/abstract.cfm?NLEid=1873>
- IMPLAN (“Impact analysis for PLANing, Minnesota IMPLAN Group, Inc.) 2004 data.
- Johnson, T.G. (Ed). 2000. United States timber industry-an assessment of timber product output and use, 1996. Gen. Tech. Rep. SRS-45. Asheville, NCL US Dept. of Agriculture, Forest Service, Southern Research Station. 145 pp.
<http://www.srs.fs.usda.gov/pubs/viewpub.jsp?index=2829>
- Keegan, Charles E. and Thale Dillon. 2003. “National Forest Timber Utilization, and Associated Employment and Worker Earnings in the Western United States.” Missoula, MT.
- Kent, James. 2003. “Community Networks and Coalitions Report” for the RMP for the Agua Fria National Monument and the Bradshaw Foothills – Harquahala Mountains. May 8, 2003. D.Schultz, K.Komar, K.Preister and J.Kent. James Kent and Associates.
www.naturalborders.com
- Kent, James. A. and Kevin Preister. 1999. Methods for the Development of Human Geographic Boundaries and their Use.
http://www.naturalborders.com/Docs/JKent_MethodsfortheDevelopment.pdf
- Kocis et al. 2003. National Forest visitor use monitoring results: USDA Forest Service Region 3. Prescott National Forest. <http://www.fs.fed.us/recreation/programs/nvum>
- Leefers, I., Potter-Witter, and M. McDonough 2004. Social and economic assessment of the Michigan National Forests. Department of Forestry, Michigan State University. 254 p.
- McCool, S.F., and L.E.Kruger. 2003. Human migration and natural resources: Implications for land managers and challenges for researchers. Gen. Tech. Rep. PNW-GTR-580. Portland, OR: US Dept. of Agriculture, Forest Service, Pacific Northwest Research Station. 19 p.
<http://www.fs.fed.us/pnw/pubs/gtr580.pdf>
- McHugh, K.E., and R.C. Mings. 1996. The circle of migration: Attachment to place in aging. Annals of the Association of American Geographers. 86(3):530-550.
- Mills, J.R., and X. and Zhou. 2003. Projecting national forest inventories for the 2000 RPA timber assessment. Gen. Tech. Rep. PNW-GTR-568. Portland, OR: US Dept. of Agriculture, Forest Service, Pacific Northwest Research Station. 58 pp.
<http://www.fs.fed.us/pnw/pubs/gtr568.pdf>
- Minnesota IMPLAN Group. 1999. User’s Guide: IMPLAN Professional Version 2.0.

- Moote, A., P. Kohany, K. Walkters, and J. Schaffer. 2003. Directory of collaborative and community based groups restoring forest health in Arizona and New Mexico. Ecological Restoration Institute. Northern Arizona University. 31 p. <http://www.eri.nau.edu/joomla/>
- National Agricultural Statistics Service. 2003. USDA National Agricultural Statistics Service - Quick Stats.U.S. & All States County Data - Livestock US Department of Agriculture. http://www.nass.usda.gov/QuickStats/Create_County_All.jsp.
- NRIS Human Dimensions. 2008. <http://www.city-data.com/city/Arizona.html>
- Otterstrom, S. and J.M. Shumway. 2003. Deserts and oases: The continuing concentration of population in the American Mountain West. Journal of Rural Studies. Forthcoming.
- Power, Thomas Michael. 1996. Lost Landscapes and Failed Economies: The Search for a Value of Place. Island Press. Washington, DC. Pp. 239-240.
- Rasker, Ray. 2006. "An Exploration Into the Economic Impact of Industrial Development Versus Conservation on Western Public Lands." Society & Natural Resources, 19:3 191-207.
- Roper ASW. 2004. Outdoor recreation in America 2003: Recreation's benefits to society challenged by trends. Recreation Roundtable. 22pp. www.funoutdoors.com/files/ROPER%20REPORT%202004_0.pdf
- Siggerud, K. 2002. Highway infrastructure—Physical conditions of the Interstate Highway System have improved, but congestion and other pressures continue. Statement by the Acting Director of Physical Infrastructure Issues, U.S. General Accounting Office. 19p. <http://www.gao.gov/new.items/d021128t.pdf>
- Sonoran Institute. 2004. "Public Lands Conservation and Economic Well-Being." Missoula, MT. pp. 1-1 through 1-14.
- Stynes, Daniel J. and Eric M. White. 2005. Spending Profiles of National Forest Visitors, NVUM Four Year Report.
- University of Arizona. 2005. Socio-Economic Assessment for the Prescott National Forest. School of Natural Resources .Tucson. pp.132
- U.S. Census Bureau. 1995. Department of Commerce Arizona: Population of counties by decennial census – 1900 to 1990. Population Division, Forstall, R.L. <http://www.census.gov/population/cencounts/az190090.txt>
- U.S. Census Bureau. 2000. Department of Commerce. Poverty Status in 1999 by Age. Pp. 87
- U.S. Census Bureau. 2000a. . Department of Commerce. Household Income in 1999, Yavapai County, AZ.pp.52

- U.S. Census Bureau 2000b. Department of Commerce. Median Family Income in 1999, Yavapai County, AZ. pp. 99
- U.S. Census Bureau. 2000c. Department of Commerce. Per Capita Personal Income in 1999, Yavapai County, AZ. pp. 82
- U.S. Census Bureau. 2000. Department of Commerce. Poverty Status in 1999 of Families by Family Type by Presence of Related Children Under 18 Years Age of Related Children, Yavapai County, AZ. p.90
- U.S. Census Bureau. 2000e. Department of Commerce. United States Census. 2000 Census, Poverty Status in 1999 by Age. P159A through P191
- U.S. Census Bureau. 2005. . Department of Commerce United States Census. U.S. Dept. of Commerce. <http://www.census.gov>
- U.S. Census Bureau. 2007. County Business Patterns is an annual series that provides subnational economic data by industry. U.S. Department of Commerce. <http://www.census.gov/epcd/cbp/index.html>.
- U.S. Department of Interior. 2008. LR2000 Database, Mining claim information for the Prescott National Forest. Bureau of Land Management. Data retrieved by Francis Alvarado, July 2008.
- U.S. Geological Survey. 2006. Department of the Interior Mineral Commodity Summaries for Crushed Stone, Sand and Gravel, and Pumice.
- Vincent, C.H. 2008. Grazing fees: An overview and current issues. CRS Report RS-21232. Congressional Research Service, Library of Congress. 6p. <http://ncseonline.org/NLE/CRs/abstract.cfm?NLEid=185>
- Wan He, Manisha Sengupta, Victoria A. Velkoff, and Kimberly A. DeBarros. 2005. "65+ in the United States 2005," U.S. Census Bureau, Current Population Reports, *U.S. Government Printing Office* P23-209. <http://www.census.gov/prod/2006pubs/p23-209.pdf>
- Water Resources Research Center. 2007. Layperson's Guide to Arizona Water: http://ag.arizona.edu/AZWATER/WRRC_Events_News/LPG/Layperson%27s_Guide_to_Arizona_Water.pdf
- Wilson, Bruce M. 1990. Crown King and the Southern Bradshaws: A Complete History. Crown King Press, Mesa, AZ. Pp. 104
- Winter, Susan and Philip Watson. 2005. "Evaluating the Economic Contribution of the National Forests of Arizona: Supplement to the 2005 Socio-Economic Assessments." Technical Report No. 103. Forest Service. Fort Collins, CO.
- Yavapai County. 2003. Yavapai County General Plan. Davis Associates Inc.

<http://www.co.yavapai.az.us/WorkArea/showcontent.aspx?id=27748>

Yavapai County Finance Department. 2005. Comprehensive Annual Financial Report: Fiscal Year Ended June 30, 2005. <http://www.co.yavapai.az.us/finance.aspx>

Yavapai County. 2006. The Verde Valley Regional Land Use Plan. <http://www.co.yavapai.az.us/WorkArea/showcontent.aspx?id=24964>

Yavapai County. 2008. Developing Areas Map.

**References are available at the Supervisor's Office of the Prescott National Forest.
500 US Highway 89 North, Building 70, Prescott, AZ 86313**

APPENDIX A

Key Trends related to Community Visions and Issues

The Social and Economic Sustainability Assessment is intended to provide a baseline assessment of conditions that interact with the Prescott National Forest (PNF) and may impact the sustainability of Forest contributions to the social and economic condition. Most information for the assessment was gathered from sources such as the census, or others that provided systematically-collected information. Some information for the social part of the report was also gathered through efforts that originated in relationship-building to benefit collaboration with groups, citizens and communities. Specifically this includes work done by Kristine Komar and Dave Schultz (Confab 2007) in describing communities near and within the PNF. The area surrounding the PNF was mapped based on the methods created by James Kent and Associates. The methods used were based on the theory that people everywhere develop an attachment to a geographic place with natural boundaries (Kent and Preister 1999). Human Geographic boundaries were mapped using field interviews that indicated the areas where individuals felt strongly about conditions and events. The Confab group provided the field work and expertise to create such a “human geographic map” for communities within and around the PNF and also described communities within each subunit on the map. As part of this effort, they collected comments and stories on issues related to Prescott National Forest management. These issues assisted the Forest in understanding community values, and contributed to identification of important social conditions and trends within the PNF landscape.

Later work by PNF employees was based on this Human Geographic mapping and became the basis for inviting communities to identify their Vision of the desired future for the landscape surrounding their community including the PNF. The attached table displays key trends from the body of Social and Economic Assessment that could be related to either portions of community vision statements or to community issues that were shared with Confab or PNF employees during interviews. The table is intended to provide a cross-walk between analysis in the body of the document and information from citizens that may relate to this assessment as planning progresses. Appendix A provides phrases that were excerpted from community vision statements. The complete vision statements from each community that participated are on the PNF webpage at <http://www.fs.fed.us/r3/prescott/plan-revision/vision.shtml>.

Population/Migration/Housing

➤ Key Trends

- The population in Yavapai County will continue to grow.
- Conflicts between differing values associated with new users to the Forest will increase. Newcomers may bring different expectations about uses of the Forest that also present challenges to meeting visitors' expectations.
- Increased development is changing rural areas toward an urban character.

▪ Community Issues and Visions

- Yarnell has experienced slow growth over recent years, due to its distance from more rapidly growing areas like Prescott and Wickenburg. However, six large subdivisions have been approved near Congress and Yarnell residents are very concerned that future growth in the area will inflate home prices and taxes, stress law enforcement services in Yavapai County, and change their small town quality of life. **Y**
- *...the National Forest is the backyard and garden of all citizens and most individual operators would not damage their own personal property in the way they do in the national forest setting. A public educational campaign to increase environmental awareness.* **CH**
- *All recreationists—including anglers, birders, hunters, hikers, bicyclists, equestrians, gun enthusiasts, river runners, hang gliders and off-highway vehicle drivers—respect and utilize the Forest in harmony with each other and the environment.* **VV**
- *The increasing demand on our natural resources compels us to keep abreast of conservation practices that prove to be more efficient, sustainable, nonpolluting and respectful of diversity. As these improved practices become available, we support their timely implementation, with our vision remaining optimistic for the future.* **MF**
- *...retain as much of the natural environment as close to our town limits as possible. Thus ensuring that we will have those places of refuge nearby where we can enjoy the outdoors and reflect on the beauty that the Prescott National Forest provides.* **JE**
- *It is imperative that there are areas adjoining our town where we can go to escape the traffic noise of our busy community; away from all motorized vehicles, recreational shooting, and other negative impacts of a dense urban environment.* **JE**
- *... the PNF should take a proactive stance to protect and maintain Forest Resources for future generations. maintaining the views, protecting the air quality, and preserving open space* **JE**
- Citizens here have strong interest in preserving open space and maintaining the rural character of their communities - citizen groups have worked hard to prevent disposal of 17,000 acres of BLM public lands in the area. **DHMC**
- *Ranching and farming allow for preservation of open space, limiting housing and industrial encroachment.* **MF**
- *Our community has a vision to maintain our remote yet reachable lifestyle...* **MCHS**
- Open space, access and quality of life concerns are expressed by some residents **W**

Note: Italicized text comes from community vision statements. Non-italicized text comes from community visioning meetings and informal contacts with groups and individuals from those communities.

AF = Ash Fork; **BA** = Bagdad; **BCC** = Black Canyon City, **CAV** = Camp Verde; **CH** = Cherry; **CHV** = Chino Valley; **CK** = Crown King; **CO** = Cottonwood; **DHMC** = Dewey-Humboldt, Mayer, Cordes Junction; **JE** = Jerome; **MF** = Mayer / Agua Fria; **MCHS** = Morristown, Castle Hot Springs; **PA** = Paulden; **PR** = Prescott; **PV** = Prescott Valley; **SV** = Skull Valley; **VV** = Verde Valley; **W** = Wilhoit; **Y** = Yarnell

- *Wilhoit is rural in character with a strong desire to remain that way. **W***
- *...preservation of the rural nature of our community and the natural beauty of our surroundings. Coincidental to that desire is the retention of open space to be used for designated public recreational activities. The community would like a sufficient amount of BLM lands surrounding the town dedicated to future development of public trails, nature preserves, and riparian areas. ...minimum depth of five miles from the private property lines around the community. The State Trust Lands within that area would be purchased by BLM for inclusion in the designated open space. **BCC***
- *...community values the Prescott National Forest (PNF) for the many recreational, economic and ecological services that it provides. The natural beauty and rural character of the surrounding public lands are a vital part of this community... those lands 50 years from now...remain in the public domains. **PR/PV/CHV** ...rural in character and lifestyle...the sense of openness is critical to the sense of remaining rural...fortunate to be surrounded by State and Federal lands. They not only help set the character of the community, but offer close by recreational opportunities. Maintaining these lands and access to them thus is very important...Preserving both the ranches and appreciation for animals is a goal almost universally stated by residents. **PA***

➤ Increasing human populations will increase demands for water. Conflicts over groundwater withdrawal and potential impacts on surface water will intensify.

- A primary issue for citizens and local government is securing adequate water supply for projected population growth. Related to this are municipal disputes over water pumping from the Big Chino area and maintaining base flows in the Upper Verde River. **PR**
- A primary issue for citizens and local government is securing adequate water supply for projected population growth. **PV, CHV**
- Water / growth **PA**
- Water hauling common in area; community well run by Ash Fork Development Association **AF**
- The small communities in this area are concerned that future population growth will diminish water supply for existing residents...Watershed health and water quality/quantity in the Agua Fria River; So. Yavapai Water User group has formed in an effort to have more local control of growth and water use **DHMC**
- *Good water quality and adequate water supply in our watershed directly effects our success and survival. We encourage and support projects to minimize run-off of rainfall and prevent erosion, increasing water retention within our watershed. **MF***
- Concerns about the Verde River and Prescott/Prescott Valley water project to pump water out of the Big Chino. **CAV**
- Water / growth / Big Chino aquifer; protect Verde River for sustainability **CO**
- *The Verde River flows year round through a lush riparian greenway, providing water for agricultural production, habitat for animals, and a large variety of recreational opportunities. **VV***
- Water supply – quality and quantity. Wilhoit residents depend on individual wells and a small community water cooperative. Drilling a well to get enough water volume is risky and well water usually has a high mineral content. **W**
- *Limiting further commercial or residential development will also help protect the limited water supply in our*

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area **BCC**

- *...the Forest protects the region's watershed by storing ground water and sustaining renewable and non-renewable resources for future generations.* **VV**
- *...promote healthy watersheds where storage of water in the soil, stream courses and local aquifers is maximized.* **PR/PV/CHV**
- *...preserve the underground aquifer that supplies water to residents. ...ensuring the water supply remains available to residents living in the Big Chino basin.* **PA**

Land Ownership

➤ Key Trends

- The PNF, local governments and individuals have interest in retaining lands as open space in areas surrounding communities, especially in the Verde Valley. Pressure for land exchanges will continue and may increase.

▪ Community Issues and Visions

- Protection of their scenic views **JE**
- Loss of viewshed; private land around Jerome (East Mingus Land Exchange) **CO**
- *The community would like the viewshed protected from the town to the mountaintops in all directions.* **BCC**

Transportation and Corridors/Lands and Special Uses

➤ Key Trends

- Use of forest roads and trails will increase.
- New home construction and development of rural land will continue. Buildup of homes along the PNF boundary may affect established public access.

▪ Community Issues and Visions

- Local residents have difficult time maintaining Forest roads to the subdivision. **AF**
- PNF maintenance of Fed Mine Road **CH**
- *Regular maintenance of all roads to provide safe public accessibility and evacuation if needed.* **CK**
- Need for FS road upgrade for emergency fire access (Fed Mine area) **CH**
- Road maintenance by Forest Service or County for fire escape routes. Residents and business owners believe the Forest Service committed to adequately maintain community escape routes from Crown King in case of wildfire. Concern road maintenance is not being kept up. **CK**
- Cherry Road maintenance, especially after escaped PNF fire. **CH**
- Some citizens and OHV dealers are concerned about loss of recreational access to State Trust lands, and national forest lands and roads due to access road closures through private lands. One cited example is the Coyote Springs area. **PV**
- Preserving access to National Forest for recreation **PA**
- "You're closing a lot of roads and trails on the Forest?" **AF**
- Residents are concerned that motorized and non-motorized access routes be kept open to public lands in Black Canyon and the Castle Hot Springs area. **BCC**
- Black Canyon Trail Coalition wants to continue the Black Canyon Trail northward through the PNF and wants

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to work with the Forest to locate trail sections. **BCC**

- Separate trails for motorized and nonmotorized **JE**
- Local residents and non-residents want continued recreational access to BLM public lands and National Forest lands for horseback and motorized activities. **DHMC**
- Strong resistance to Travel Management Rule proposals to close roads on Coconino NF **CO**
- Only one trailhead on Verde side to access PNF **CO**
- Dropped PNF trails project **CH**
- *Availability and maintenance of adequate and clearly designated motorized and non-motorized trails.* **CK**
- *Existing, historically described roads on BLM land must be mapped, legally described, and dedicated so as to ensure that residents and property owners can continue to access and use their lands into perpetuity.* **MCHS**
- *All federal lands in the Lake Pleasant area are to be treated the same as private property with regard to obtaining new or perfecting existing legal and physical access.* **MCHS**
- *A system of non-motorized multi-use trails connects communities, allows access to public lands and encourages people to improve health and vitality by exploring the outdoors. Roads and selected areas are managed for responsible use of off-highway vehicles, while other areas are set aside for protection or managed for non-motorized uses.* **VV**
- *...a thoughtful balance will be achieved between the need for access and the protection of forest resources and aesthetics...a comprehensive recreational travel plan region-wide will protect forest health and promote robust economies in our cities and towns. ...PNF will maintain a comprehensive system of meaningful and sustainable trails, trailheads and designated campsites. Low maintenance facilities built collaboratively among citizens and agencies will be valued by all...minimize user conflict through enhanced separation between non-motorized and multi-use trails... with a reasonable amount of access to all user groups. Cross-country* motor vehicle travel will continue to be prohibited* **PR/PV/CHV**
- *The public areas surrounding our community should allow recreational access for all ages & physical conditions where practical.* **W**

- Increasing human population will increase demands for infrastructure such as utilities, utility corridors and roads.

- *Encourage appropriate discreet cell-site development to provide for better law enforcement telecommunications.* **MCHS**

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Recreation Use

➤ Key Trends

- The Forest can expect increasing demand for recreation opportunities, putting additional pressure on existing facilities and the need for additional recreation opportunities. Increased levels of use may also present challenges to meeting visitors' expectations. Increased recreation demands from Maricopa County are expected.

▪ Community Issues and Visions

- Lack of developed campgrounds on Forest **AF**
- *Adequate public facilities to accommodate the many visitors that frequent Crown King and the surrounding area.* **CK**
- *An increased number of improved campsites, including existing and previously closed campsites.* **CK**

Open Space

➤ Key Trends

- Pressure for land exchanges will increase while local governments and individuals will continue to expect the Forest to maintain open space. Local communities' resistance to land exchanges may increase, because of the desire to retain National Forest land for open space.

▪ Community Issues and Visions

- Interest in open space; usage of open space funding **PR**
- *... wide open spaces and urban interface areas are highly regarded by communities for their natural and cultural resource values, and their social and economic benefits.* **VV**
- *...buffered by Prescott National Forest lands, which provide natural open spaces and big mountain views The Black Mountain Range, featuring Mingus Mountain and Woodchute Wilderness on the north and Squaw Peak and Cedar Bench Wilderness to the south, forms a scenic backdrop for the entire Valley.* **VV**
- *... adamantly against Commercialization and Development, as well as Forest Land Trades for private use ... Forest boundaries should be kept intact and that management must focus on protection of the natural and cultural resources.* **JE**

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Community Engagement with the PNF

➤ Key Trends

- Community demand for PNF activities related to fire safety, fuels reduction, and forest health may increase with wildland-urban interface build-out.

▪ Community Issues and Visions

- Much of Prescott and its surrounding area is in a Wildland Urban Interface category. Of special concern are the numerous residential neighborhoods, recreational facilities, and organizational camps within the Forest boundary south of Prescott. **PR**
- PNF prescribed fires conducted during hunting season **BA**
- The small community fire departments want to work with BLM and Forest Service fire officials to improve community fire safety. **DHMC**
- ...surrounded by national forest lands. The whole town is wildland urban interface. Residents and business owners are concerned about potential wildfire. ...concerned about the safety of hundreds of ORV, camping, hiking, and hunting enthusiasts each day who visit the area. **CK**
- The Fire Chief is concerned about the drought-stressed forest vegetation and the fire danger to residents. OHV enthusiasts from “the Valley” are heavily using areas such as Copper Basin Wash with little understanding of the possibility of starting fires or resource damage. **SV**
- *Fire Prevention is paramount and should be on-going. Continue prescribed burns and brush thinning around our community for fuel reduction. Manage the public areas to reduce fuel build-up. Encourage the public to remove deadfalls for firewood after fires. **W***
- *Tougher law enforcement/greater punishments for those who start fires. **W***
- *Controlled burns were a big issue for health and viewshed reasons. **JE***
- *Healthy forests and rangelands are keys to sustainability. We support least-impact timber management practices and managed grazing to control excess combustible vegetation. **MF***
- *We recognize fire as a management tool and respect its role in the evolution of the forest and a critical component of forest health. We desire continued research in to the potential positive and negative effects of fire on the land. **MF***
- *The risk of forest fires will be reduced in the urban-wildland interface where the Forest and community partners will actively work to reduce hazardous fuel loads. Ecologically, socially and economically sustainable uses of forest products will support these projects. **PR/PV/CHV***
- *Active forest management, with an emphasis on restoration of natural ecological processes, developed through agency-community collaborative efforts, will help maintain forest health and reduce the risk of stand-replacing wildfires forest wide. **PR/PV/CHV***

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- Increases in illegal uses such as trash, vandalism, and unauthorized OHV are expected.
 - *Consistent and timely enforcement of existing laws and rules that govern the use of public and private lands.* **CK**
 - Trash / dumping **CHV**
 - ... *reduction of trash and clutter* **PA**
 - Local residents complain of trash dumping by non-locals along Forest roads; closest transfer stations currently are Seligman and Williams; cost \$38/month for residential trash pickup. **AF**
 - Trash dumping. Residents are concerned about the dumping of household trash and appliances on public lands in Black Canyon. **BCC**
 - Enforcement re trash, staying on trail **JE**
 - Trash dumping. There is some dumping of household trash and appliances in the area. **DHMC**
 - Trash / dumping / uncovered loads going to dump, messy highway **CH**
 - Trash/dumping in the Forest **CAV**
 - Trash/dumping in the Forest and related Waste Management policies **CO**
 - Trash / unauthorized use by visitors. Trash is being left by some of the hundreds of off-road users using forest roads to visit Crown King. Local residents and business owners would like to work with the Forest Service to address trash and unauthorized use issues caused by off-roaders. **CK**
 - *A healthy forest with a natural trash free setting providing clean air and quiet surroundings.* **CK**
 - *The healthy forest will contribute to global sustainability and will be a natural, trash-free place with quiet settings.* **PR/PV/CHV**
 - Ranchers growing increasingly unhappy with vandalism and OHV use **W**
 - Drug use and vandalism from some newer residents - In recent years, the County Corner general store and several homes have been burglarized. Several drug users and registered sex offenders have moved into town. This is a new trend and concerns long-time residents, many of whom are elderly. A nearby commercial gold mine operator has experienced vandalism to his equipment and indiscriminate shooting near his work site. **W**
 - *...are free of litter and illegal uses; and they are protected from wildfire.* **VV**
 - *Federal, State and County agencies work cooperatively and effectively with neighboring municipalities, groups and individuals to protect public lands and enforce the rules that govern them.* **VV**
 - *“Estimate 75% of workers at sandstone quarries are illegal; declined greatly since new AZ law in effect”* **AF**
 - 4x4 use / T&E in Upper Verde River **CHV**
 - Off-road motorized vehicle use off of established roads and trails – Residents are concerned that more off-roaders are going “off trail” in Copper Basin and in the Hassayampa drainage and causing damage as well as leaving trash. **W**
 - Safety of town water supply; Allen Springs pipeline suffers repeated vandalism (shooting); vent pipes damaged; heavy metal springbox doors cut open to access 1 ½ mile cave **JE**
 - Reckless vehicle use, illegal parking, shooting, vandalism, trash dumping along Castle Hot Springs Road has been occurring for years. Homeowners and the Bradshaw Foothills Coalition have recently begun working with Castle Hot Springs Road users and land management agency representatives (BLM, State Lands, County,

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Arizona Game & Fish) to address issues along the road. Work is ongoing and the Forest Service should join the team. **MCHS**

- Motorized vehicle use along County Road 68 traveling through Strotjost Flat, on through Yolo Ranch and Anderson Mesa, and towards Camp Wood. This area is a mixed jurisdiction of Forest Service, State Trust Lands, and private holdings. Few boundary signs showing land ownership are visible. Numerous well-used off-road trails take off the County Road in every direction. There is some trash from camping, but very little large item dumping, such as household trash, appliances, or construction materials. OHV users in Bagdad are concerned about keeping trails open for motorized recreation, keeping local users on trails, and cleaning up their own litter. **BA**
- Unauthorized off-highway travel by quads, 4x4 **CHV**
- Damage by ATV users (local and non-local) **PA**
- Use trails in positive manner **CO**
- *Forest Service to actively work to minimize unwanted uses that pose threats to wildlife and low-impact recreational use (i.e., hiking). ...enforce existing laws and provide programs to educate and inform those Forest users who engage in reckless use of firearms and all-terrain vehicles.* **JE**
- *We support and desire the maintenance of trails and signage, control of trash accumulation and illegal dumping, and designation of motorized vehicles to roads and specific "OHV use areas."* **MF**
- *The PNF will have sufficient financial resources to meet its management obligations, including adequate law enforcement.* **PR/PV/CHV**

➤ Increasing community willingness and energy to engage with PNF to proactively address citizen issues and management concerns is expected.

- *We want a community-based stewardship group to proactively plan and later provide expertise, labor, and cultural wisdom with BLM on all recreational uses, including but not limited to non-motorized and motorized trails.* **MCHS**
- *Maintain community outreach programs to foster voluntary community involvement, input and feedback to inform policy development and facilitate implementation.* **CH**
- *Whenever desirable and feasible promote partnerships between local communities, municipal, state and federal agencies to formulate and achieve goals.* **CH**
- *Utilize communities as on-site resources to monitor both natural and human induced occurrences in the national forest setting.* **CH**
- *Community Involvement/Partnerships: Citizens will recognize an ethical obligation to protect the forest for the future; this land ethic will be shared with all newcomers to the area. Vibrant partnerships with emerging or established community groups will enhance the Forest Service's ability to provide services, enabling a large group of citizen volunteers to respond to the needs of the forest, including trail maintenance, user education and fire prevention. This informed, engaged citizenry – through a multi-interest non-profit and/or stewardship group - will actively participate in an ongoing collaborative process of forest planning that ensures the Prescott National Forest will be enjoyed by more generations to come.* **PR/PV/CHV**
- *Volunteer program for trail management* **W**

Note: Italicized text comes from community vision statements. Non-italicized text comes from community visioning meetings and informal contacts with groups and individuals from those communities.

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- *Active forest management through agency / community collaborative efforts to help maintain forest health and reduce danger of catastrophic fires. CK*

- Concerns about inappropriate shooting on the PNF have been raised by citizens. Shooting will continue on the PNF; conflicts may increase between users.

- Target shooting. Some residents are concerned about target shooting near residential areas. One example is on national forest land behind the Blue Hills Café in Dewey-Humboldt. **DHMC**
- Public safety from unsafe shooting **JE**
- *Target shooting needs to be encouraged in appropriate and safe areas. Our community is willing, as a stewardship group, to counsel BLM on appropriate areas for target shooting. MCHS*

Economics

➤ Key Trends

- Of the natural resource programs, recreation shows the highest contribution to labor income and number of jobs; this trend is likely to continue and increase.

- Commodity/consumptive industries are expected to remain stable on the PNF.

▪ Community Issues and Visions

- Economic growth for local businesses (tourism, use of forest products, etc.) Crown King businesses depend heavily on the summer recreation trade and would like to explore opportunities to strengthen economic interests, including using forest products. **CK**

- *All economic activities on the forest will be managed to minimize forest damage while promoting healthy ecosystems and public safety. Grazing allotments will be adaptively managed to promote healthy and productive grasslands and watersheds, while supporting ranch families who are good stewards of the land and represent an important part of our local history and culture. The PNF will continue to support a range of activities that directly contribute to local economies. PR/PV/CHV*

Note: Italicized text comes from community vision statements. Non-italicized text comes from community visioning meetings and informal contacts with groups and individuals from those communities.

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Appendix B

Prescott National Forest Economic Contribution Analysis

Methods

Estimates of the economic contribution of Forest programs and activities were developed through the use of IMPLAN¹, using data for 2004. IMPLAN is an economic modeling program originally developed by the Forest Service in cooperation with the Federal Emergency Management Agency and the Bureau of Land Management. IMPLAN has since been privatized and is now provided by Minnesota IMPLAN Group (MIG). IMPLAN utilizes a database of basic economic statistics constructed by MIG. Information for this database was obtained from major government sources such as the Bureau of Economic Analysis, County Business Patterns (U.S. Census Bureau 2007), REIS (BEA 2008), Bureau of Labor Statistics, U.S. Census, etc., and converted to a consistent format using widely accepted methodologies.

The IMPLAN database breaks the economy down into 509 sectors² based on the North American Industrial Classification System (NAICS). The 509 IMPLAN sectors were aggregated in order to summarize the data. The aggregation scheme that was utilized grouped sectors by the first two digits of the NAICS code. This initial aggregation was further refined to better identify areas of particular interest relative to Forest Service management activities. The result was a total of 16 aggregated sectors. The sectors identified that relate to Forest Service activities are wood products and processing, grazing, mining, and tourism. For the purposes of this assessment, the portion of labor income and employment associated with tourism were estimated based on percentages derived from the Travel Industry Association of America Tourism Economic Impact Model and used in the Arizona Tourism Statistical Report issued by the Arizona Office of Tourism as cited in the Socio-Economic Assessment for the Prescott National Forest (University of Arizona School of Natural Resources 2005). Data for the analysis area as a whole are summarized below.

To estimate job and labor income impacts of current Forest Service activities, an IMPLAN model was used to estimate “response coefficients,” or rates of economic activity for the following forest-related activities:

- Recreation: Local economic activity generated per million dollars of visitor expenditures while visiting the national forest.

¹ IMPLAN (Impact analysis for PLANing, Minnesota IMPLAN Group, Inc.), is a regional economic analysis system that uses count-level, input-output data to determine the extent to which these activities contribute to the local economy.

² Groupings utilized by the North American Industry Classification System, the industry classification system used by the statistical agencies of the United States. NAICS replaces the 1987 Standard Industrial Classification (SIC).

- Wildlife and Fish: Local economic activity generated per million dollars of visitor expenditures for hunting, fishing, and wildlife viewing while visiting the national forest.
- Grazing: Economic activity per million dollars of value added to the sales price of cattle grazed on Forest Service allotments.
- Timber: Economic activity per thousand cubic feet of stumpage flowing through logging companies, sawmills, post and pole operations, and firewood sales.
- Minerals: Economic activity per ton of mineral products such as aggregate and dimension stone that are extracted from National Forest System lands administered by the PNF.
- Payments to States: Returns to counties under the “Secure Rural Schools Act” can foster significant economic activity at the local level. This response coefficient is a prediction of the local economic activity per million dollars returned to the counties.
- Forest Service salary and non-salary expenditures: Economic activity per million dollars of wages (disposable income spent locally by Forest Service employees, and economic activity per million dollars spent locally on materials, contracts, and services by the Forest Service.

These response coefficients, as well as baseline economic data, were exported from IMPLAN models and read into Forest Economic Analysis Spreadsheet Tool (“FEAST”), a spreadsheet designed to pair IMPLAN response coefficients with resource data to generate an economic contribution report.

The following data was used in “FEAST” to generate an estimate of the Forest’s economic contribution to the local economy.

- Recreation and Wildlife and Fish:
 - Annual local and non-local visitor use numbers came from the National Visitor Use Monitoring (NVUM) survey for the Prescott National Forest (Forest Service 2007b). Forest staff has expressed some concern that the survey results may not be representative of the true average annual use because the Forest experienced a 60 day fire closure and implementation difficulties when the survey was conducted. However, no other more reliable data is currently available. The next round of survey data is currently being collected, but will not be completed until the fall of 2007. The reader is therefore cautioned that recreation impacts may be somewhat under estimated.
 - Expenditure profiles for different types of recreation/wildlife visitor activities were also derived from the NVUM survey and processed for use with IMPLAN (Stynes 2005).
 - A spreadsheet was used to process visitor numbers into numbers compatible with the IMPLAN expenditure profiles (Forest Service 2006c).

- Range:
 - Inventory, marketing, and income data came from the Arizona Agricultural Statistics Bulletin (Winter and Watson 2005).
 - National Forest permitted AUMs came from a spreadsheet provided by Region 3 (Winter and Watson 2005).
 - Conversion from AUMs to head months came from the Rangeland management website (USDA 2006d).
- Timber:
 - Volume (ccf) cut information was obtained from the Region 3 Cut and Sold Report for the Prescott National Forest (USDA 2005).
 - Direct effects response coefficients came from Timber Mill Survey from Chuck Keegan at the University of Montana (Direct jobs and income per thousand cubic feet of stumpage harvested) (Keegan 2003).
 - Indirect and induced employment and income effects come from the IMPLAN model.
- Minerals:
 - Minerals production information was obtained from the USDA Forest Service Mineral Materials Production Report (USDA 2006e).
 - Minerals price data was obtained from the U.S. Geological Survey, Mineral Commodity Summaries, January 2006 (US Geological Survey 2006).
 - Direct, indirect, and induced employment and income impacts come from the IMPLAN model.
- Forest Service salary and non-salary expenditures:
 - Budget expenditure data were obtained from the USDA National Finance Center (USDA 2006b).
 - The data were split into salary and non-salary expenditures.
 - Non-salary information was bridged to IMPLAN economic sectors.
 - Salary expenditures were converted to disposable income.
 - Employment levels were obtained from Region 3 personnel data.
- Restoration and Stewardship projects:
 - The budget expenditure data contain expenditures for contracting services, i.e. for thinning operations, and for force account expenditures related to these projects (USDA 2006b).

- FEAST models the economic impact of these expenditures in the local economy.
- Budget data for Fiscal Year 2005 was used as it reflects the increasing emphasis (expenditure) on restoration and stewardship projects.

Data and Process Used to Develop Contribution Analysis for Grazing, Recreation, Wildlife, and Timber Programs

Recreation and Wildlife:

Data Needs:

- National Forest visitation estimate for year of analysis
 - 758,600 National Forest Visits
 - Source: Prescott National Forest National Visitor Use Monitoring Round 1
- Division of total visitation between wildlife and recreation related activities.
 - Wildlife – 15 percent
 - Recreation – 85 percent
 - Source: *Spending Profiles of National Forest Visitors, NVUM Four Year Report* by Stynes and White, page 42, Table B-6 (Case Weights column)
- Division of visits by visitor use segments
 - Non-local day use: 17 percent
 - Non-local overnight on national forest: 7 percent
 - Non-local overnight off forest: 9 percent
 - Local day use: 58 percent
 - Local overnight on national forest: 3 percent
 - Local overnight off forest: 4 percent
 - Nonprimary (national forest was not reason for presence): 2 percent
 - Source: *Spending Profiles of National Forest Visitors, NVUM Four Year Report* by Stynes and White, page 26, Table A-2.
- Average persons per vehicle surveyed
 - Non-local day use: 2.3 persons
 - Non-local overnight on national forest: 2.5 persons
 - Non-local overnight off forest: 2.7 persons
 - Local day use: 2.1 persons
 - Local overnight on national forest: 2.5 persons
 - Local overnight off forest: 2.5 persons
 - Source: *Spending Profiles of National Forest Visitors, NVUM Four Year Report* by Stynes and White, page 31, National Average.
- Visitor spending profiles (\$'s per party)

- Wildlife Related
 - Non-local day: \$40.71
 - Non-local overnight on national forest: \$203.78
 - Non-local overnight off forest: \$249.95
 - Local day: \$44.03
 - Local overnight on national forest: \$151.92
 - Local overnight off forest: \$116.49
 - Source: *Spending Profiles of National Forest Visitors, NVUM Four Year Report* by Stynes and White, page 40, Table B-3, 2001 dollars.
- Non-Wildlife Related
 - Non-local day: \$53.76
 - Non-local overnight on national forest : \$151.33
 - Non-local overnight off forest: \$244.46
 - Local day: \$30.79
 - Local overnight on national forest: \$119.49
 - Local overnight off forest: \$116.03
 - Source: *Spending Profiles of National Forest Visitors, NVUM Four Year Report* by Stynes and White, page 40, Table B-4.
- Response Coefficients per \$1,000,000 change in final demand (from IMPLAN model)
 - Wildlife Related
 - Non-local day: \$358,273 of labor income and 14.0 jobs
 - Non-local overnight on national forest: \$403,362 of labor income and 15.2 jobs
 - Non-local overnight off forest: \$426,616 of labor income and 18.0 jobs
 - Local day: \$353,226 of labor income and 13.6 jobs
 - Local overnight on national forest: \$369,060 of labor income and 13.7 jobs
 - Local overnight off forest: \$360,242 of labor income and 14.7 jobs
 - Non-Wildlife Related
 - Non-local day: \$411,165 of labor income and 16.3 jobs
 - Non-local overnight on national forest: \$431,601 of labor income and 15.9 jobs
 - Non-local overnight off forest: \$439,292 of labor income and 18.4 jobs
 - Local day: \$391,998 of labor income and 14.8 jobs
 - Local overnight on national Forest Service: \$417,753 of labor income and 14.4 jobs
 - Local overnight off forest: \$435,180 of labor income and 16.4 jobs

- Source: IMPLAN model, 2004 data
- GDP deflators for 2001, 2004, and 2007
 - 2001 – 1.0940
 - 2004– 1.1385
 - 2007 – 1.1948

Contribution Analysis Process:

1. Divide total recreation between wildlife and recreation related visits.
 - National Forest Visits * Percent Wildlife related visits = Wildlife related National Forest Visits
 - National Forest Visits * Percent Recreation related visits = Recreation related National Forest Visits
2. Calculate the visits by visitor use segments
 - Wildlife related National Forest Visits * percentage for each visitor use segment = Wildlife related use by visitor use segment
 - Recreation related National Forest Visits * percentage for each visitor use segment = Recreation related use by visitor use segment
3. Convert spending profiles from \$'s per party to \$'s per visit for each visitor use segment
 - Expenditure per party by visitor use segment * Persons per vehicle by visitor use segment = Expenditure per visit (2001 dollars)
4. Convert from 2001 dollars to 2004 dollars (2004 is the IMPLAN model data year)
 - Expenditure per visit (2001 dollars) * (2004 GDP deflator / 2001 GDP deflator) = Expenditure per visit (2004 dollars)
5. Calculate total estimated expenditures for each visitor use segment
 - Wildlife related use by visitor use segment * Expenditure per visit = Total expenditure per wildlife related visitor use segment
 - Recreation related use by visitor use segment * Expenditure per visit = Total expenditure per recreation related visitor use segment
6. Calculate Labor Income and Employment estimates
 - Response coefficient for each wildlife related visitor use segment * (Total expenditure per wildlife related visitor segment / 1,000,000) = Labor Income or jobs supported.
 - Response coefficient for each recreation related visitor use segment * (Total expenditure per recreation related visitor segment / 1,000,000) = Labor Income or jobs supported.
7. Convert Labor Income estimates from 2004 dollars to 2007 dollars

- Estimated wildlife related labor income * (2007 GDP deflator / 2004 GDP deflator) – Estimated wildlife related labor income in 2007 dollars.
- Estimated recreation related labor income * (2007 GDP deflator / 2004 GDP deflator) – Estimated recreation related labor income in 2007 dollars.

Calculations for the Prescott National Forest:

The following are the actual calculations of the labor income contributions of Prescott NF wildlife and recreation related visitor use.

1. Division of National Forest Visit between wildlife and recreation:

- 758,600 National Forest Visits * 15 % Wildlife Related = 113,790 wildlife related National Forest Visits
- 758,600 National Forest Visits * 85 % Recreation Related = 644,810 recreation related National Forest Visits

2. Calculation of visits by visitor use segments:

Use Segment	Total Visits		*Segment percentage	Recreation visits	Wildlife visits
	Recreation	Wildlife			
Non-Local day	644,810	113,790	17%	109,618	19,344
Non-Local overnight on forest			7%	45,137	7,965
Non-Local overnight off forest			9%	58,033	10,241
Local day			58%	373,990	65,998
Local overnight on forest			3%	19,344	3,414
Local overnight off forest			4%	25,792	4,552

*NOTE: percentages do not total to 100% because 2 percent of visitors indicated that the National Forest was not the primary reason for their presence.

3 and 4. Convert spending profiles from \$'s per party to \$'s per visit and convert to 2004 dollars:

Use Segment	Avg. persons per vehicle	Conversion: 1/Avg. person per vehicle	2004 GDP / 2001 GDP 1.1385 / 1.0940	Expenditure per Party	Expenditure per Visit (Expenditure per Party * Conversion * GDP)
WILDLIFE RELATED					
Non-Local day	2.3	0.434783	1.0407	\$40.71	\$18.419973
Non-Local overnight on forest	2.5	0.400000		\$203.78	\$84.827616
Non-Local overnight off forest	2.7	0.370370		\$249.95	\$96.339656
Local day	2.1	0.476190		\$44.03	\$21.819516
Local overnight on forest	2.5	0.400000		\$151.92	\$63.239824
Local overnight off forest	2.5	0.400000		\$116.49	\$48.491358
RECREATION RELATED					
Non-Local day	2.3	0.434783	1.0407	\$53.76	\$24.324680
Non-Local overnight on forest	2.5	0.400000		\$151.33	\$62.994225
Non-Local overnight off forest	2.7	0.370370		\$244.46	\$94.223614
Local day	2.1	0.476190		\$30.79	\$15.258299
Local overnight on forest	2.5	0.400000		\$119.49	\$49.740170
Local overnight off forest	2.5	0.400000		\$116.03	\$48.299874

5. Calculate total estimated expenditures for each visitor use segment:

Use Segment	Visits	2004 Expenditure per visit	Total Expenditure per Use Segment
WILDLIFE RELATED			
Non-Local day	19,344	\$18.419973	\$356,316
Non-Local overnight on forest	7,965	\$84.827616	\$675,652
Non-Local overnight off forest	10,241	\$96.339656	\$986,614
Local day	65,998	\$21.819516	\$1,440,044
Local overnight on forest	3,414	\$63.239824	\$215,901
Local overnight off forest	4,552	\$48.491358	\$220,733
TOTAL WILDLIFE RELATED			\$3,895,260
RECREATION RELATED			
Non-Local day	109,618	\$24.324680	\$2,666,423
Non-Local overnight on forest	45,137	\$62.994225	\$2,843,370
Non-Local overnight off forest	58,033	\$94.223614	\$5,468,079
Local day	373,990	\$15.258299	\$5,706,588
Local overnight on forest	19,344	\$49.740170	\$962,174
Local overnight off forest	25,792	\$48.299874	\$1,149,151
TOTAL RECREATION VISITOR EXPENDITURES			\$18,795,785
TOTAL WILDLIFE AND RECREATION VISITOR ESTIMATED EXPENDITURES			\$22,691,045

6. Calculate Labor Income estimates:

Use Segment	Total Expenditure per Use Segment	Total Expenditure / 1,000,000	Labor Income Response Coeff.	Est. Labor Income (2004 \$'s)	Jobs Response Coeff.	Est. Jobs
WILDLIFE RELATED						
Non-Local day	\$356,316	.356316	\$358,273	\$127,659	14.0	5.0
Non-Local overnight on forest	\$675,652	.675652	\$403,362	\$272,532	15.2	10.3
Non-Local overnight off forest	\$986,614	.986614	\$426,616	\$420,905	18.0	17.8
Local day	\$1,440,044	1.440044	\$353,226	\$508,661	13.6	19.5
Local overnight on forest	\$215,901	.215901	\$369,060	\$79,687	13.7	3.0
Local overnight off forest	\$220,733	.220733	\$360,242	\$79,517	14.7	3.2
Total Wildlife Related Labor Income and Jobs				\$1,488,961		58.8
RECREATION RELATED						
Non-Local day	\$2,666,423	2.666423	\$411,165	\$1,096,340	16.3	43.5
Non-Local overnight on forest	\$2,843,370	2.843370	\$431,601	\$1,227,201	15.9	45.1
Non-Local overnight off forest	\$5,468,079	5.468079	\$439,292	\$2,402,084	18.4	100.4
Local day	\$5,706,588	5.706588	\$391,998	\$2,236,971	14.8	84.4
Local overnight on forest	\$962,174	.962174	\$417,753	\$401,951	14.4	13.8
Local overnight off forest	\$1,149,151	1.149151	\$435,180	\$500,087	16.4	18.9
Total Recreation Related Labor Income and Jobs				\$7,864,634		306.1
TOTAL LABOR INCOME AND JOBS				\$9,353,595		364.9

7. Convert Labor Income estimates from 2004 dollars to 2007 dollars:

Use Segment	Est. Labor Income (2004 \$'s)	2007 GDP / 2004 GDP (1.1948 / 1.1385)	Est. Labor Income (2007 \$'s)
WILDLIFE RELATED			
Non-Local day	\$127,659	1.049451032	\$133,972
Non-Local overnight on forest	\$272,532		\$286,009
Non-Local overnight off forest	\$420,905		\$441,719
Local day	\$508,661		\$533,815
Local overnight on forest	\$79,687		\$83,628
Local overnight off forest	\$79,517		\$83,449
TOTAL WILDLIFE RELATED LABOR INCOME			\$1,562,591
RECREATION RELATED			
Non-Local day	\$1,096,340	1.049451032	\$1,150,555
Non-Local overnight on forest	\$1,227,201		\$1,287,887
Non-Local overnight off forest	\$2,402,084		\$2,520,870
Local day	\$2,236,971		\$2,347,592
Local overnight on forest	\$401,951		\$421,828
Local overnight off forest	\$500,087		\$524,817
TOTAL RECREATION RELATED LABOR INCOME			\$8,253,547

GRAZING:

Data Needs:

- Forest Service Actual Head Months of Grazing for the year of IMPLAN data
 - **128,240** HM
 - Source: Prescott National Forest Range staff
- Total State cattle inventory
 - 1,706,000 animals (January 1 inventory + Calves + in-shipping)
 - Source: National Agricultural Statistics Service (2003)
- Total cattle inventory for each county in the analysis area
 - Yavapai County – 47,500 animals
 - Source: National Agricultural Statistics Service (2003)
- Total state marketings
 - 812,000 animals
 - National Agricultural Statistics Service
- Total state gross income (from sale of cattle), 2002 data
 - \$693,891,000
 - Source: National Agricultural Statistics Service (2003)

- Final Demand factor
 - 0.813066
 - Source: IMPLAN Model (reciprocal of type SAM multiplier), 2004 data year
- Response Coefficient (from IMPLAN model)
 - \$202,421 of labor income and 15.6 jobs per \$1,000,000 change in final demand
 - Source: IMPLAN Model, 2004 data year
- GDP deflation factors for 2002, 2004 and 2007
 - 2002 – 1.1080
 - 2004 – 1.1385
 - 2007 – 1.1948

Process for estimating the economic contribution of Forest Service Grazing:

1. Total state marketings / Total state inventory = State Proportion of cattle marketed
2. State gross income * (2004 GDP / 2002 GDP) [to convert state gross income from 2002 dollars to 2004 dollars which is the same as the IMPLAN model data]
3. State gross income / State total marketings = Price per animal
4. FS Head Months grazed / Total HM in Impact area (total of county inventories * 12) = Proportion FS HM.
5. Total of county inventories * State proportion of cattle marketed * Price per animal * Proportion FS HM = Total FS selling price
6. Total FS selling price / FS HM grazed = FS selling price per HM
7. Change in Total Industrial Output (TIO) * Final Demand Factor = Change in Final Demand
 - Change in Total Industrial Output (TIO) is the HM of FS grazing for year of analysis (in this case we used the same year, 2004, as the IMPLAN data)
 - Final Demand Factor is used to adjust the output to remove intermediate demand (demand of cattle producers from other cattle producers) so that we are left with the change in Final Demand.
8. Change in final demand /1,000,000 * Response Coefficient = Economic Impact

9. Economic Impact * (2007 GDP Inflator / 2004 GDP Inflator) = Economic impact in 2007 dollars.

The following are the actual calculations for the economic contribution of Prescott NF grazing.

1. $812,000 \text{ animals} / 1,706,000 \text{ animal} = 0.47596717$
2. $\$693,891,000 * (1.1385 / 1.1080) = \$712,991,790$
3. $\$712,991,790 / 812,000 = \878.07
4. **128,240** HM / (47,500 HM * 12) = 0.188775
5. $47,500 \text{ HM} * 0.47596717 * \$878.07 * 0.188775 = \$3,747,522$
6. $\$3,747,525 / 107,602 \text{ HM} = \34.83
7. $(107,602 \text{ HM} * \$34.83) * 0.813066 = \$3,046,984$ Total change in Final Demand
8. $\$3,046,984 / 1,000,000 * \$202,421 = \$616,772$ Labor Income (2004 dollars)
 $\$3,046,983 / 1,000,000 * 15.6 = 47$ Jobs
9. $\$616,772 * (1.1948 / 1.1385) = \$647,272$ Labor Income (2007 dollars)

Summary: Total estimated contribution to final demand as a result of the **actual** grazing on the Prescott National Forest is \$3,046,984. The total number of jobs (full-time, part-time, intermittent, and temporary) supported is 47. Total Labor income supported is \$647,272.

MINERALS:

Data Needs:

- Minerals extracted from National Forest System Lands
 - Stone Mining and Quarrying Sector
 - Dimension Stone: 76,474 short tons
 - Sand, Gravel, Clay, and Refractory Mining
 - Construction Sand and Gravel: 41,176 short tons
 - USDA Forest Service Mineral Materials Production Report, Fiscal Year 2004
- Price per unit for minerals extracted:
 - Dimension Stone: \$130.07 (2004 dollars)

- Construction Sand and Gravel: \$5.08 per short ton (2004 dollars)
- Source: U.S. Geological Survey 2006
- Final Demand factor
 - Stone Mining and Quarrying Sector (Dimension Stone): 0.992322
 - Sand, Gravel, Clay, and Refractory Mining: 0.999670
 - Source: IMPLAN Model (reciprocal of type SAM multiplier), 2004 data year
- Response Coefficient (from IMPLAN model)
 - Stone Mining and Quarrying Sector (Crushed Stone and Dimension Stone): \$448,962 of labor income and 12.5 jobs per \$1,000,000 change in final demand
 - Sand, Gravel, Clay, and Refractory Mining: \$541,233 of labor income and 7.0 jobs per \$1,000,000 change in final demand
 - Source: IMPLAN Model, 2004 data year
- GDP deflation factors for 2004 and 2007
 - 2004 – 1.1385
 - 2007 – 1.1948

Process for estimating the economic contribution of Forest Service Minerals:

1. Total minerals extracted from National Forest System Lands * Price = Total Change in Industrial Output (TIO) by Sector.
2. Change in Total Industrial Output (TIO) * Final Demand Factor = Change in Final Demand
 - Change in Total Industrial Output (TIO) is the HM of FS grazing for year of analysis (in this case we used the same year, 2004, as the IMPLAN data)
 - Final Demand Factor is used to adjust the output to remove intermediate demand (demand of cattle producers from other cattle producers) so that we are left with the change in Final Demand.
3. Change in final demand / 1,000,000 * Response Coefficient = Economic Impact (2004 dollars).
4. Economic Impact (2004 dollars) * (2007 GDP Inflation / 2004 GDP Inflation) – Economic Impact in 2007 dollars

The following are the actual calculations of the economic contribution of Prescott NF minerals.

1. TIO by Sector:
 - a. Stone Mining and Quarrying Sector:
 - i. Dimension Stone: 76,474 short tons * \$130.07 = \$ 9,946,973
 - ii. Sector Total Industrial Output \$ 9,946,973
 - b. Sand, Gravel, Clay, and Refractory Mining Sector:
 - i. Sand and Gravel: 41,176 short tons * \$5.08 = \$ 209,174
 - ii. Sector Total Industrial Output (TIO) \$ 209,174
2. Change in Final Demand by Sector:
 - a. Stone Mining and Quarrying Sector:
 - i. $\$9,946,973 * 0.992322 = \$9,870,600$
 - b. Sand, Gravel, Clay, and Refractory Mining Sector:
 - i. $\$209,174 * 0.999670 = \$209,105$
3. Economic Impact (2004 dollars):
 - a. Stone Mining and Quarrying Sector:
 - i. $\$9,870,600 / 1,000,000 * \$448,962 = \$4,431,527$ Labor Income
 - ii. $\$9,870,600 / 1,000,000 * 12.5$ jobs = 123.1 jobs
 - b. Sand, Gravel, Clay, and Refractory Mining Sector:
 - i. $\$209,105 / 1,000,000 * \$541,233 = \$113,175$ Labor Income
 - ii. $\$209,105 / 1,000,000 * 7.0$ jobs = 2 jobs
 - c. Total Economic Impact (2004 dollars):
 - i. \$4,544,702 Labor Income
 - ii. 125 jobs
4. $\$4,544,702 * (1.1948 / 1.1385) = \$4,769,442$ Labor Income (2007 dollars)

TIMBER

Data Needs:

- Timber products harvested from the Prescott National Forest:
 - Softwood Sawtimber: 6,884 CCF
 - Softwood Pulp: 812 CCF
 - Poles: 726 CCF
 - Fuelwood: 3,136 CCF
- Timber product distribution
 - It is estimated that 100 percent of the saw timber and pulp wood harvest is accomplished by commercial logging contractors in the local area
 - 100 percent of poles are harvested by households for personal use
 - 30 percent of fuelwood is harvested by commercial contractors and 70 percent by households.
 - After harvest, all commercially harvested wood is shipped to facilities outside the analysis area for processing.
- Direct Impacts estimated from mill surveys conducted to estimate direct impacts of timber harvest and processing (Keegan 2003):
 - 25 jobs per MMCF for logging
 - \$19,000 per worker of labor income for logging (2002 \$'s)
- Response coefficients calculated in IMPLAN as a result of a \$1,000,000 change in final demand
 - Direct impacts
 - 5.02 jobs
 - \$108,292 Labor Income
 - Indirect impacts
 - 2.16 jobs
 - \$59,394 Labor income

- Induced Impacts
 - 1.39 jobs
 - \$39,570 Labor Income
- GDP deflation factors for 2004 and 2007
 - 2002 – 1.1080
 - 2007 – 1.1948

Process for estimating the economic contribution of the Forest Service Timber program:

1. Estimate ratio of indirect and induced response coefficients to direct response coefficients:
 - a. $\text{IMPLAN indirect response coefficient} / \text{IMPLAN direct response coefficient} = \text{Ratio of indirect to direct impacts}$
 - b. $\text{IMPLAN induced response coefficient} / \text{IMPLAN direct response coefficient} = \text{Ratio of induced to direct impacts}$
2. Determine response coefficients per MMCF:
 - a. $\text{Mill study direct response coefficient} * \text{Ratio of indirect to direct impacts} = \text{Estimated Indirect response coefficient per MMCF (in jobs or 2002 \$'s)}$
 - b. $\text{Mill study direct response coefficient} * \text{Ratio of induced to direct impact} = \text{Estimated Induced response coefficient per MMCF (in jobs or 2002 \$'s)}$
3. Determine volume of commercially processed timber harvest:
 - a. $\text{CCF Softwood Sawtimber volume harvested} * \text{Percent harvest by commercial logging contractors} = \text{CCF Commercial sawtimber}$
 - b. $\text{CCF Softwood Pulp volume harvested} * \text{Percent harvest by commercial logging contractors} = \text{CCF Commercial pulp}$
 - c. $\text{CCF Pole volume harvested} * \text{Percent harvest by commercial contractors} = \text{CCF Commercial Pole}$
 - d. $\text{CCF Fuelwood volume harvested} * \text{Percent harvest by commercial contractors} = \text{CCF Commercial Fuelwood}$
 - e. $\text{Commercial sawtimber} + \text{Commercial pulp} + \text{Commercial Pole} + \text{Commercial Fuelwood} = \text{Total CCF commercial harvest}$

4. Estimate direct, indirect, and induced economic impacts:
 - a. $(\text{Total CCF commercial harvest} / 10,000) * \text{Mill study direct response coefficient per MMCF} = \text{Direct economic impact (jobs or 2002 \$'s)}$
 - b. $(\text{Total CCF commercial harvest} / 10,000) * \text{Estimated Indirect response coefficient per MMCF} = \text{Indirect economic impact (jobs or 2002\$'s)}$
 - c. $(\text{Total CCF commercial harvest} / 10,000) * \text{Estimated Induced response coefficient per MMCF} = \text{Induced economic impact (jobs or 2002 \$'s)}$
5. $\text{Economic Impact (2002 dollars)} * (\text{2007 GDP Inflator} / \text{2002 GDP Inflator}) = \text{Economic Impact in 2007 dollars}$

The following are the actual calculations for the economic contribution of Prescott NF timber management.

1. Ratio of indirect and induced IMPLAN response coefficients to direct response coefficients:
 - a. Indirect:
 - i. $2.1622 \text{ indirect jobs} / 5.0184 \text{ direct jobs} = 0.4309 \text{ ratio of indirect to direct jobs}$
 - ii. $\$59,394 \text{ indirect labor income} / \$108,292 \text{ direct labor income} = 0.5485 \text{ ratio of indirect to direct labor income}$
 - b. Induced:
 - i. $1.3891 \text{ induced jobs} / 5.0184 \text{ direct jobs} = 0.2738 \text{ ratio of induce to direct jobs}$
 - ii. $\$39,570 \text{ induced labor income} / \$108,292 \text{ direct labor income} = 0.3654 \text{ ratio of induced to direct labor income}$
2. Response coefficients per MMCF:
 - a. Indirect response coefficients per MMCF:
 - i. $25 \text{ jobs} * 0.4309 \text{ ratio of indirect to direct jobs} = 10.77 \text{ jobs per MMCF}$
 - ii. $(25 \text{ jobs} * \$19,000 \text{ per worker}) * 0.5485 \text{ ratio of indirect to direct labor income} = \$260,537 \text{ labor income per MMCF}$
 - b. Induced response coefficients per MMCF:

- i. $25 \text{ jobs} * 0.2738 \text{ ratio of induced to direct jobs} = 6.92 \text{ jobs per MMCF}$
 - ii. $(25 \text{ jobs} * \$19,000 \text{ per worker}) * 0.3654 \text{ ratio of indirect to direct labor income} = \$173,565 \text{ labor income per MMCF}$
- 3. Volume of commercially processed timber harvest:
 - a. $6,884 \text{ CCF Softwood Sawtimber volume harvested} * 100 \% \text{ harvest by commercial logging contractors} = 6,884 \text{ CCF Commercial sawtimber}$
 - b. $812 \text{ CCF Softwood Pulp volume harvested} * 100\% \text{ harvest by commercial logging contractors} = 812 \text{ CCF Commercial pulp}$
 - c. $726 \text{ CCF Pole volume harvested} * 0\% \text{ harvest by commercial contractors} = 0 \text{ CCF Commercial Poles}$
 - d. $3,136 \text{ CCF Fuelwood volume harvested} * 30\% \text{ harvest by commercial contractors} = 940.8 \text{ CCF Commercial Fuelwood}$
 - e. $6,884 \text{ CCF Commercial sawtimber} + 812 \text{ CCF Commercial pulp} + 0 \text{ CCF Commercial Pole} + 940.8 \text{ CCF Commercial Fuelwood} = 8,636.8 \text{ Total CCF commercial harvest}$
- 4. Direct, indirect, and induced economic impacts:
 - a. Jobs:
 - i. $(8,636.8 \text{ CCF Total CCF commercial harvest} / 10,000) * 25 \text{ jobs} = 22 \text{ Direct jobs}$
 - ii. $(8,636.8 \text{ CCF Total CCF commercial harvest} / 10,000) * 10.77 \text{ jobs per MMCF} = 9 \text{ Indirect jobs}$
 - iii. $(8,636.8 \text{ CCF Total CCF commercial harvest} / 10,000) * 6.92 \text{ jobs per MMCF} = 6 \text{ Induced job}$
 - b. Labor Income (2002 \$s)
 - i. $(8,636.8 \text{ CCF Total CCF commercial harvest} / 10,000) * (25 \text{ jobs} * \$19,000) = \$410,248 \text{ Direct labor income (2002 \$s)}$
 - ii. $(8,636.8 \text{ CCF Total CCF commercial harvest} / 10,000) * \$260,537 \text{ per MMCF} = \$225,021 \text{ Indirect labor income (2002\$s)}$
 - iii. $(8,636.8 \text{ CCF Total CCF commercial harvest} / 10,000) * \$173,565 \text{ per MMCF} = \$149,905 \text{ Induced labor income (2002 \$s)}$

5. Economic impact in 2007 dollars:

- a. $\$410,248 \text{ direct labor income (2002 \$s)} * (1.1948 \text{ 2007 GDP} / 1.1080 \text{ 2002 GDP}) = \$442,387 \text{ Direct labor income (2007 \$s)}$
- b. $\$225,021 \text{ indirect labor income (2002 \$s)} * (1.1948 \text{ 2007 GDP} / 1.1080 \text{ 2002 GDP}) = \$242,487 \text{ Indirect labor income (2007 \$s)}$
- c. $\$172,235 \text{ Induced labor income (2002 \$s)} * (1.1948 \text{ 2007 GDP} / 1.1080 \text{ 2002 GDP}) = \$185,728 \text{ Induced labor income (2007 \$s)}$

NOTE: The calculations above were completed in a Microsoft Excel Workbook referred to as FEAST. If they are recalculated based on the numbers displayed – slightly different answers may be obtained due to the effects of rounding.