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# **Kaibab National Forest**

## **Social and Economic Sustainability Report**

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## **Abstract**

This report presents a socioeconomic assessment of the five-county area surrounding the Kaibab National Forest (KNF). The assessment is based on analysis of secondary data to inform forest staff, stakeholders, and communities of trends in five topic areas: 1) demographic patterns and trends; 2) economic characteristics and vitality; 3) land ownership, travel and access; 4) natural resources, and 5) community relationships. Findings from the analysis of socioeconomic data are consistent with those from similar studies throughout the region showing increases in population, increasing numbers and diversity of forest users, economic shifts from extractive industries toward the service and professional sectors, and changing Forest Service relationships with communities.

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# Executive Summary

The purpose of this assessment is to profile the social and economic environment encompassing the Kaibab National Forest (KNF). The collection and analysis of quantitative and qualitative socioeconomic data in this report is intended to provide key background information to inform the needs for change from the existing KNF Management Plan to a revised plan. This assessment describes the relationship between public lands and the surrounding communities, the contribution of the KNF to social and economic sustainability; and will contribute to the information used to evaluate trade-offs between various forest management scenarios.

In 2004, the Forest made an internal effort to identify key revision topics. The range of topics was kept narrow in expectation that collaboration would generate other topics to be considered. These were reviewed by the forest leadership team for feedback and were then transmitted to the Regional Office. After two rounds of meetings with the public on the need for change, a fourth topic was added. The three topics originally identified were 1) wildland-urban interface; 2) disturbance processes, vegetation diversity and ecological restoration; and 3) increasing unmanaged recreation. The fourth topic added was the need for natural quiet.

Data for the assessment includes information from a multi-county area of Arizona and southern Utah. The assessment area is the KNF which is located solely in Arizona. The majority of the forest lies within Coconino County, however, there are also small areas of the forest in Yavapai and Mojave Counties. The rationale for including information from Utah counties is that the North Kaibab Ranger District is separated from the rest of the forest by the Colorado River, and the communities near the North Kaibab Ranger District identify with and are influenced more by southern Utah than Arizona. Counties in Utah considered in this assessment include Kane and Washington.

This document follows the process outlined by the Forest Service Southwest Regional Office Working Group papers, which provide guidance for assessing social and economic sustainability. The guidance identifies socioeconomic indicators, appropriate geographic and temporal scales, and potential sources of information for each topic. The following section summarizes the main findings in five topic areas: 1) Demographic Patterns and Trends, 2) Economic Characteristics and Vitality; 3) Land Use, Transportation, and Access; 4) Natural Resources and Uses; and 5) Community Relationships.

## 1. Demographic Patterns and Trends

- The population in Arizona has increased rapidly, growing from 120,000 residents to well over five million over the past century. Utah's population has also grown rapidly. US Census data showed that population growth in Washington County, Utah has been faster than the other counties in the assessment area, exceeding state population growth averages for both Utah and Arizona. The populations of both Yavapai and Mohave Counties also increased near state averages. Both

- Coconino and Kane Counties grew at a slower rate than the state averages. The cities of St. George, Prescott Valley, Lake Havasu City, Chino Valley, and Page had growth rates in excess of their respective county rates.
- The population of those 65 and over increased in Coconino, Kane and Washington Counties. In Yavapai and Mohave Counties, there was an increase in both 65 and over and under 18 populations. Local data shows that out-migration of youth from northern Arizona communities is due to low paying jobs and the high cost of housing.
  - The region had substantial increases in populations of individuals of multiple race and Hispanic origin, but not as large as the increases within the state as a whole. The past 50 to 60 years have shown only moderate racial diversification in Arizona. While the Hispanic populations have increased from 20 to 25 percent since 1940, African Americans have increased only 0.1 percent. Proportionally, the Native American population has declined significantly over the past 5 or 6 decades, falling from 11 percent in 1940 to 5 percent in 2000 (U.S. Census Bureau 2005). In Utah, populations of African Americans represent about 1% of the population and Hispanic populations about 11% (U.S. Census Bureau Quick Facts 2006) in Kane and Washington Counties represent less than 2% of the population, similar to State figures.
  - Utah has relatively high secondary school graduation attainment; Washington and Kane Counties follow this trend. Both Coconino and Yavapai Counties are near or above the state percentage of high school graduates and Bachelor's degrees, while Mohave County falls below statewide averages in both categories.
  - Increases in total housing and housing density followed increasing population growth. Increases were greatest in Washington County, and also substantial in Mohave and Yavapai Counties. Coconino and Kane Counties reported moderate increases in housing. The cost of housing has gone up significantly in the last 10 years. While the housing market may currently be soft, median home values in Coconino and Yavapai counties were higher than the state of Arizona as a whole.

## 2. Economic Characteristics and Vitality

- Economic growth in the assessment area was generally below state averages. The service sector provided the largest portion of employment (31 percent), followed by retail trade (22 percent) and government (16 percent). Unemployment ranged from a low of 3 percent in Yavapai County to a high of 6 percent in Coconino County in 2004. Mohave, Yavapai, and Washington Counties all had unemployment rates that were lower than state averages (University of Arizona School of Natural Resources 2005).
- As a composite the counties of the assessment area were about 16% below state averages for personal income. Compared to the national averages, the per capita personal income of the counties surrounding the Forest represents 71 percent of the national total. These counties have experienced significant economic challenges, yet have exhibited strong economic growth (University of Arizona School of Natural Resources 2005).
- Approximately 14 percent of the analysis area populations had incomes below poverty level in 1999, which is comparable to 14 percent in the state of Arizona, but higher than Utah which averages 9 percent. The poverty levels are highest for American Indians, followed by African Americans and Hispanics. Overall,

- Coconino had the highest population percentage with incomes below poverty level (18 percent) (US Census Bureau 2000b).
- Several researchers have noted that while labor income is growing in the rural Mountain West, it is growing more slowly than transfer (social security, pensions, and retirement) and dividend income. In other words, the growth of rural communities is fueled, at least in part, by income that is not tied to local employment.
  - The economic data gathered for the area of assessment for the KNF illustrate a trend away from rural, extractive industries toward substantial growth in the F.I.R.E. (finance, insurance and real estate), construction, and service sectors. These trends are similar to the rest of the Arizona and Utah and to the Intermountain West.
  - Strong population growth, increases in retirement-aged populations and increases in seasonal housing units, influence increases in the service/professional, wholesale trade, manufacturing, and construction industries.

### 3. Land Use, Transportation, and Access

- In the assessment area, approximately 16 percent of the land is in private ownership and the remainder is federal, state, and tribal land. The USFS manages about 19 percent of the total acreage.
- Limited land for private development in the assessment area appears to focus attention on the interaction of private and public lands. It causes some shortages in land for development and also appears to amplify the interest of local residents in the use and management of KNF lands because of the interaction between lifestyle and community with forestlands and resources.
- Today, many regions of the state, including the area surrounding KNF, are struggling to provide much needed improvements to transportation networks in order to accommodate growing populations and changing local economies. Motor vehicle travel is by far the dominant mode of travel throughout the states of Arizona and Utah. This is likely to continue given the patterns of development in rural areas and the expense of developing infrastructure for alternative modes of transportation.
- Currently, there are few barriers to access within the KNF. The potential exists for future access issues resulting from the proximity of forest roads and trails to private property. Access issues are more likely to develop in the Williams Ranger District given that there is very little private property within and adjacent to the North Kaibab and Tusayan Ranger Districts.

### 4. Natural Resources and Uses

- In the 1980's, activities and planning emphasized timber production as the dominate use. Environmental policy as influenced by public sentiment has changed how the Forest Service manages activities as well as the portion of local economies dependent upon forest industries. Vegetation management now emphasizes restoring ecosystems, reducing wildfire risk, and improving forest health.

- Reintroduction of fire into the ecosystem continues to be controversial. Many people recognize the important role of fire, but have a high expectation for cautious implementation and oversight by the Forest Service.
- The number of grazing permits and authorized animal unit months (AUM) has decreased in the Forest over the past 20 years. There has been a general improvement in range condition across the forest. Renewal of grazing permits is controversial and some segments of the public believe grazing should be discontinued.
- Increasing elk populations have increased competition for limited forage resources. This conflict crosses several resource areas as there is public interest in the intrinsic value of wildlife in the forest, desire for more hunting opportunities, and concern about the effects to native vegetation composition and cover.
- Mining continues to play an important economic and social role on the Kaibab NF. Cinder and gravel pits provide commercial, agency, and personal-use materials. Sandstone quarries on national forest land are an important part of the economic contribution of the forest, especially to the community of Ash Fork.
- Uranium mining has occurred on the KNF in the past, and is extremely controversial. Recently the price for uranium ore has increased, and over two-thousand claims have been established on the Tusayan Ranger District. Exploratory drilling has occurred, with the possibility of mining in the future.
- Recreation use on the forest increased slowly but steadily in the past ten years. The recent rapid increase in state population growth will continue to increase the number of users.
- Sightseeing, hiking, and camping were reported to be the most popular activities. The four most desired settings and services were quiet, natural areas, dispersed camping and hiking trails. In a short time, the activities and types of uses have changed as the popularity of off-highway vehicles (motorized bikes, 4-wheelers, sand rails and other custom vehicles, as well as 4-wheel drive vehicles) has increased. The Arizona State Parks Trails Plan (2004) estimated that 25 percent of Arizonans used off-highway vehicles, and 63 percent participated in non-motorized trails. Trail connections, and motorized and non-motorized trails have been identified as a key desire among communities and users. In Utah designation of areas for off-highway vehicle use, trails and trail connections and protection of river corridors were identified as key items related to rural counties (Utah Division of Parks and Recreation 2003).
- In response to the increased motorized recreation and effects of this activity, such as noise and dust, there is a backlash from users who value natural quiet as a forest resource. One response of displacement of these users is to turn to wilderness and roadless or unroaded areas for the more primitive, quiet experiences that they used to find in dispersed areas of the forest.
- Hunting continues to be an important recreation activity on the forest; it also provides a statewide economic benefit. Trophy elk on the South Kaibab districts, and mule deer on the North Kaibab attract hunters. The demand for hunting permits exceeds the supply. Resource damage associated with irresponsible behavior by hunters has been identified as a concern to local communities. Some homeowners adjacent to the forest boundary would like to see more regulation of firearm use near communities. This conflict is expected to continue and grow as private land is subdivided and developed.

## 5. Community Relationships

- In recent years the Forest Service has placed an increasing priority on the relationships between national forests and surrounding communities. These relationships are often complex mixtures of social and economic influence.
- The KNF has developed partnerships with national, state, local, and tribal governments, agencies, organizations, and individuals for mutually agreed upon projects that benefit both the agency and public. There is potential to expand these relationships and in turn increase capacity and provide additional services to the public.
- The KNF is bordered by two American Indian reservations, and consults with seven Tribes regularly. Many tribal members gather forest products for medicinal and ceremonial uses, as well as collecting pinyon nuts, fuelwood and other resources for personal use. There are many areas of the KNF that are traditionally used by the Tribes. The forest expects to continue to work closely with the Tribal communities and governments to discuss resource management topics and to provide access to national forest land and resources.
- Changes in racial and ethnic characteristics show that the Hispanic segment of the population is expected to grow to at least 25 percent of the population. New approaches are needed in order to accommodate users including accommodating larger family groups; planning activities appropriate for multigenerational groups; and, personalization of materials in Spanish, employing bilingual employees, and connecting with community leaders in primarily Hispanic communities.
- Outreach to children has become increasingly important as large portions of the population live in urban area and children have less contact and access to public lands.
- Volunteerism has not been emphasized by the forest in the past. Concern has been expressed by the public about the lack of agency funding and personnel, and a willingness to assist with forest work.
- There is an increased threat of wildfire to communities. Additional risks are created with new home construction and heavy fuel loads continue to build. Several communities have developed Community Wildfire Protection Plans (CWPP) that prioritize vegetation and prescribed fire treatments in the wildland urban interface, many of which include national forest land.
- Many people expressed their belief that there is a conflict between urban and rural values and ways that the different user sets relate to and use the forest. Recent research also identified a growing disconnect between children and nature, and the kind of future we are creating for our children. This disconnect from nature also translates into an uncertain future for sustainable forests and healthy public lands. The KNF recognizes these trends and can respond by providing educational and interpretive programming and making better use of communication technology that will facilitate more sustainable use of national forest lands.

# Introduction

The purpose of this assessment is to characterize the social and economic environment of the KNF by showing the relationship and linkages between National Forest System land and local communities. The information contained in the assessment is intended to help the Forest Service (FS) and the public to:

- Better understand the relationships and the interaction between communities and forest resources in the development of potential forest management scenarios.
- Identify trends and potential threats that may affect social and economic sustainability.
- Aid in identifying specific elements of the current forest plans that may need to be changed in the revised plan.

## Assessment Methodology and Topics

This assessment of the social and economic environment surrounding the KNF is based entirely 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 (FS) documents.

To assist forests develop the necessary elements for forest plan revisions, the Southwestern Regional Office assembled topic-based working groups to develop guidance. The working groups were interdisciplinary teams of resource specialists from forests in Arizona and New Mexico. The purpose of the guidance was to determine the general content, organization and process needed for a robust analysis and to provide a consistent approach for developing products. This assessment utilized the guidance provided to the working group for Social and Economic Sustainability.

In addition, the Southwestern Regional office contracted several assessments for use in developing the socio-economic assessments. These include:

1. Socio-Economic Assessment for the Kaibab National Forest (SEA), by the University of Arizona. The SEA is based on existing secondary data<sup>1</sup>. 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.
2. Focus Group Study Report of Attitudes, Beliefs, and Values toward National Forest System Lands: Kaibab National Forest, by Adams-Russell Consulting. This focus group study used a statistically defensible, unbiased, three-tiered, approach to assess public preferences.

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<sup>1</sup> 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.

3. An IMPLAN<sup>2</sup> economic contribution analysis for the KNF, by Timber Measurement and Expert Services (TEAMS)<sup>3</sup> Social Scientist, Barbara Ott. The Forest Service contribution data is provided in a separate report for the KNF, as a supplement to the University of Arizona socioeconomic assessments.

Additional sources of information have been used to supplement these assessments. A complete listing of references is found in the appendix of this document.

In addition to individual elements for each assessment topic, this document identifies the geographic and temporal scales of analysis. For each of the national forests in Arizona, the area of assessment consists of all counties adjacent to forest boundaries. For the KNF, these are the Coconino, Mojave and Yavapai Counties in Arizona, and Washington and Kane Counties in Utah. Social and economic trends for the assessment area is compared to those for the United States and/or the states of Arizona and Utah where appropriate. It should be noted, however, that statewide trends for Arizona are significantly influenced by Maricopa County, which as of 2000, was home to nearly sixty percent of the entire state population. Similarly, data for Coconino County are heavily influenced by Flagstaff, the largest city in northern Arizona. In addition to analyzing information at the county and regional levels, this assessment includes available data on individual communities of interest to KNF. The communities of interest are those that are proximate to forest boundaries, those which share a stake in the management of the forest.

This report provides a profile of socioeconomic conditions and trends considered most relevant to natural resource policies in general, and the management of Arizona's national forests, the KNF in particular. The individual assessment topics were identified by comparing topics identified by the KNF, the Southwestern Regional products, County Comprehensive Plans, Williams Community Plan, National Visitor Use Monitoring (NVUM), Visitor Use Study from Northern Arizona University, the Arizona and Utah State Comprehensive Outdoor Recreation Plans, and government to government tribal consultation with local tribes. This information was compared to comments received during the first two rounds of public meetings for the KNF plan revision. The public comments mostly reiterated topics already identified, but included a lot more detail and filled in gaps of information. The social and economic information used should provide adequate information about the operating environment so that risks and trends can be identified and can be used to inform the next stages of the forest plan revision process.

## **Report Organization**

The organization of this assessment is based on the analysis of data pertinent to each of the five assessment topics. The overall organization includes an abstract, executive summary (providing primary concerns for each topic area), body of document (more detailed information about the topics areas), and final summary highlighting major

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<sup>2</sup> 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.

<sup>3</sup> TEAMS is a unit of the national Forest Service Enterprise Program.

trends/risks of each topic and their combined relevance to Forest Plan revision. A list of references is included at the end of the assessment.

## Assessment Area

This assessment considers the regional context of the KNF. The assessment area for this analysis is the 5-county area surrounding the KNF. This includes Mojave, Yavapai and Coconino Counties in Arizona, and Washington and Kane Counties in Utah. Figure 1 is a map of the forest and the 5-county assessment area.

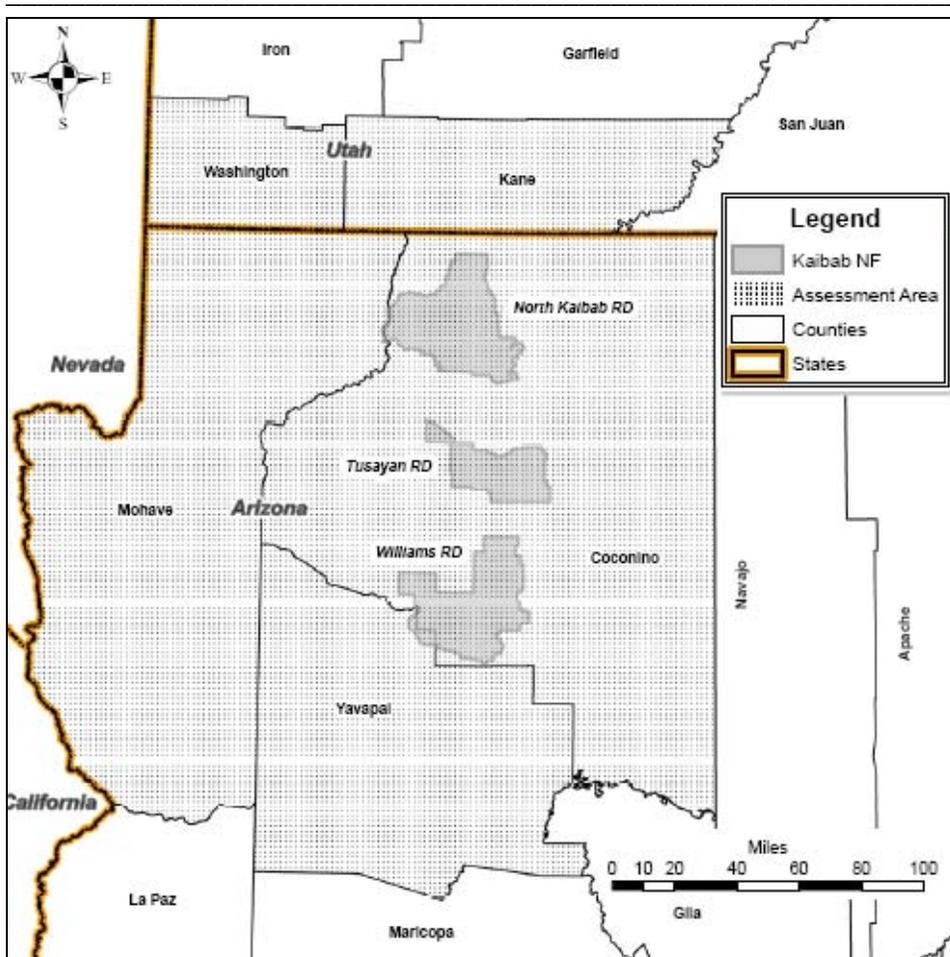


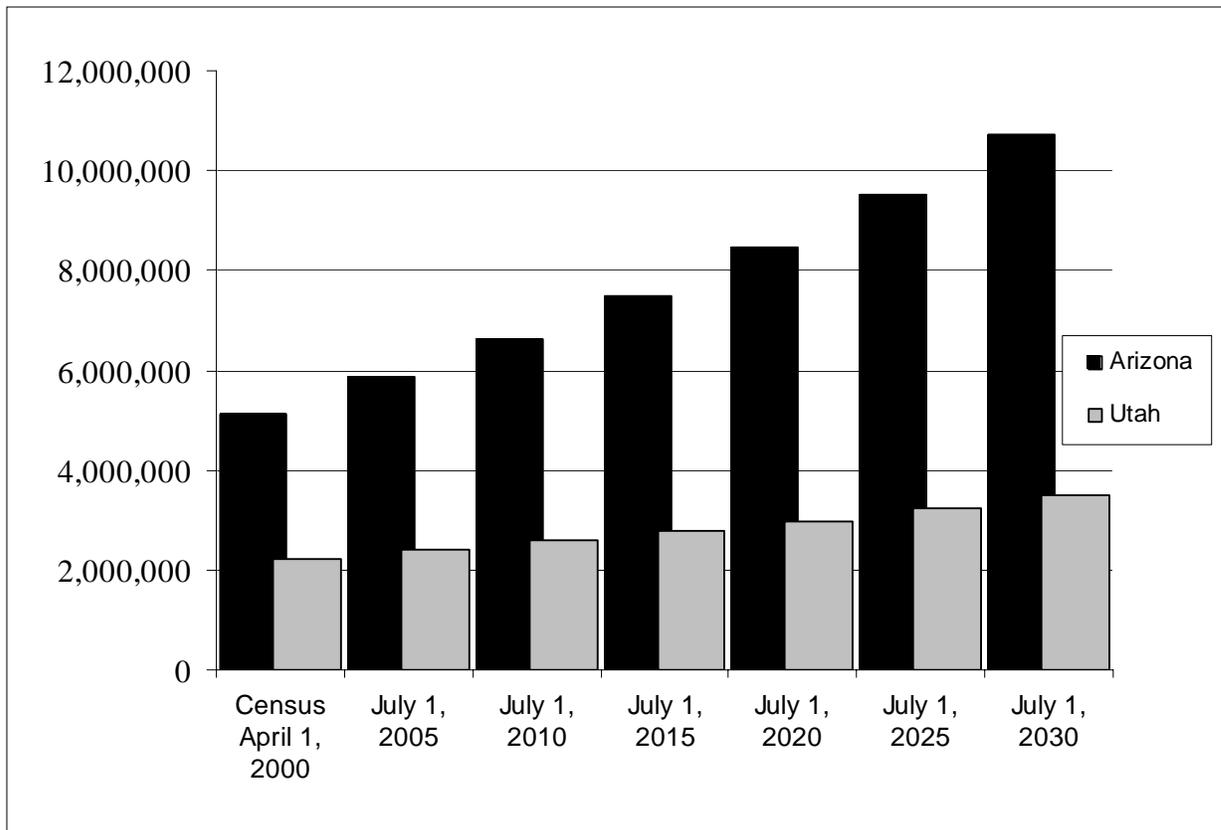
Figure 1. Kaibab National Forest and 5-county assessment area

### 1. Demographic Patterns and Trends

Demographic patterns and trends are used to identify the current and future forest users, to understand how future forest users may be similar to or different from current users, and how pressure on the forest from growing residential populations may influence forest management. The Forest also uses this information to note minority and low-income group trends and vulnerabilities. Because management decisions may disproportionately affect some segments of a population more than others, the description and analysis of the social environment takes into consideration the relationship between segments of the population and any differential effects.

## HISTORIC CONTEXT

Since 1930, there has been a shift in the United States population from east to west. As a result, the West has doubled its proportion of the U.S. population from 3 percent to 7 percent. A pattern of intense growth followed by slower growth has been repeated over the last 40 years (Otterstrom and Shumway 2003). Across the state, Arizona has experienced a growth in the population unprecedented in previous decades. Figure 2 illustrates the dramatic increase in population from 1900 to 2005. Projects for Utah are lower, averaging about eight percent per period (U.S. Census Quick Facts 2006).



**Figure 2 Population projections of the total population for Arizona and Utah, 2003-2030 (U.S. Census Bureau, Population Division 2005)**

Projected population growth for Arizona over the next 50 years is illustrated in Figure 3.

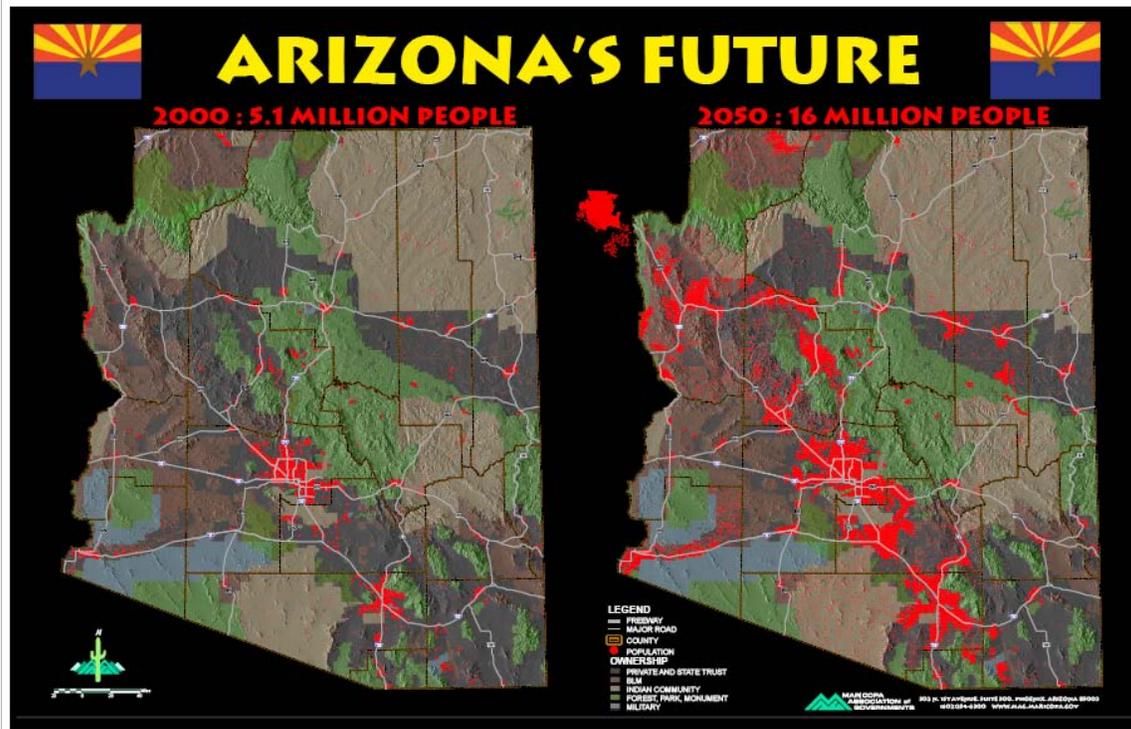


Figure 3 Arizona state population growth projections (Maricopa Association of Governments 2006)

The populations in the counties around the KNF have grown, but at different rates. Washington County, Utah, and Mojave and Yavapai Counties in Arizona have kept pace with or exceeded state growth rates. Kane and Coconino Counties have grown more slowly. Figure 4 illustrates the growth over time.

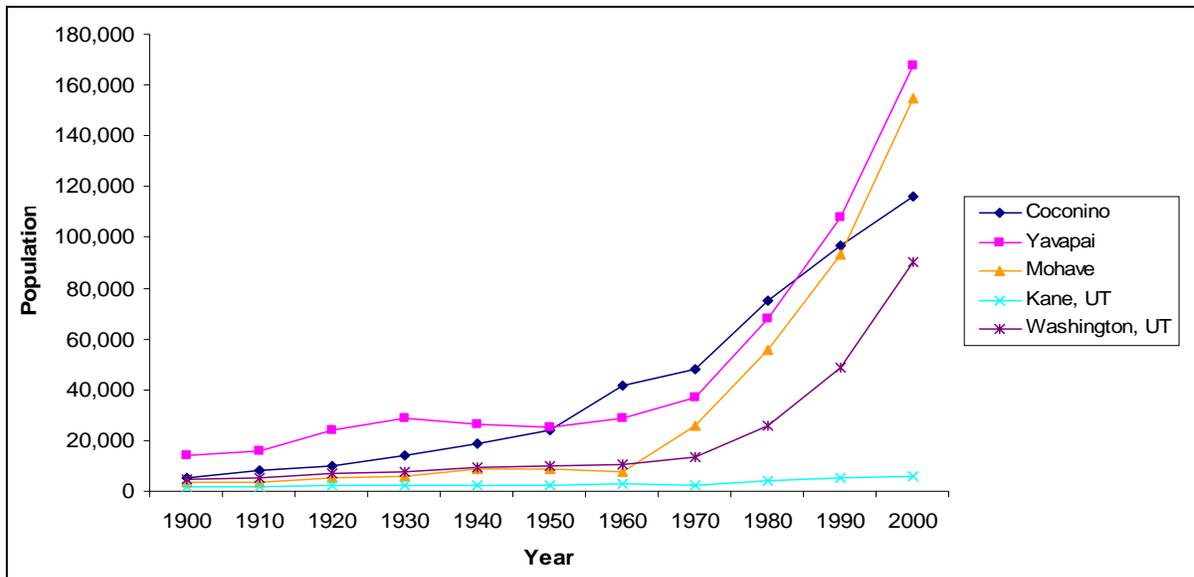
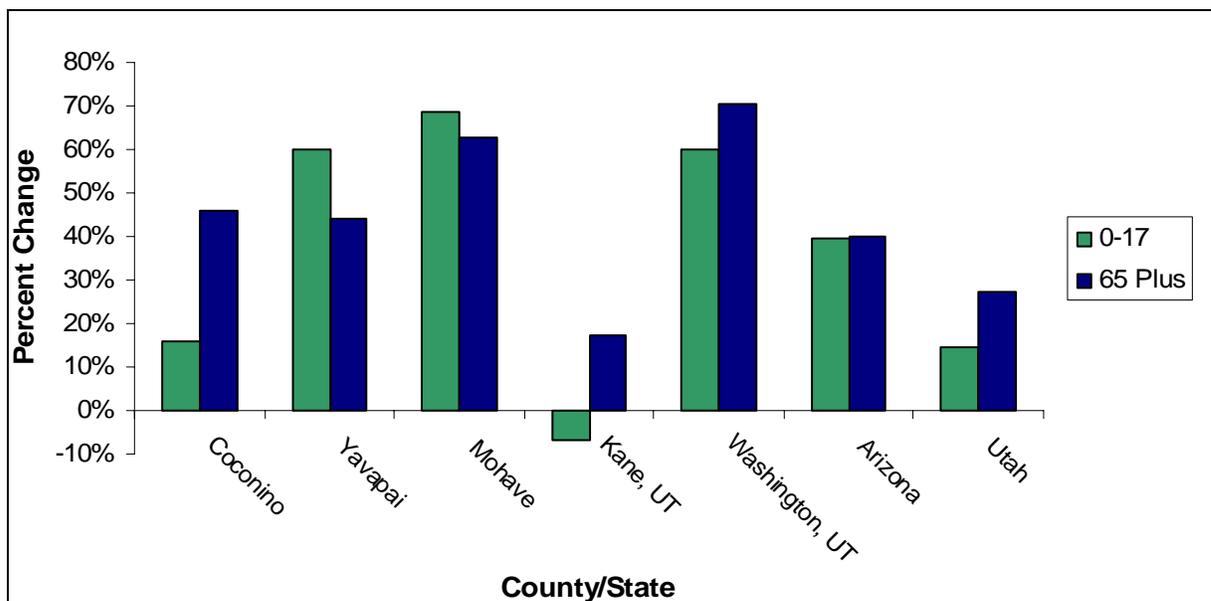


Figure 4 County population growth rates from 1900-2005

Overall, the population in the assessment area has grown from 29,000 residents to over 535,000 (U.S. Census Bureau 2005, Forstall 1995, Morton 2003) in the last century.

## POPULATION AGE

The increase in individuals age 65 and over was greater than those 18 and under for three of the five counties within the area of assessment. Figure 5 shows the percent change in these two age groups. The exceptions were Mohave and Yavapai Counties where the increase in both age groups exceeded those at the state level between 1990 and 2000. The greatest disparity between the growth of the 65 and over and under 18 populations was reported in Coconino County. Kane County experienced a decline in the 17 and under age group. The cities of Prescott Valley, Cottonwood, St. George and Lake Havasu City reported the most significant increases in 65 and-over populations among selected cities within the area of assessment.



**Figure 5 Percent change under age 18 and over 65 by county, 1990-2000**

Counties with a lot of public land appeal to people seeking recreation access, open space and wildlands. Population growth in these counties is linked to their appeal as retirement and recreation destinations in part due to the number of natural amenities they offer. Approximately one-third of the total population increase that occurred in the U.S. between 1980 and 2000 took place in counties containing USFS lands, a trend which is expected to continue (ARIZONA STATE PARKS 2008). Growth in the mid-elevation towns/cities may reflect growth in retirees, and their desire for access to recreation opportunities and mild climates that provide for year-round recreation.

Arizona has the second highest net migration of people over the age of 65 in the US. The makeup of Arizona's population is predicted to change over the next few decades which may influence the demand for different types of recreation. For example, the proportion of Arizona's population classified as elderly is expected to increase from 13 percent in 2000 to 22 percent in 2030. The percentage of children in Arizona under the age of 18 will decrease from 27 percent in 2000 to 24 percent in 2030 (ARIZONA STATE PARKS

2008). In contrast, the median age in Utah is 27.1, and it ranks as the nations youngest state.

While there are greater numbers of children in the under 18 age bracket, local data shows many young adults are moving away from local communities. There were three factors contributing to this trend, low median income, lack of workforce planning, and the high cost/lack of affordable housing (Lainoff and Peterson 2007). The median cost of housing in Flagstaff was \$325,000 in early 2007 (Ferguson 2007).

## RACIAL AND ETHNIC COMPOSITION

**Table 1. Changes in racial and ethnic composition of the 5-county assessment area, 1900-2000**

1990	ETHNICITY		RACIAL GROUP					Total
	Hispanic	Non-Hispanic	White Alone	African American	American Indian or Alaskan Native	Asian or Pacific Islander	Other/Two or More Races	
Coconino County, AZ	9,696	86,895	61,836	1,419	28,233	861	4,242	96,591
Mohave County, AZ	4,919	88,578	88,834	303	2,145	569	1,646	93,497
Yavapai County, AZ	6,899	100,815	103,106	321	1,740	490	2,057	107,714
Kane County, UT	101	5,068	5,032	5	77	25	30	5,169
Washington County, UT	862	47,698	47,202	66	706	290	296	48,560
<b>Arizona</b>	<b>688,338</b>	<b>2,976,890</b>	<b>2,963,186</b>	<b>110,524</b>	<b>203,527</b>	<b>55,206</b>	<b>332,785</b>	<b>3,665,228</b>
<b>Utah</b>	<b>84,597</b>	<b>1,638,253</b>	<b>1,615,845</b>	<b>11,576</b>	<b>24,283</b>	<b>33,371</b>	<b>37,775</b>	<b>1,722,850</b>
2000	ETHNICITY		RACIAL GROUP					Total
	Hispanic	Non-Hispanic	White Alone	African American	American Indian or Alaskan Native	Asian or Pacific Islander	Other/Two or More Races	
Coconino County, AZ	12,727	103593	73,381	1,215	33,161	1,018	7,545	116,320
Mohave County, AZ	17,182	137850	139,616	833	3,733	1,354	9,496	155,032
Yavapai County, AZ	16,376	151141	153,933	655	2,686	989	9,254	167,517
Kane County, UT	140	5906	5,804	2	94	16	130	6,046
Washington County, UT	4,727	85627	84,543	186	1,328	789	3,508	90,354
<b>Arizona</b>	<b>1,295,617</b>	<b>3835015</b>	<b>3,873,611</b>	<b>158,873</b>	<b>255,879</b>	<b>98,969</b>	<b>743,300</b>	<b>5,130,632</b>
<b>Utah</b>	<b>201,559</b>	<b>2031610</b>	<b>1,992,975</b>	<b>17,657</b>	<b>29,684</b>	<b>52,253</b>	<b>140,600</b>	<b>2,233,169</b>

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

Although the growth rates varied, there were increases in the population of individuals of multiple race and Hispanic origin in every county between 1990 and 2000. Despite substantial increases in individuals of multiple-race and Hispanic ethnicity, whites remain the predominant racial group in each county within the area of assessment, as shown in Table 1. Coconino County was the most racially diverse within the area of assessment due to the large American Indian population. Utah generally has lower racial diversity than Arizona. For example, the population of African Americans in Utah is less than 1%, and the population of individuals of Hispanic ethnicity is 11.2% (U.S. Census Quick Facts 2006).

Population projections indicate that ethnicity and race in the United States will similarly shift. Although Caucasian will continue to make up the greatest percentage, it is expected to decrease from 81 percent in 2000 to 72 percent in 2050. The percentage of Hispanic and Asian populations is anticipated to double, Hispanics from 13 to 24 percent, and Asians from 4 to 8 percent between 2000 and 2050. The percentage of African Americans is expected to remain relatively static.

Educational attainment for those populations 25 years of age and older is shown for each of the five counties in Figure 6. Coconino and Yavapai Counties were near or above state averages in their percentage of high school and college graduates. In contrast, Mohave County fell below the Arizona state average with less than 10 percent of the 25 and-over population having graduated from college. In keeping with Utah’s relatively high educational attainment, both Kane and Washington Counties exhibited high numbers of high school and college graduates. The Arizona State Comprehensive Outdoor Recreation Plan (Arizona State Parks 2008) identifies people who are college-educated, exceed \$50,000 annual incomes, and have smaller households as a major growing outdoor recreation demographic. In Utah, the average household size is 3.13, which is the largest of any state and is 120% of the national average (Utah Division of Parks and Recreation 2003).

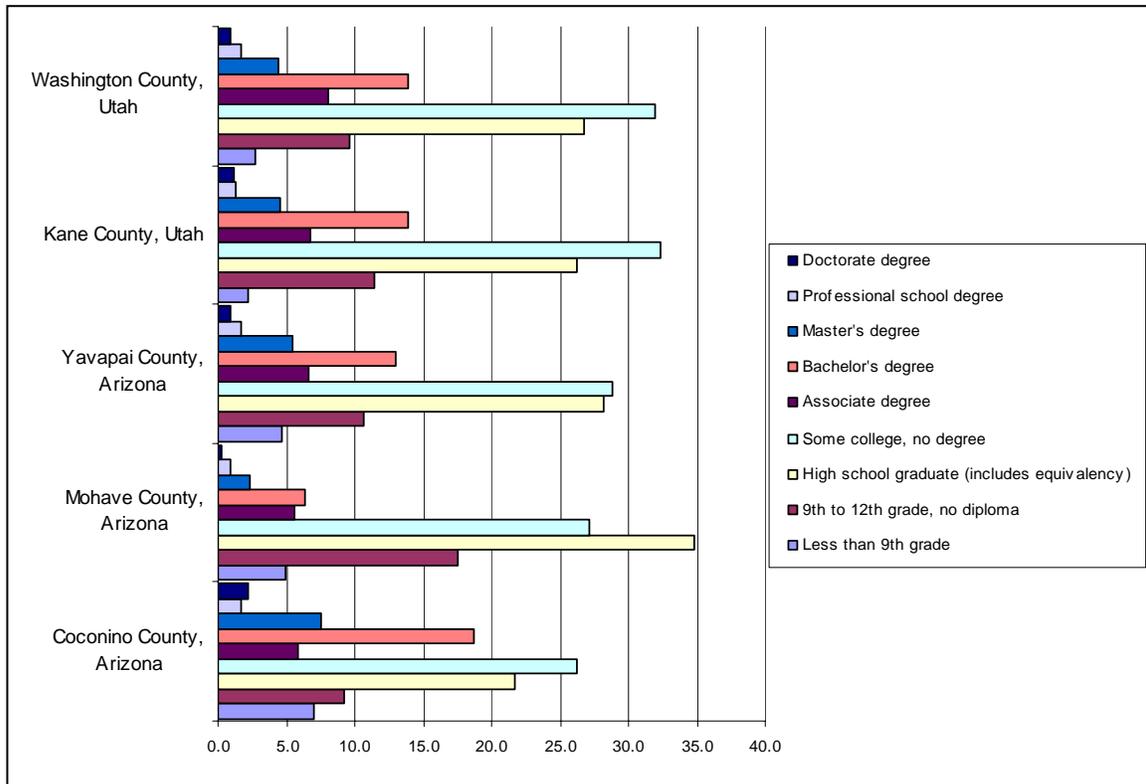


Figure 6. Education attainment in the 5-county assessment area

## HOUSING CHARACTERISTICS

Table 2 presents information about housing starts, density, and values. Increases in total housing and housing density were greatest in Washington County between 1990 and 2000, mirroring similar growth in its overall population. Housing increases were also

substantial in Mohave and Yavapai Counties over the same period. Each of these three counties also saw a significant increase in seasonal housing over the ten-year period. By comparison, Coconino and Kane Counties reported moderate increases in housing between 1990 and 2000. Likewise, these two counties had the largest increases in housing density over the same time period. As of 2000, housing density ranged from a high of fifteen houses per square mile in Washington County to a low of less than one house per square mile in neighboring Kane County. Interestingly, Washington and Kane Counties showed the largest increases in median home value over the period with gains of 79 percent and 66 percent respectively.

Of the cities included in the regional assessment, Prescott Valley and Lake Havasu City had the largest increases in total housing units between 1990 and 2000. Lake Havasu City and St. George also experienced relatively large increases in seasonal housing units over the same period. Median home values in Flagstaff, Prescott, and Camp Verde increased substantially over the ten-year period.

**Table 2. Housing trends in the 5-county assessment area**

County/Place State	Total Housing Units			Seasonal Housing Units			Housing Density per Sq. Mile			Median Home Value		
	1990	2000	% Change	1990	2000	% Change	1990	2000	% Change	1990	2000	% Change
<b>Coconino County, AZ</b>	42,914	53,443	25%	8,361	9,155	10%	2.3	2.87	25%	\$82,600	\$142,500	73%
Flagstaff	16,313	21,430	31%	925	977	6%	258	337	31%	\$90,300	\$161,000	78%
Sedona	2,307	2,606	13%	33	76	130%	139	157	13%	\$91,700	\$138,600	51%
Williams	1,118	1,224	9%	40	52	30%	39	28	-28%	\$64,800	\$100,300	55%
<b>Mohave County, AZ</b>	50,822	80,062	58%	6,798	9,956	46%	4	6	50%	\$74,900	\$95,300	27%
Lake Havasu City	12,845	22,991	79%	1,891	3,971	110%	298	534	79%	\$82,100	\$98,500	20%
Kingman	5,473	8,564	56%	85	63	-26%	263	286	9%	\$63,900	\$87,500	37%
<b>Yavapai County, AZ</b>	54,805	81,730	49%	4,325	6,048	40%	7	10	43%	\$85,300	\$138,000	62%
Prescott	13,393	17,431	30%	787	1,026	30%	414	470	14%	\$93,400	\$162,700	74%
Prescott Valley	3,913	9,481	142%	134	162	21%	237	299	26%	\$64,500	\$108,100	68%
Sedona	4,658	5,709	23%	430	446	4%	237	307	30%	\$159,600	\$253,700	59%
Camp Verde	2,839	3,988	40%	179	136	-24%	67	94	40%	\$75,900	\$129,600	71%
<b>Kane County, UT</b>	3,237	3,767	16%	1,227	1,256	2%	0.8	0.9	16%	\$62,600	\$103,900	66%
Kanab	1,258	1,483	18%	20	64	220%	91	106	16%	\$64,500	\$106,100	65%
<b>Washington County, UT</b>	19,523	36,478	87%	2,727	4,364	60%	8	15	87%	\$78,300	\$139,800	79%
St. George	11,766	21,083	79%	1,287	2,505	95%	205	327	60%	\$84,800	\$143,200	69%
<b>Arizona</b>	1,659,430	2,189,189	32%	96,687	141,965	47%	15	19	27%	\$79,700	\$121,300	52%
<b>Utah</b>	598,388	768,594	28%	20,888	29,685	42%	7	9	29%	\$68,700	\$146,100	113%

## POPULATION PROJECTIONS

Table 3 shows population trends at the county and state level. Current growth trends will probably continue, although at somewhat lower rates than the last two decades. A potential exception is in Kane County, where population growth may accelerate over and above the last two decades' rates, promising to outpace statewide population growth through 2030. In both Utah and Arizona the majority of people live in urban areas.

Coconino County Community Development officials predict that growth will continue at current rates. It was originally thought that private land around Flagstaff would be adequate to accommodate community growth. County officials are now predicting that it will be inadequate, and that housing developments at Bellemont, Doney Park, and Forest Highlands will be built out in 10 to 20 years. The county is looking at possible land exchanges with state or federal entities, as well as new housing developments within a 50-mile radius such as at Twin Arrows, in order to provide more space to grow. Around the City of Williams, Coconino County is expecting housing construction to continue along the Highway 64 corridor (the highway to Grand Canyon National Park from Williams) and that large undeveloped parcels currently managed as ranches may sell and be subdivided (Towler 2007).

**Table 3. Projected population growth in the 5-county assessment area**

County/State	Total Pop.	Projected		Projected		Projected	
	2000	2010	% Change	2020	% Change	2030	% Change
Coconino County	116,320	147,352	27%	169,343	15%	189,868	12%
Yavapai County	167,517	198,052	18%	240,849	22%	278,426	16%
Mohave County	155,032	194,403	25%	236,396	22%	270,785	15%
Kane County (UT)	6,046	8,272	37%	11,077	34%	13,628	23%
Washington County (UT)	90,354	131,880	46%	177,354	34%	218,840	23%
Arizona	5,130,632	6,145,108	20%	7,363,604	20%	8,621,114	17%
Utah	2,233,169	2,787,670	25%	3,371,071	21%	3,772,042	12%

Source: Arizona Department of Commerce - Arizona County Population Projections: 1997-2050  
Source: <http://www.governor.utah.gov/Projections/EDPT3.xls>  
<http://www.azcommerce.com/prop/eir/population.asp>

## Key Issues for Forest Planning and Management

- The population in the assessment area will continue to grow. Forests can expect increasing demand for recreation opportunities and changes in the types of opportunities desired as the over 65 aged population increases in numbers in the state.
- Changes in race and ethnicity may affect the types of recreation opportunities that forests provide, as well as the types of facilities that are constructed.
- Demand for housing will continue to increase in conjunction with population increases. Forests can expect demand for forest products that support the housing industry, as well as demand for fuelwood for heating.
- Increasing populations will increase demands for water and other infrastructure such as utilities and utility corridors.
- Conflicts between urban and rural lifestyles will continue. Forests can anticipate a greater need to provide information and education for urban users that have different land use ethics than those from local communities.
- Pressure for land exchanges can be expected in order to provide land for new housing.

## **2. Economic Characteristics and Vitality**

### **Historic Context**

Arizona and Utah have undergone a relatively rapid transformation over the past century. During the first half of the century, mining, agricultural, and ranching industries dominated the economy. After World War II, economic dominance began to shift to a mix of urban and rural industries that cover nearly every sector. Industrial diversity increased in the 1970s, peaked in the mid-1980s, and has now fallen well below other states to .45 on the Industrial Diversity Index<sup>4</sup> suggesting that Arizona's has a limited number of economic outlets such as agriculture and tourism. In contrast, the state of Utah was ranked 13<sup>th</sup> in the nation in terms of economic diversity with an Industrial Diversity Index of 0.74 (University of Arizona School of Natural Resources 2005). This suggests a wider array of economic outlets.

Per capita personal income in Arizona has generally followed national trends, although it has shown greater short term fluctuations. Labor force growth has slowed since the 1970s when it peaked at an annual rate of 3 percent. It slowed to 2 percent in the 1980s and to 1 percent in the 1990s. The impact of education on economic standing has increased with the wages of college educated workers increasing dramatically since 1975 to more than 1.85:1 above high school educated workers. Poverty rates have remained relatively stable over the last three to four decades, remaining between 14 to 16 percent in Arizona and between 9 to 12 percent in Utah (University of Arizona School of Natural Resources 2005).

Mining represented 3 percent of the Arizona's per capita income in the late 1960s, but had dropped to a fraction of a percent by 2002. Agriculture also represents less than one percent. Manufacturing, construction, 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 percent in 1969 to more than 20 percent in 2002. This trend is due largely to the increasing urbanization of the state, with 88 percent of the population living in urban areas according to the 2000 Census. It also reflects the influence of tourism on Arizona's economy. 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 percent difference, up from 23 percent in 1970 (University of Arizona School of Natural Resources 2005).

In Utah, there has been growth in every economic sector except mining. Mining has shown a decline recently. Statewide economic activity shows major increases in construction and real estate and finance as based on sales, receipts and shipments shows manufacturing, wholesale trades and retail trades as the leading sectors (U.S. Census Bureau Economic Census 1997). More locally, in urban Washington County there are the same industry sectors represented at the state level, and over the past ten years they

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<sup>4</sup> NAICS (North American Industrial Classification System). A classification system developed jointly by the U.S., Canada, and Mexico to provide improved comparability in industrial statistics across North America. NAICS divides the economy into 20 broad sectors. This classification system is helpful for giving detailed breakdown of the fastest growth areas in a nation's economy.

have out-performed the state. Construction and finance-real estate were the leading categories. In rural Kane County, there was less economic diversity. Government (schools and civil servants) and service (accommodation and food services) sectors were the primary categories. The latter indicates the influence of tourism on the local economy.

## EMPLOYMENT AND UNEMPLOYMENT

Total employment in the 5-county analysis area was 246,505 in 2000. Wage and salary employment accounted for over 76 percent of the total employment. State averages were 84 percent in Arizona and 82 percent in Utah. Proprietor employment in the analysis area was 23 percent, exceeding state averages in both states.

Table 4 displays employment numbers and general employment by type for 1990 and 2000. Overall, employment growth in each of the five counties between 1990 and 2000 was 62 percent, exceeding state averages in both Arizona and Utah. Washington, Kane, and Yavapai Counties experienced relatively strong growth when compared to state averages. Washington County had the strongest employment growth, with a 122 percent increase over the decade. Growth in Yavapai (65 percent) and Kane County (57 percent) also exceeded state averages. Non-farm proprietor employment represents a 23 percent of the analysis area total employment compared with 16 and 17 percent for Arizona and Utah respectively and increased at a faster rate (63 percent) from 1990 to 2000. The increase in non farm proprietor employment was particularly significant in Washington County at 125 percent.

**Table 4. Overall employment for the 5-county assessment area compared to Arizona and Utah**

Location	Employment			Wage and Salary Employment			Farm Proprietor Employment			Non-Farm Proprietor Employment		
	1990	2000	% Change	1990	2000	% Change	1990	2000	% Change	1990	2000	% Change
Coconino County, AZ	48,977	70,286	44%	41,079	55,639	35%	276	204	-26%	7,622	14,443	89%
Mohave County, AZ	37,255	54,637	47%	28,298	43,017	52%	226	247	9%	8,731	11,373	30%
Yavapai County, AZ	42,555	70,286	65%	29,717	51,881	75%	509	527	4%	12,329	17,878	45%
Kane County, UT	2,388	3,744	57%	1,720	2,714	58%	140	163	16%	528	867	64%
Washington County, UT	21,432	47,552	122%	15,903	35,549	124%	412	502	22%	5,117	11,501	125%
Arizona	1,909,879	2,819,302	48%	1,607,628	2,355,299	47%	8,027	7,572	-6%	294,224	456,431	55%
Utah	944,329	1,387,847	47%	778,155	1,134,757	46%	13,771	15,748	14%	152,403	237,342	56%

Source: University of Arizona School of Natural Resources 2005

The estimated 2006 labor force and unemployment for each county and selected cities within the analysis area are presented in Table 5. Unemployment ranged from a low of 2.9 percent in Washington County to a high of 4.8 percent in Coconino County. The community of Fredonia had the highest rate of unemployment at 5.2 percent in 2007 (Arizona Department of Commerce 2008, Utah Department of Workforce Services, 2007).

**Table 5. 2006 Labor force and unemployment by state, county, and city**

<b>Location</b>	<b>Labor Force</b>	<b>Unemployment Rate</b>
Arizona	2,983,249	4.2%
Utah	1,311,073	2.9%
Coconino County, AZ	68,980	4.8%
Mohave County, AZ	89,750	4.0%
Yavapai County, AZ	94,942	3.6%
Kane County, UT	3,399	3.5%
Washington County, UT	61,128	2.9%
Colorado City	1,286	2.6%
Flagstaff	34,833	3.3%
Fredonia	522	6.5%
Page	4,332	4.3%
Williams	1,698	4.5%

Figure 8 illustrates growth of employment in the analysis area from 1990 to 2000 and the distribution among industry sectors. Similar job types or industries are typically lumped into sectors. The sector providing the largest portion of employment in 2000 was services (about 30.9 percent of total), followed by retail trade (21.8 percent of total) and government (15.8 percent of total). Services and retail trade contain the industries most likely to be impacted by recreation activities on the Forest. The manufacturing and agricultural services, forestry, and other sectors represent 5.4 percent and 1.1 percent respectively and contain the industries most likely impacted by timber and grazing programs. Mining represented 0.7 percent and is the area most likely impacted by minerals related activities on the forest.

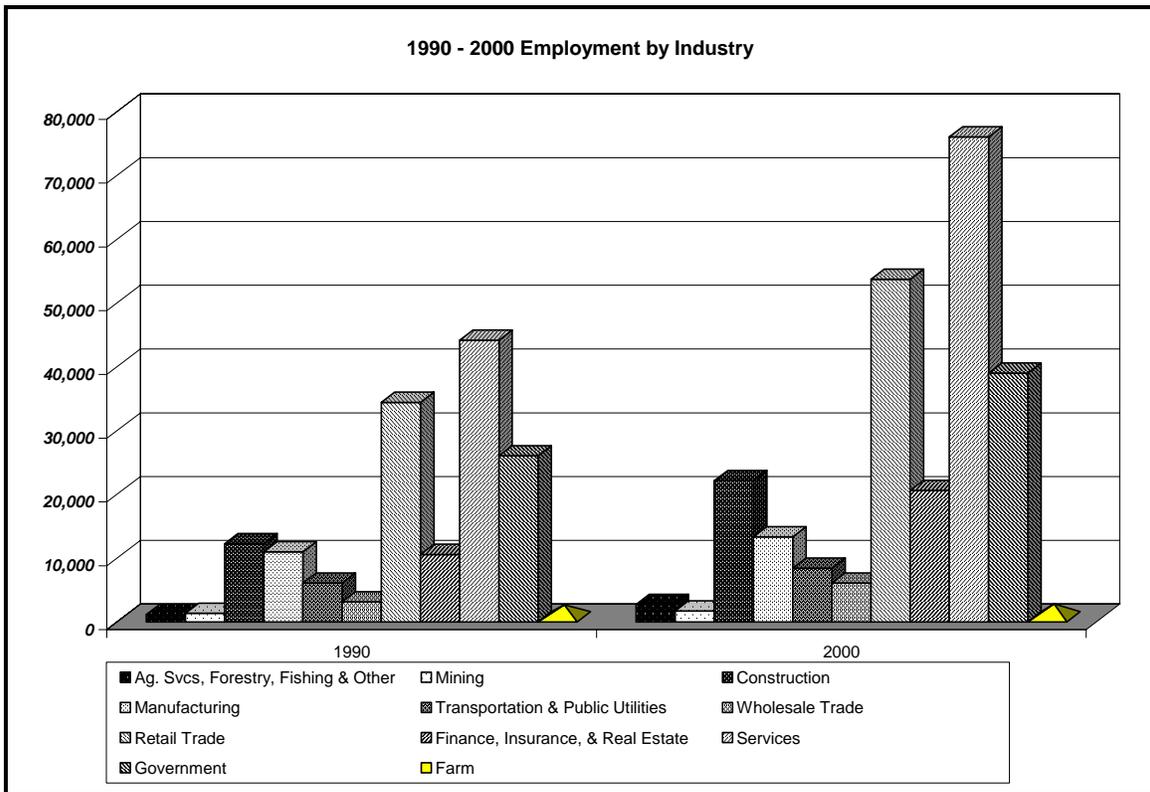


Figure 7. Employment growth by industry in the assessment area, 1990-2000

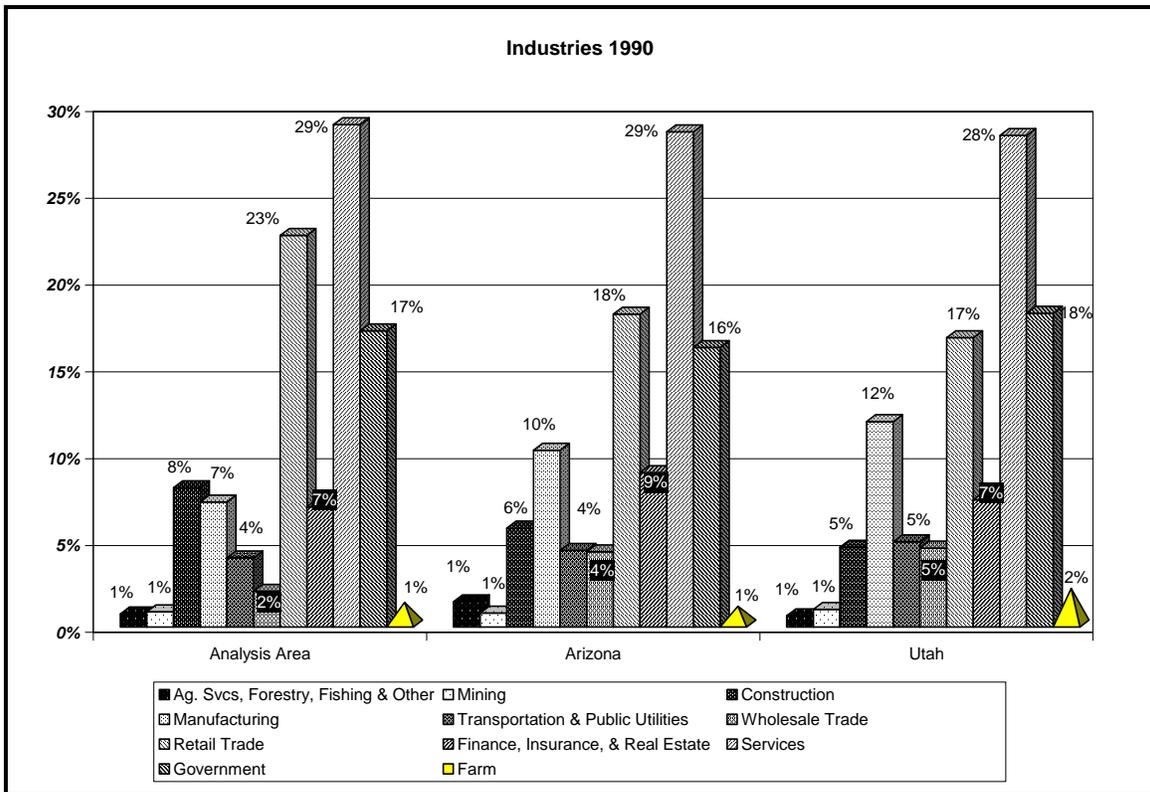
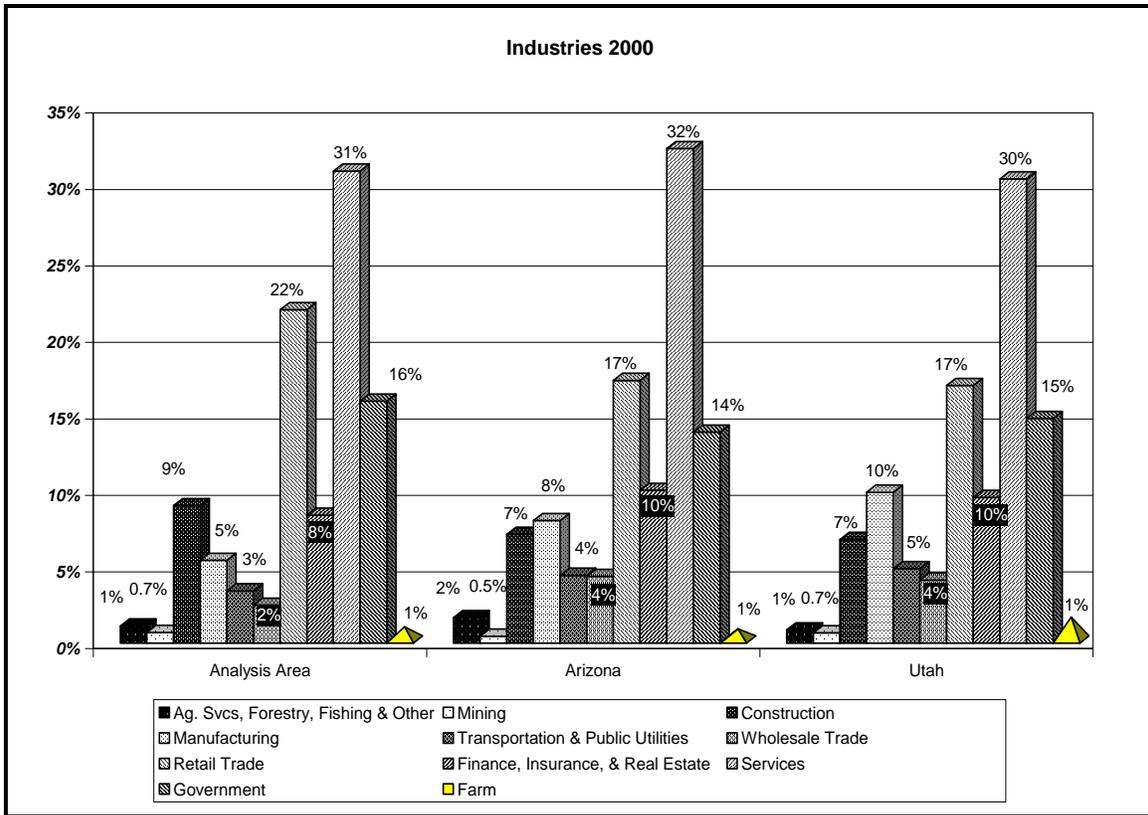


Figure 8. Distribution of industries in the assessment area, 1990



**Figure 9. Distribution of industries in the assessment area, 2000**

The distribution of jobs across industries within the analysis area is generally reflective of state averages. Table 6 displays the changing growth in industry sectors in comparison with state growth. Washington County experienced the most dramatic employment increase, exceeding the rate of growth at the state level in nearly every industrial sector. The greatest increases in Washington County occurred in agricultural services, forestry, fishing, and other; construction, and the finance, insurance, and real estate (F.I.R.E.) industry. In Arizona, Yavapai led other counties in the region with job gains in wholesale trade, construction, finance/real estate, and services; however, these gains were partially offset by losses in farming and manufacturing. Farming jobs were also lost in Mohave County. Mining jobs increased across the analysis area in contrast with state averages which showed decreases in both states (University of Arizona School of Natural Resources 2005).

**Table 6. Percent change in industry sectors by county from 1990-2000**

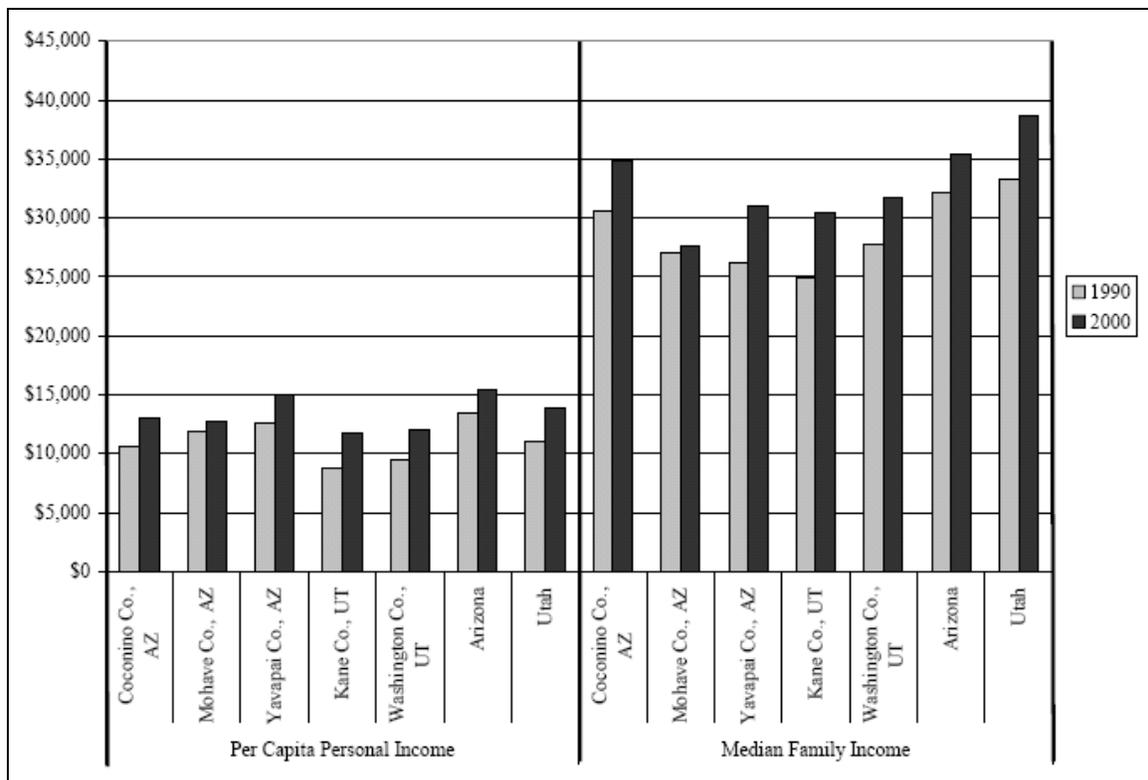
	1990-2000 Percentage of Change						
	Coconino	Mohave	Yavapai	Kane	Washington	Arizona	Utah
Ag., Forestry, Fishing		66%	92%		155%	69%	96%
Mining		44%	7%		65%	-19%	-3%
Construction	70%	29%	88%		211%	84%	117%
Manufacturing	-16%	27%	47%		55%	16%	22%
Trans & Pub. Util.	-1%	57%	28%	19%	103%	48%	45%
Wholesale Trade	72%	70%	127%	35%	112%	48%	33%

Retail Trade	41%	45%	48%	30%	131%	41%	48%
F.I.R.E.	128%	31%	81%		188%	66%	91%
Services	57%	56%	80%	49%	121%	67%	57%
Government	33%	65%	57%	43%	79%	27%	19%
Farm	-19%	-4%	26%	7%	17%	3%	6%

(Note: no data available when cells are blank).

## INCOME

The counties surrounding the KNF have exhibited a strong rate of economic growth as illustrated in Figure 11. The 2002 per capita personal income of the five counties abutting National Forest System lands was \$21,993, which was slightly lower than the state averages. Median family income also grew at a slightly slower rate the corresponding state average. Even though Coconino County had a 13.6 percent increase in median family income from 1990 to 2000, the communities of Williams and Page had decreases in median family income of 11.6 and 2.0 percent respectively. Mohave County experienced growth of only 2.0 percent over the period, but the community of Colorado City had an increase of 61.7 percent.



**Figure 10. Per capita personal and median family incomes for the counties and states**

Approximately 13.7 percent of the analysis area population had incomes below poverty level in 1999, compared with 13.9 percent in the state of Arizona and 9.4 percent in Utah. Table 7 displays the percentage of the population below poverty level by race across the analysis area in 1999. The level of poverty is highest in the American Indian and Alaska

Native population, followed by African Americans and Native Hawaiian and Other Pacific Islanders.

**Table 7. Poverty levels by race and ethnicity, 1999 (U.S. Census 2000a)**

Location	White	Black or African American	American Indian & Alaskan 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%
Utah	8%	22%	33%	15%	16%	21%	15%	20%
Coconino Co., AZ	12%	19%	32%	15%	13%	20%	22%	20%
Mohave Co., AZ	13%	23%	22%	16%	36%	22%	22%	21%
Yavapai Co., AZ	11%	38%	28%	20%	41%	22%	24%	23%
Kane Co., UT	8%	40%	38%	---	---	---	---	5%
Washington Co., UT	11%	43%	37%	17%	22%	22%	15%	24%
Analysis Area	12%	24%	31%	17%	23%	22%	21%	22%

Source: US Census Bureau 2000a  
 Note: --- no numeric value

## TRAVEL AND TOURISM

Northern Arizona is part of the Northern tourism segment of Arizona; most visitors come for general vacations, as opposed to weekend get-aways or special events. Two-thirds of the visitation occurs during the late spring through early fall. Almost 50 percent of visitors come to Grand Canyon National Park. Seventy-eight percent of visitor spending is attributed to international visitors and out of state visitors. Revenue from travel related spending is exhibited in Table 8.

**Table 8. Travel related spending in Coconino, Yavapai, and Mojave counties**

Factor	Coconino County	Yavapai County	Mojave County	Arizona
Travel Related Spending				
Total Spending (\$ Million)	836.5	638.1	434.3	17,460.90
Earnings (\$ Million)	222.4	165.8	98.6	4,523
Related Travel Generated Impacts				
Employment (Number of Jobs)	10,740	8,780	5,110	168,130
Local Taxes (\$ Million)	24.1	14	9.2	456.4
State Taxes (\$ Million)	31	20.7	17.4	582.8

Tourism is also an important industry in Utah. The 2002 Olympic Winter Games held in Salt Lake City produced a spike in tourism, excluding that, tourism has generally increased over time. The five-county area of southern Utah (which includes Kane County), has a high concentration of national parks and monuments, national forests, as

well as state parks and local city parks. This area leads the state in tourism related visitation with over eight million people visiting it each year. Utah travel spending was estimated to be \$4.2 billion in 2002. This represented about 7% of the gross state product. Almost 120,000 jobs are in the travel and tourism industry, and \$55 million is collected in tourism related taxes (Sudmeier-Rieux and McConkie 2002).

#### Payments to States

The federal government does not pay property tax on Forest Service land within the county. To make up for this loss of revenue, counties receive Payment in Lieu of Taxes (PILT) and 25 Percent Fund Payments. PILT funds are determined from a number of factors: 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. Twenty-five Percent Fund payments return 25 percent of all revenues generated from forest activities, with the exception some minerals activities. These payments are affected by changes in resource output levels and fluctuate yearly.

In 2000, Congress enacted the Secure Rural Schools and Community Self-Determination Act. This Act was designed to stabilize annual payments to states and counties for six years beginning in 2001-2007. This Act was not renewed, and this source of revenue is no longer available. Changes in the Forest Plan did not affect the level of these payments.

Table 9 displays the PILT and SRSCS payments to each county from 2002 through 2005 associated with National Forest System Lands administered by the KNF. Coconino, Mohave, and Yavapai Counties received payments. Because Kane and Washington Counties in Utah are on adjacent lands, and do not take up a portion of the county land base, they do not receive payments from the Forest.

**Table 9. Payments from PILT and SRSCS to Arizona counties, 2002-2004**

	2002	2003	2004	2005
<b>Coconino County, AZ</b>				
PILT	\$431,272	\$277,953	\$289,903	\$302,668
SRSCS	\$1,798,672	\$1,820,256	\$1,843,920	\$1,886,940
Total	\$2,229,944	\$2,098,209	\$2,133,823	\$2,189,608
<b>Mohave County, AZ</b>				
PILT	\$1,347	\$1,545	\$1,688	\$1,723
SRSCS	\$1,088	\$836	\$831	\$866
Total	\$2,435	\$2,381	2,519	\$2,589
<b>Yavapai County, AZ</b>				
PILT	\$15,403	\$14,140	\$12,436	\$13,887
SRSCS	\$11,105	\$11,238	\$11,384	\$11,645
Total	\$26,508	\$25,378	\$23,820	\$25,532

Source: (USDI 2006, USDA 2002, USDA 2003, USDA 2004a, and USDA 2006b)

Since the SRSCS was not extended, payments will again be made under the 25 Percent Fund. The ten-year average for receipts from 1990-1999 are displayed by county in Table 10. An estimated payment is also included projecting what each county might receive if payments under the 25 Percent Fund resume. Receipts estimated in Table 10 **total** National Forest receipts, including receipts from other forest units besides the KNF. The funds are used for the upkeep and maintenance of public schools and roads and are subject to fluctuation depending upon resource outputs from the forests.

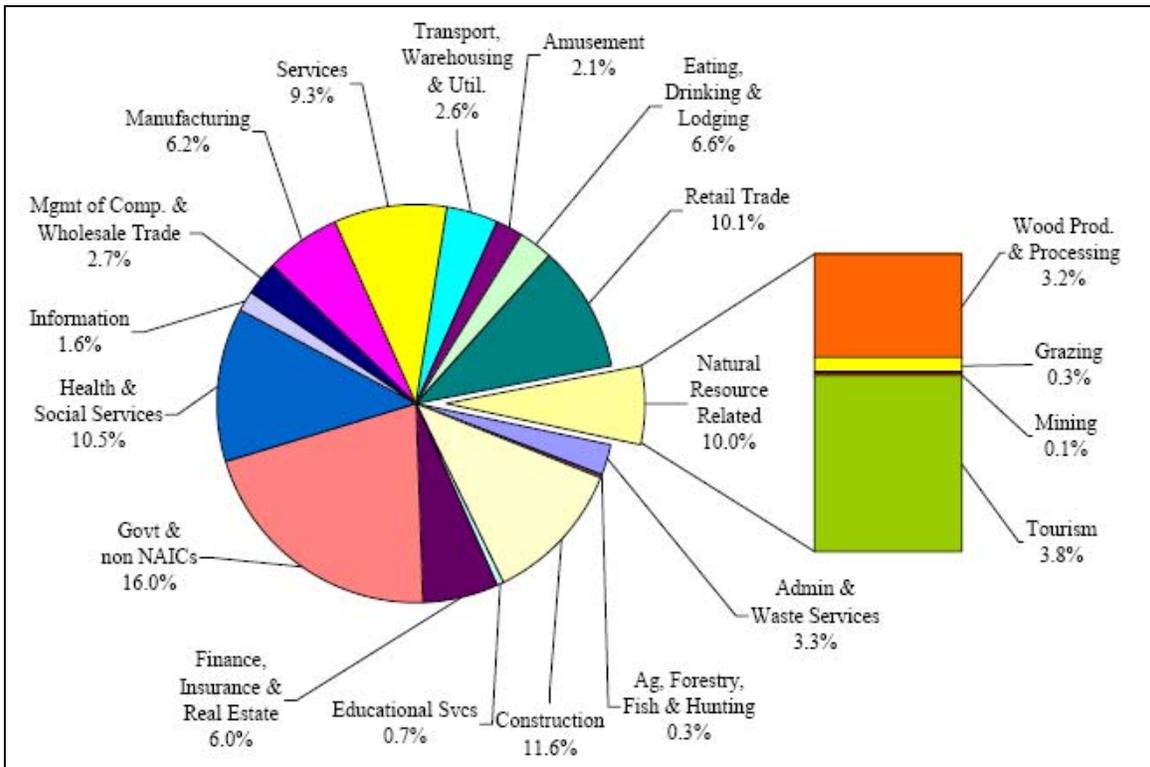
**Table 10. Twenty-five percent fund payments and estimates from forests in the 5-county assessment area**

<b>County</b>	<b>Average Forest Receipts 1990-1999*</b>	<b>Estimated Payment Under 25 Percent Fund</b>
	<b>(2006 Dollars)</b>	<b>(2006 Dollars)</b>
Coconino County, AZ	\$2,340,424	\$585,106
Mohave County, AZ	\$3,136,747	\$784,187
Yavapai County, AZ	\$575,794,011	\$143,948,503
Kane County, UT	\$33,580,584	\$8,395,146
Washington County, UT	\$106,651,094	\$26,662,774

Includes all National Forest receipts in these Counties, not just KNF. Source: (University of Arizona School of Natural Resources, 2005)

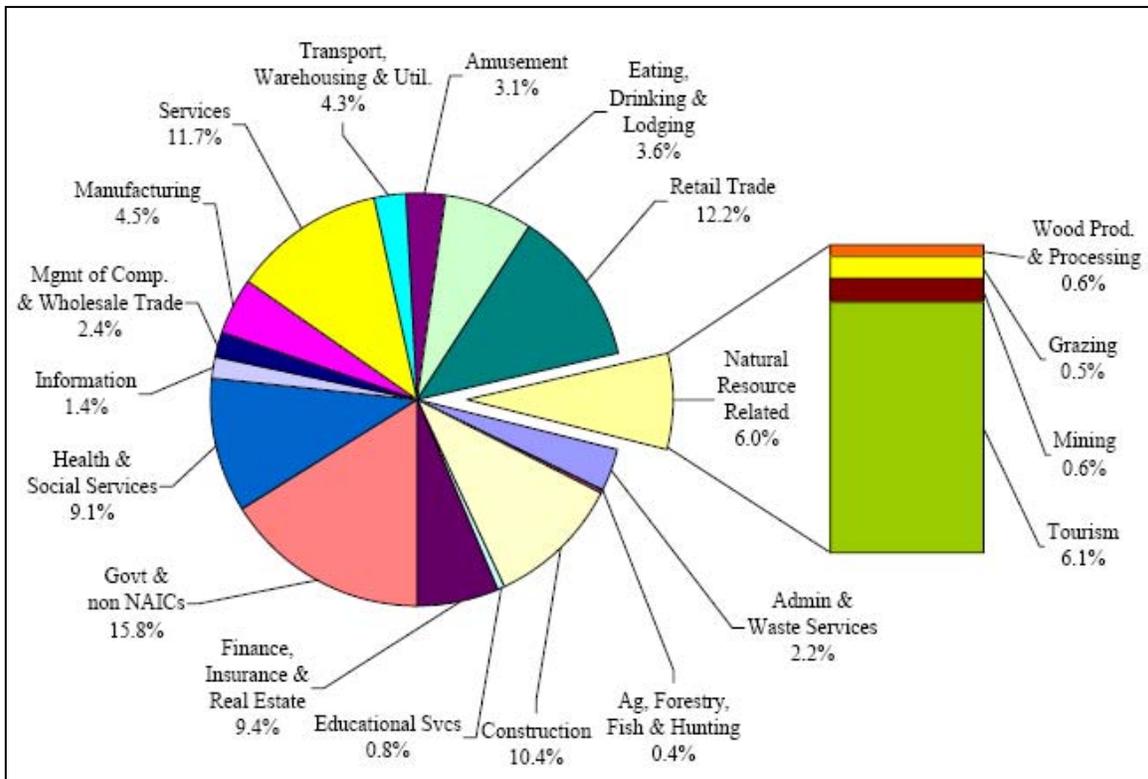
### **ECONOMIC CONTRIBUTION OF KNF**

The analysis of the economic contribution of current Forest activities to the analysis area economy uses data from 2003. The following pie charts (Figures 12 and 13) display the contribution of natural resource related sectors to the economy of the analysis area as a whole. Labor income from natural resource related sectors represents 10 percent of the totals for the analysis area, and approximately 6 percent of employment. Note that the contributions of the KNF represent only a portion of the economic activity reflected in these sectors.



**Figure 11. Labor income contribution of natural resource activities in the 5-county assessment area (Note: the KNF contributes a portion of this income)**

The labor income and employment in the 5-county assessment area represents the direct impacts or the response of an industry to demand for goods or services. 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. 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. The regional economy dynamics have complex linkages and interdependencies among businesses, consumers, and, the natural resources.



**Figure 12. Percent of employment from natural resource related industries in the 5-county assessment area (Note: the KNF contributes to a portion of this employment)**

More in-depth analysis based on the IMPLAN model allows the industry sectors to be expanded to provide data about the general FS program areas. These are based on a complex set of variables and are estimates. Tables 11 and 12 display the total estimated direct, indirect, and induced or net labor income and employment contributions of current activities on the Kaibab National Forest.

**Table 11. KNF contributions to labor income by resource program, 2006**

Thousands of 2006 Dollars			
Resource	Total Program	Estimated Impact of the Recreation Activities of Local Residents *	Program Net of Local Resident Recreation
Recreation	\$3,445	\$564	\$2,881
Wildlife and Fish	\$863	\$167	\$695
Grazing	\$311	\$0	\$311
Timber	\$2,046	\$0	\$2,046
Minerals	\$18,600	\$0	\$18,600
Payments to Forest Service	\$2,068	\$0	\$2,068
	\$15,445	\$0	\$15,445
<b>Total Forest Management</b>	<b>\$42,778</b>	<b>\$731</b>	<b>\$42,047</b>
Percent of Total Labor	<b>100%</b>	<b>2%</b>	<b>98%</b>

**Table 12. KNF contribution to employment by resource program, 2006**

Resource	Number of Jobs Contributed		
	Total Program	Estimated Impact of the Recreation Activities of Local Residents <sup>1</sup>	Program Net of Local Resident Recreation
Recreation	127	19	108
Wildlife and Fish	31	6	25
Grazing	21	0	21
Timber	81	0	82
Minerals	536	0	536
Payments to States/Counties	67	0	67
Forest Service Expenditures	314	0	314
Total Forest Management	1,177	25	1,152
Percent of Total Employment	100 %	2%	98%

The labor income estimated in Table 11 is defined as any part-time, seasonal, or full-time jobs in the given category. The Forest minerals program stimulates the greatest level of labor income 43 percent, followed by the Forest Service expenditures at 36 percent of the total respectively. The minerals program also stimulates the highest levels of employment 45 percent, followed by Forest Service expenditures 27 percent and recreation 11 percent.

Local residents contribute about 17 percent of the labor income and 16 percent of employment in recreation and wildlife and fish programs. While providing recreation opportunities to local residents is an important contribution, the recreation expenditure of locals does not represent new money introduced into the economy. Approximately 97.9 percent of the jobs and 98.3 percent of the labor income are stimulated by the expenditures of non-local visitors bringing new money into the area.

**Table 13. KNF contribution to labor income by sector, 2006**

Industry	Thousands of 2006 Dollars		
	Total Program	Estimated Impact of the Recreation Activities of Local Residents	Program Net of Local Resident Recreation
Agriculture	\$1,352	\$7	\$1,345
Mining	\$13,517	\$0	\$13,517
Utilities	\$173	\$3	\$170
Construction	\$772	\$5	\$767
Manufacturing	\$759	\$22	\$737
Wholesale Trade	\$890	\$77	\$813
Transportation & Warehousing	\$1,048	\$28	\$1,020
Retail Trade	\$2,210	\$104	\$2,106
Information	\$280	\$11	\$270

Finance & Insurance	\$728	\$14	\$714
Real Estate& Rental & Leasing	\$650	\$15	\$635
Prof. Scientific, & Tech. Services	\$1,051	\$22	\$1,029
Mgmt.of Companies	\$116	\$2	\$114
Admin., Waste Mgmt. & Rem.	\$451	\$11	\$440
Educational Services	\$154	\$4	\$150
Health Care & Social Assistance	\$2,549	\$42	\$2,507
Arts, Entertainment, and Rec.	\$490	\$39	\$451
Accommodation & Food Services	\$1,779	\$120	\$1,659
Other Services	\$895	\$17	\$879
Government	\$12,914	\$188	\$12,726
<b>Total Forest Management</b>	<b>\$42,778</b>	<b>\$731</b>	<b>\$42,047</b>
Percent of Total	100%	2%	98%

Another way to consider the contribution of the KNF is by industry (versus FS program). This better reflects the contribution to the industry sectors. Tables 13 and 14 illustrate the forest contributions to income and employment by sector. As shown by program area, FS activities generated the most jobs in the mining sector, followed by government. Timber and grazing activities are generally associated with jobs generated in the agriculture and manufacturing sectors.

**Table 14. KNF contributions to employment by sector, 2006**

Industry	Total Number of Jobs Contributed		
	Total Program	Estimated Impact of Recreation Activities by Local Residents	Program Net of Local Resident Recreation
Agriculture	79	0	79
Mining	365	0	365
Utilities	2	0	2
Construction	21	0	21
Manufacturing	26	1	25
Wholesale Trade	19	2	17
Transportation & Warehousing	23	1	22
Retail Trade	82	4	78
Information	8	0	8
Finance & Insurance	24	0	24
Real Estate& Rental & Leasing	20	1	19
Prof. Scientific, & Tech. Services	35	1	34
Mgmt.of Companies	3	0	3
Admin., Waste Mgmt. & Rem. Service	20	0	20
Educational Services	6	0	6
Health Care & Social Assistance	64	1	63
Arts, Entertainment, and Rec.	27	2	25
Accommodation & Food Services	112	8	104

Other Services	43	1	42
Government	198	3	195
<b>Total Forest Management</b>	<b>1,177</b>	<b>25</b>	<b>1,152</b>
<b>Percent of Total</b>	<b>100%</b>	<b>2%</b>	<b>98%</b>

In a regional perspective, Table 15 shows the estimated employment and labor income generated by activities on the KNF relative to the regional economy as a whole. Currently the largest single industry is government which includes public education and civil servants. This is followed by retail trade, accommodation and food services, and health care and social assistance sectors. The government sector and health care and social assistance sectors produce a higher proportion of labor income relative to employment indicating higher paying jobs.

KNF activities are estimated to be responsible for 0.5 percent of jobs and labor income within the regional economy. The sector that is most dependent on the contributions of the KNF is mining for 26 percent of the jobs and 12.5 percent of the labor income in this sector.

Within some individual counties and communities, dependency on natural resource industries is greater than regional averages. Small changes in Forest activities can result in disproportionate localized effects. For example, more in-depth analysis found that the dimension sandstone industry was responsible for nearly 6 percent of the total employment and earnings in the communities of Ash Fork, Williams, Paulden, and Chino Valley in Yavapai in 1996. Changes in FS allocation of this resource would have a comparably large impact on these communities.

**Table 15. KNF contributions as part of the regional economy, 2006**

Industry	Employment (jobs)			Labor Income (Thousands of 2006 Dollars)		
	Area Totals	KNF Related	% of Total	Area Totals	KNF Related	% of Total
Agriculture	2,032	79	3.9%	\$32,555	\$1,352	4.2%
Mining	1,404	365	26.0%	\$108,238	\$13,517	12.5%
Utilities	600	2	0.3%	\$41,471	\$173	0.4%
Construction	24,987	21	0.1%	\$918,635	\$772	0.1%
Manufacturing	11,712	26	0.2%	\$513,731	\$759	0.1%
Wholesale Trade	4,434	19	0.4%	\$195,405	\$890	0.5%
Transportation & Warehousing	6,424	23	0.4%	\$311,861	\$1,048	0.3%
Retail Trade	32,923	82	0.2%	\$895,277	\$2,210	0.2%
Information	3,479	8	0.2%	\$123,180	\$280	0.2%
Finance & Insurance	7,939	24	0.3%	\$235,445	\$728	0.3%
Real Estate & Rental & Leasing	7,408	20	0.3%	\$248,100	\$650	0.3%

Prof. Scientific, & Tech. Services	9,998	35	0.4%	\$363,027	\$1,051	0.3%
Mgmt.of Companies	509	3	0.6%	\$18,341	\$116	0.6%
Admin., Waste Mgmt. & Rem. Service	8,796	20	0.2%	\$213,169	\$451	0.2%
Educational Services	2,419	6	0.2%	\$64,155	\$154	0.2%
Health Care & Social Assistance	25,797	64	0.2%	\$1,001,327	\$2,549	0.3%
Arts, Entertainment, and Rec.	4,847	27	0.6%	\$99,231	\$490	0.5%
Accommodation & Food Services	27,336	112	0.4%	\$429,444	\$1,779	0.4%
Other Services	18,833	43	0.2%	\$382,914	\$895	0.2%
Government	39,015	198	0.5%	\$1,641,735	\$12,914	0.8%
<b>Total</b>	<b>24,0894</b>	<b>1,178</b>	<b>0.5%</b>	<b>\$7,837,241.5</b>	<b>\$42,802</b>	<b>0.5%</b>

## TRENDS

Arizona and Utah have joined neighboring western states in having a significant decline in extractive industries along with the employment and income traditionally provided by these sectors (Baden and Snow 1997, Booth 2002). While these changes have had a negative impact on many local economies, the relative expansion of information and service based industries has led to a more diverse, and some say more sustainable, state economy (Baden and Snow 1997, Booth 2002). The economic data gathered for the assessment area for the KNF illustrates this trend. This is evidenced by substantial growth in the F.I.R.E. (finance, insurance and real estate), construction, and service sectors. When matched with a simultaneous decline in extractive and productive industries, these changes have made the composition of the area's rural economy similar to those of urban areas and the state of Arizona as a whole (Booth 2002, Case and Alward 1997). A similar trend has been observed in Utah.

These changes are characteristic of those seen in recent decades throughout the Mountain West and signal important demographic and economic trends that are likely to shape the region's future development. As evidenced by the relatively strong population and economic growth centered in Washington, Kane, and Yavapai Counties over the past decade, the area surrounding the KNF has seen the expansion of certain populations and industries that are increasingly important to the local economy. In particular, the increase in retirement-aged population and increase in seasonal housing units, when combined with increases in the service/professional, wholesale trade, manufacturing, and construction industries, mirror a common trend in rural western economies (Booth 2002).

These trends support the fact that growth in many western communities is decreasingly dependent on extractive economies. Overall income levels remain below average for Arizona and Utah within each of the counties in the area of assessment, even though data show that per capita and median household incomes grew somewhat faster than the state

averages between 1990 and 2000. This trend is more relevant when considered with the demographic trends of increasing retirement aged residents and seasonal homeowners. Several researchers have noted that while labor income is growing in the rural Mountain West, it is growing more slowly than transfer (social security, pensions, and retirement) and dividend income. In other words, the growth of rural communities is being fueled, at least in part, by income that is not tied to local employment (Booth 2002, Rasker 2000).

Like the United States as a whole, the population of the assessment area will likely continue to age as the baby boom generation reaches retirement age. This is intensified 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 receipts<sup>5</sup> in the assessment area increased by 87.8 percent in real dollars between 1995 and 2005. The largest increase occurred in Washington County with a 109.2 percent increase. This exceeds the state-wide increases of 78.7 percent in Arizona and 59.1 percent in Utah as well as the national average of 42.2 percent for the same period (Bureau of Economic Analysis 2008). 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 relative expansion of the service and professional industries is also facilitated by advances in transportation and information technology that increasingly allow urban populations to relocate to high-amenity rural communities while maintaining employment and income characteristics typical of more urban settings (Booth 2002, Rasker 2000). For those working in the service industries, the income level may be lower than in other sectors and more of the jobs may be part-time or seasonal.

Together, these trends signal a convergence of rural and urban economies that carry important implications for natural resource management. Many of the communities hardest hit by the transition away from extractive industries belong to traditional constituencies associated with the FS, the BLM, and other federal and state agencies. In many cases, the agencies are caught between responding to market forces and powerful interests determined to protect established industries from change (Baden and Snow 1997). Finally, data for the area surrounding the KNF demonstrate the reciprocal cause-and-effect relationships between economic and demographic trends. Although economic growth in many western communities may be fueled by households with relatively “footloose” income, potentially negative consequences include an increased demand for construction, schools, health care, and other services as well as undesirable side effects such as pollution, urban sprawl, and congestion (Rasker 2000, Case and Alward 1997).

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<sup>5</sup> 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.

## Key Issues for Forest Planning and Management

- Changes from traditional industries such as grazing and timber may cause economic hardships in communities, but growth in recreation related industries may help offset this trend.
- Tourism has helped to diversify the region's economy, but service related jobs are often low paying and may not offer full-time employment.
- Transfer (social security, pensions, retirement) and dividend income from the 65 and older generation is fueling rural economies; this is income that is not tied to local employment.
- Increasing populations and housing starts helps to stimulate growth in the F.I.R.E. (finance, insurance and real estate), construction, and service sectors.
- Advances in transportation and information technology allow urban populations to relocate to high-amenity rural communities. These shifts can lead to a conflict between urban and rural citizens, putting increasing pressure on small communities to provide the infrastructure to support them. In turn, this can lead to pressure on the FS to provide land for utility corridors, schools, communication towers, and other needs.

### 3. Land Use, Transportation, and Access

There are over 29.9 million acres of land in the five-county area of assessment for KNF. Within this expanse, there are distinct patterns of land ownership and use, each of which carries important implications for current and future forest management. Figure 14 illustrates the land ownership patterns in the 5-County Region and Figure 15 gives the percentages of land ownership.

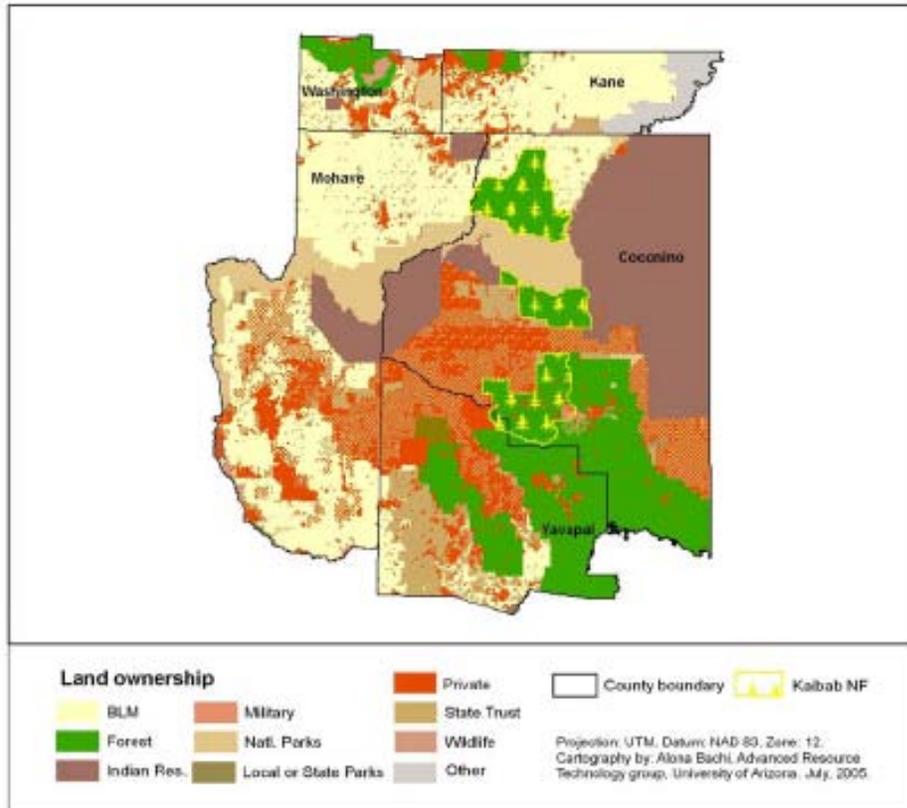


Figure 13. Land ownership pattern in the 5-county assessment area

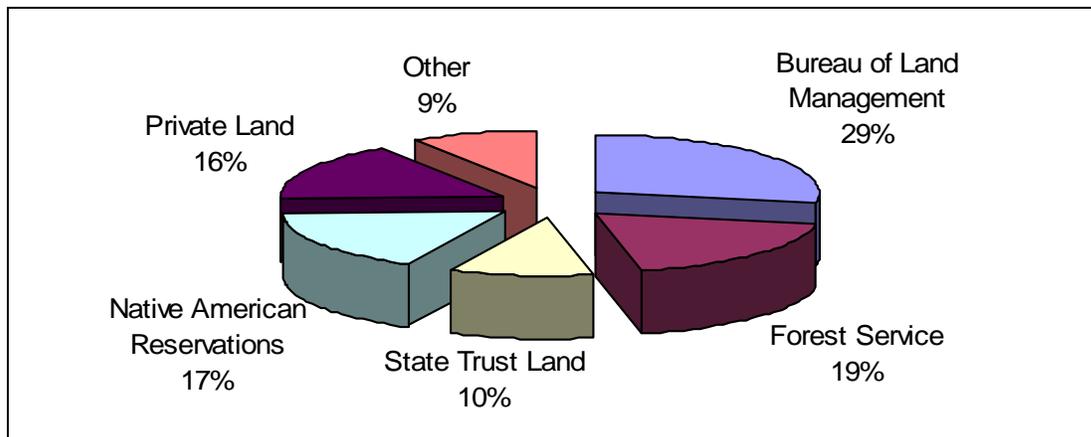


Figure 14. Land ownership distribution in the 5-county assessment area

The assessment area for the KNF closely resembles overall ownership patterns for the states of Arizona and Utah. For Arizona, approximately 16 percent of the land within the area of assessment is under private ownership while 10 percent is State Trust land. In Utah, approximately 22 percent of the land area is private, and 10 percent is State land. Both of these factors influence the regional development patterns discussed later in this section (Arizona State Land Department 2004).

The majority of the analysis area (KNF) falls within Coconino County. Communities such as Williams and Tusayan are surrounded by KNF lands. Other communities such as Ash Fork and Fredonia are adjacent to public lands. The Coconino and Kaibab National Forests also surround the nearby community of Flagstaff. Within Coconino County approximately six percent of all land is in private ownership and the remainder is federal, state, and tribal land. The USFS manages about twenty-eight percent of the total acreage in the county, second only to American Indian owned lands with about forty-six percent of total lands. With limited lands for private development more attention is focused on the interaction of private and public lands. There also appears to be a corresponding increase in the interest of local residents relating to the use and management of KNF lands because of the interaction of lifestyle, community, and forestlands and resources.

Yavapai County has a substantial amount of private and State Trust land. Kane County contains relatively limited private land compared to neighboring counties (about 10 percent) and about 4 percent State Trust land.

County land-use within the assessment area 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 public's desire 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.

## **LAND EXCHANGES**

Although the total amount of federal land in the area has remained consistent, the specific lands contained within the national forests have sometimes been traded or sold. Land exchanges can assist in redirecting growth away from areas considered environmentally sensitive and attempt to keep it near communities with compatible infrastructures. The process for private interests to acquire federal lands has been in place for over 50 years. Once an environmental evaluation has been completed, trades may be made at fair market value.

The most recent large land exchange proposal is the Northern Arizona land exchange. This congressional process would convey 800 acres of the Coconino, Tonto, Prescott, and Kaibab forest land in return for the consolidation of checkerboard lands (alternating sections of private and public land). The Tusayan Land Exchange was a private party proposal versus a legislative one. In 1999, there was a proposal to exchange of 272 acres of KNF land next to the town of Tusayan for scattered private land parcels in the Tusayan Ranger District area. The Tusayan Land Exchange was halted when voters denied the County referendum.

No comprehensive land use plans were located for Washington or Kane Counties. However, in Washington County, concern about the rapid growth and expansion of the St. George area has resulted in Congressional proposals to regulate further growth and development. The “Draft Washington County Growth and Conservation Act” (2006) land bill proposed sale of Bureau of Land Management land and exchange of State Trust land within the county which could then be developed. Receipts from the land sales would be used to fund establishment of conservation easements near Zion National Park at the Virgin River headwaters.

Private owner and Legislative land exchanges are expected to continue as the state populations increase, land values increase, and the pressure for new housing starts continue to grow. Land exchanges have varying levels of public and legal resistance depending on their location and political sensitivity. Land sales have been proposed by the Executive Branch in the last few years. Public support for land exchanges varies widely, with some people looking to acquire and develop land, and others strongly opposed to selling public lands.

## **TRANSPORTATION**

Today, many regions of the states, including the area surrounding KNF, are struggling to provide much needed improvements to transportation networks in order to accommodate growing populations and changing local economies. Transportation planning throughout the assessment area is challenging given the geographic scale of the area, the presence of private lands developments within the national forest boundaries, and the competing needs of rural and urban county residents. Each of the county comprehensive plans in the Arizona portion of the region acknowledge that current transportation networks have been developed as needs have arisen and are therefore inadequate for handling projected long-term growth (Coconino County 2003, Yavapai County 2003, Mohave County 1995).

County and state transportation plans emphasize the need for improved planning through regional approaches linking transportation and land use. According to the Arizona Department of Transportation, projected demographic changes throughout the state will require “major expansions of roadway capacity and the development of transportation options and alternatives to provide acceptable levels of service on Arizona’s roadways and maintain circulation” (Arizona Department of Transportation 2004b).

The Arizona Department of Transportation has few plans for road improvements in and around the KNF over the next five years. Although county governments throughout the assessment area envision improvements to arterial road networks, implementation is dependent on the pace of population growth and the level of transportation infrastructure funding. There are currently no plans to expand the existing network of internal roads in the KNF.

## **MODES OF TRANSPORTATION AND SEASONAL FLOWS**

Motor vehicle travel is by far the most dominant mode of travel throughout the states of Arizona and Utah, a trend that is likely to continue given patterns of development in rural areas as well as the expense of developing infrastructure for alternative modes of transportation. Increases in vehicle miles traveled were greatest in Yavapai County between 1990 and 2000—an expected result of population increases over the same period. Peak traffic flow for the area of assessment occurs between the months of June and August, and traffic is lowest from November to February. With respect to internal modes of travel, the greatest increases were reported for off-highway vehicles (OHV).

The KNF has significant increases in travel coinciding with the summer visitation to the Grand Canyon. Forest Service personnel have noted increases in visitation during the summer for recreation activities, and during the fall hunting season.

## **ACCESS**

Access to the forest is an important issue for publics throughout the West and has also been shown in the data for other Arizona and New Mexico national forests including the KNF. There is a theme associated with “traditional use” among the residents of communities within and adjacent to the forest. On the North Kaibab Ranger District, these communities were traditionally associated with the Mormon (Latter Day Saints) faith. Participants describe a belief in the national forest lands of this area as a kind of “commons” that was used for a variety of family and community events (Adams-Russell 2006). Similar sentiments were expressed by communities on the other districts concerned about being able to continue with activities on the forest that people have engaged in for decades.

The greatest barrier to forest access is poor road maintenance resulting from constrained county and forest transportation budgets. Currently, there are few barriers to access within the KNF. The potential exists for future access issues resulting from the proximity of forest roads and trails to private property. Information obtained from forest personnel suggests that private land owners throughout both states have increasingly limited passage through their property for the purpose of accessing public lands. The public has also expressed concern about the need for access. The potential for compromised access is more likely to occur on the Williams Ranger District because there is very little private property within and/or adjacent to the North Kaibab and Tusayan Ranger Districts.

## **TRAVEL MANAGEMENT**

The Forest Service has long been aware of the impact internal roads have on forest management. Recreational use, particularly of off-highway vehicles, is increasing. Forest managers and users have expressed concerns about the loss of quiet, resource damage, and safety concerns from ATVs and other noisy activities, such as hunting and shooting. Many perceive increasing user conflicts and want some solutions, such as use separation, development, or increased law enforcement.

Access and travel patterns within the KNF are likely to be influenced by Travel Management Planning (TMR). Unmanaged recreation was identified as one of the threat to national forests. TMR would prohibit cross-country motorized travel and would designate a system of roads, trails, and areas. The Kaibab NF is currently involved in travel analysis planning, which includes the public input and comment. One of the purposes of TMR is to decrease the number and density of roads within the forest as a result of both closures and limited new construction to improve access. It also seeks to bring the miles of road requiring maintenance more in-line with available funding. The TMR would manage forest routes in a way that ensures continued access and prevents undue damage to forest resources (Higgins 2006).

## **Key Issues for Forest Planning and Management**

- Land exchange proposals will increase due to population growth, limited quantities of private land, and increasing pressure for new housing starts.
- There may be increasing pressure on the Executive Branch to sell public lands to generate revenue for counties.

- Urban populations may have less connection with public lands and their value.
- Growth in population has placed increasing pressure on forest road systems and resources as motorized travel increases.
- Many forest users perceive that national forest access is decreasing. The Williams Ranger District has the most potential for access issues related to private inholdings and adjacent lands.

## **4. Natural Resources and Uses**

### **FIRE AND WILDLAND-URBAN INTERFACE (WUI)**

There is a complex relationship between fire, forest visitors, and local communities. The forested landscape has a deep and spiritual meaning for many residents and forest users. The forest historically provided a livelihood for many families and now serves as a symbol of traditional lifestyles. Many recent transplants to the communities look to national forests to provide recreation opportunities and a high quality of life. Most agree that the forest landscape has a special meaning for them. Visitors to Arizona are often surprised when they come to the northern part of the state and find forests, mountains, and temperate climate. Many people have the impression that Arizona is a place of cactus and desert heat.

In 2002, the Rodeo-Chedeski wildfire became a turning point for many northern Arizona residents. There was a sudden realization that the forested landscape was a place that could be a threat to households and communities as well as a beautiful place to live.

In 2003, the Forest Service identified fire and fuels as one of the “four threats” facing national forests. Forests have become overgrown and unnaturally dense. In conjunction with drought in the Southwest, this results in a substantial increase in the risk of high intensity wildfire. Communities in northern Arizona have become more concerned about dense forests within city limits and nearby areas.

Two components of the fire and fuels issue include 1) The proximity of many communities to forest lands, identified as wildland urban interface (WUI), and 2) areas farther away, that will be referred to as non-WUI.

The need to reduce hazardous fuels, thereby reducing the risk of high intensity wildfire in the WUI has general support from most community members. One action that communities have taken is developing Community Wildfire Protection Plans (CWPP). These plans identify and analyze fire threat, and prioritize areas where treatment to reduce fire threats are located. All communities within the analysis area have completed their plans (State of Arizona 2006). All of the CWPPs identify national forest lands within the WUI boundaries that are priorities for hazardous fuels treatments including thinning and reintroduction of prescribed fire. Public comments have been supportive of WUI treatments.

In the non-WUI areas, there appears to be consensus about reintroduction of fire into the forested landscape. There is not consensus about how this should happen. There are millions acres outside of WUI areas that have unnaturally high fuel loads. The FS often uses mechanical thinning in conjunction with fire to reduce fuels. It is sometimes possible to use fire alone to achieve fuel reduction goals. Public comments regarding non-WUI areas range from leave the forests "natural" and let nature take its course, to intensively manage the forest and utilize the wood generated from thinning activity.

Wildland Fire Use (WFU) is a strategy that involves managing naturally ignited fires. During WFU incidents, the implementation team and line officer evaluate risk factors and follow a process to determine if a natural ignition (from lightning) should continue burning within a designated boundary. The KNF has successfully used WFU to reduce fuel on many more acres using the natural ignitions than would have been possible with mechanical thinning or prescribed fire.

As a tool, fire is not always predictable; weather shifts and human errors can introduce change to the WFU scenario. The 2006 Warm Fire is one such example where a WFU project was managed successfully for two weeks, then with a sudden change in weather, the fire had escaped its boundaries and management was changed to a suppression strategy. An additional 40,000 acres were burned, many at high intensity with severe fire effects. The Warm Fire galvanized the public opinion in the local communities on the NKRD. Elsewhere on the Forest, these views remain widely disparate. What is clear is that the FS will need to work diligently to treat the non-WUI parts of the forest or be faced with large-scale uncharacteristic wildfires that could transition into WUI areas near communities and have other resource effects.

## **AIR QUALITY AND SMOKE MANAGEMENT**

The KNF generally has very good air quality. There are seasonal fluctuations in some areas due to the use of wood burning stoves and vehicular pollution during temperature inversions during late fall, winter and spring.

Whether managed or wild, fires produce smoke. The FS works with local communities to provide information about prescribed burning. Fire Information Officers use press releases, the forest website, and post information at community gathering places. This is sufficient for most residents, but some people are extremely sensitive to smoke and other pollutants. For smoke sensitive individuals, personal email messages and phone calls are made to alert people of burning activities.

Fire Managers assess the expected "ventilation" (wind speed, patterns and direction) and try to conduct burns when ventilation is expected to be good. Wind helps to move smoke out of the area, but can also cause fire to behave erratically. Typically, there is better ventilation during the summer months, and less chance of the smoke settling due to temperature inversions.

With persistent thinning and burning, fuel loading should be reduced over time. Eventually, there should be less smoke emission produced from repeat burning. As a greater percentage of the landscape is treated, the Forest Service should be able to reintroduce fire on a more frequent return interval, which mimics the historic fire patterns.

## **OPEN SPACE**

Interest in retaining and expanding the amount of open space has been strongest in the Flagstaff area. Smaller, more rural communities such as Williams, Fredonia and Tusayan have identified the need for developed park facilities, and indicate a desire to work with the FS to tie into existing forest system trails and facilities (City of Williams 2003). Interestingly the five rural counties (including Kane County) segment in the Utah SCORP (2003) reported that open space was not as important as retaining access and multiple use of federal lands. Communities are interested in retaining the sense of place and quality of life provided by the national forests: they consider this open space. As a result, they are less concerned about the need to designate public land within their communities as open space.

## **WATER**

Availability of water may be the most limiting factor to growth in northern Arizona and wider in the western US. Many communities are actively securing additional water to support local growth and conflicts have already surfaced about water rights, water flow, and sustainability. The Governor of AZ has identified water as a key area for study and

planning. Recent legislation has proposed new developments "prove" water availability to support the numbers of people they have planned housing units for. Colorado River water continues to be controversial among western states. The distribution of the water will continue to be a concern to Arizona residents. Use of aquifers for various industrial and community uses will likely continue to be proposed, and developed.

The KNF has very little natural surface water although a number of reservoirs have been developed on the Williams Ranger District to provide municipal water storage and recreation use. With the limited availability of water more recreation pressure is put on areas that contain water and on the limited riparian areas. While forests have little effect on water use, they have an important role in maintaining healthy watersheds. The Forest Service is required to maintain and improve watersheds.

There are eight "fourth-code" watersheds that overlap the forest and 42 within the analysis area (See Figure 16). Healthy watersheds are key to many other resource activities including range, healthy forests, soil/erosion, roads, mining, recreation activities, etc. One comment received acknowledged this in saying the desired condition goal of forest plan revision should be to improve the watersheds. Healthy watersheds hold more water, serving as a natural sponge that can retain water and refill natural aquifers.

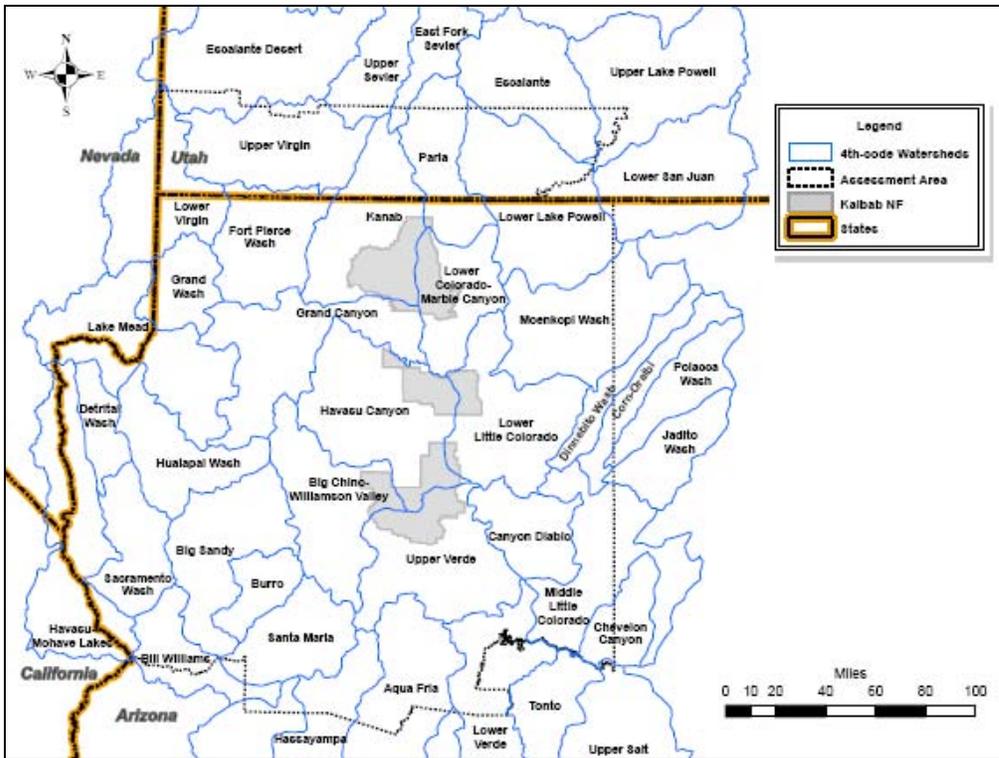


Figure 15. Fourth-code watersheds in the assessment area

## GRAZING

Multiple use management on national forests includes livestock grazing. On the KNF, the number of grazing permits and authorized AUMs have decreased over time. On the North Kaibab Ranger District, one of the large allotments was recently transferred to a

cooperative venture between the Grand Canyon Trust and The Conservation Fund. The cattle operation, called "North Rim Ranches LLC" as the goal of partnering with the US Forest Service and Bureau of Land Management to manage livestock grazing and to do its part to maintain and restore the ecological, cultural and scenic values of the ranches and permitted grazing areas (Grand Canyon Trust 2008). One allotment at Tusayan Ranger District is held as a grass bank. There has been an overall improvement in range condition on the forest over the past 20 years.

Members of local communities have ties to ranching, and many families continue to carry on this work. Ranching is viewed in some communities as a traditional cultural value. Renewal of grazing permits is controversial and some of the public believe grazing should be discontinued. There is evidence that increasing elk populations are affecting grassland and understory health, and competing for limited forage. The need to work with the Arizona Game and Fish Department is key to management of the elk herds that utilize the forest range lands. Other concerns include poor range condition on some allotments, poor management by the Forest Service, grazing competing with wildlife species, and conflict with recreation activities and users.

## **VEGETATION MANAGEMENT**

In the past, outputs of saw timber, pulpwood, and fuelwood dominated forest management on the KNF. Now there is an emphasis on restoring ecosystems, reducing wildfire risk, and improving forest health. Once again tree harvesting is expected to play an important role, but with a more sustainable emphasis on outcomes.

Over the past 10 years, there has been a decrease in the amount of timber harvested. Many sawmills have closed throughout the Southwest, which mirrors the national trend. A study was conducted recently to assess the potential wood supply in northern Arizona (Hampton et al 2008). It focused on the ponderosa pine forests across northern Arizona and trees less than 16 inch diameter at breast height (DBH). The study showed that under a "restoration" thinning scenario, an estimated 850 million cubic-feet of wood may be available, and new wood products industries could be attracted to the area. It identified about 130 potential wood products industries including logging and processing commercial firewood, custom woodworking shops, biomass energy production, oriented strand board, and pre-fabricated products for home and garden use (railing, trellis, furniture, etc.).

Local communities have shown interest in developing forest-product related industries. Both Tusayan and Williams have submitted proposals for biomass plant development and construction. There is currently a proposal for an oriented strandboard (OSB) plant in Winslow (east of Flagstaff) that would use small-diameter trees from the KNF.

Current industries include a pallet mill operating in Ash Fork, a small hogan/house-log plant in Cameron, and commercial firewood operations. Large diameter logs are still used to produce dimensional lumber in a few small sawmills in Arizona and Utah.

## **MINERALS**

Mining in the national forests is authorized by the General Mining Law of 1872, which allows individuals and corporations free access to prospecting on NFS lands. Upon discovery of a mineral resource, an individual or corporation can, in turn, patent it to claim full title to the deposit. Small fees are generally required to stake, maintain, and patent a claim (Humphries and Vincent 2004).

Extraction of mineral materials has occurred historically on the KNF, and continues today. Cinder and gravel pits provide commercial and personal use materials. Sandstone quarries on the Williams District produce over 75,000 tons of dimensional stone. There are 80 sandstone quarry operations authorized by claim or mineral material contract. There is no oil or gas development.

Uranium mining has occurred on the KNF in the past, and is extremely controversial. As the price for uranium ore has increased (from \$7.00 per pound to over \$100.00 per pound) in the last couple of years, the number of claims has soared. In the spring of 2007, 589 claims had been staked on the Tusayan Ranger District, and by summer of 2008, there were over two-thousand claims. Not all claims have been nor will be developed. It is expected that the number of applications for exploration and testing will increase along with some proposals to start new mining activities. Proposals for reopening mines near Fredonia and Tusayan have also been in the news (Cole 2007a).

Controversy surrounding uranium mining includes use of the ore for development of nuclear weapons and subsequent testing. Many long-time residents in southern Utah and northern Arizona have suffered health effects from nuclear weapons testing programs in Nevada, and are commonly known as the "down-winders". Past mining has also resulted in abandoned mine shafts, tailing piles, and ground water pollution. Adverse health effects from past uranium mining to nearby American Indian communities is a continuing concern (Lyndon 2008). For example, the Hopi tribe recently identified spring contamination from mining that occurred on the Navajo Reservation (Cole 2007b). Uranium mining has also been linked to increases in cancer rates and other health effects for miners on the Navajo reservation (National Institute for Occupational Safety and Health 2000). This has led to a ban of all uranium-related activity on Navajo lands (Navajo Nation Council 2005).

## **RECREATION OPPORTUNITIES AND ACTIVITIES**

The KNF provides opportunities for a variety for natural, recreational, cultural, and interpretive experiences. There are nearly 150 trailheads, camping and picnic sites, fishing, and scenic areas. The forest is home to many individual places considered special by a diverse group of users. The KNF also contains many cultural sites, traditional cultural properties, and traditional use areas important to area Tribes, as well as historic and prehistoric sites on the National Register of Historic Places. Designated special areas include wilderness, botanical and geologic areas, national historic trails, national and state scenic byways.

Motorized and non-motorized trails that form loops have been identified as a key desire among counties, communities, and forest users. Increased use of motorized vehicles has resulted in conflicts between users. Some users value natural quiet as a forest resource and believe that the increase in motorized use and associated noise and dust has compromised this resource. One response of these users is to turn to wilderness and roadless/unroaded areas for the more primitive, quiet experiences that they used to find in other areas of the forest.

National forest scenery was identified by counties and communities as an important resource to sustain. Some communities identify scenery as one of the resources that attracts visitors and new residents.

Hunting continues to be an important recreation activity for local communities, the states, and nation-wide. It provides a statewide economic benefit. Trophy elk on the south Kaibab and deer on the north Kaibab attract hunters from within the state and nationally.

Resource damage associated with irresponsible behavior by some hunters is of concern to local communities. Some homeowners adjacent to the forest boundary would like to see more enforcement and buffers where target practice and hunting is restricted. User conflicts like this are expected to increase as private land is subdivided and more people live in the wildland-urban interface.

Research completed in 2002 (Boussard et al 2002) on the KNF provided information about forest users and the activities and management preferences they wanted to see implemented on the land. At that time the top three activities participated in were sightseeing, short hikes and dispersed and campground camping. The three most important settings or opportunities that visitors desired were quiet, natural areas, dispersed camping and hiking trails. Six years later, the activities and types of uses have changed as use of off-highway vehicles has increased steadily. In 2003, Arizona State Parks estimated that 21 percent of Arizonans owned and used off-highway vehicles (Arizona State Parks 2003). Along with a growing population in the state has come the explosion of technology. There are more and different types of motorized recreation, new ways to orienteer using geographic positioning systems, as well as new games such as paintball, geocaching, and others. National Recreation and Tourism Statistics for the Southwestern Region in 2006 (USFS 2004) show visitor participation in recreation activities. Table 16 lists the top four land based activities participated in for Arizona and New Mexico.

**Table 16. Recreation participation in the Forest Service, Southwestern Region**

<b>Recreation Activity</b>	<b>Percent of Users</b>
Day hiking	47.0
Visit wilderness or primitive area	45.5
Camping, developed	30.8
Camping, dispersed (primitive)	28.1
Driving off-road	26.7

Although recreation use has increased steadily since the establishment of the National Forest Service, the increase in recreation over the past few decades has been particularly dramatic. According to National Visitor Use Monitoring data, the KNF received approximately 224,600 visits during fiscal year 2005. A majority of visitors to KNF are male (58 percent). Visitors are predominately white (almost 97 percent). Spanish, Hispanic, or Latino visitors make up approximately 4 percent of total visits while Asian users account for about 1 percent of visits. The age of users is fairly evenly distributed (12 to 25 percent) with the exception of the 16-19 year category represented by only 2.8 visitors and the over 70 year-old category with about 2 percent. Approximately 6 percent of visitors were international. This number is much higher than in other Arizona national forests and is likely a result of the proximity to the Grand Canyon. The most frequently reported zip codes suggest that most domestic visitors live in the Flagstaff area or, to a much lesser extent, in the Phoenix metro area (Kocis et al. 2006).

As national forest uses change, recreation users are playing a larger role in forest use and planning. A significant change in recreation activities is the increase use of off-highway vehicles. Forest Service guidance calls for “providing non-urbanized outdoor recreation opportunities in a natural appearing forest setting, maintaining and enhance open space options, public accessibility, and cultural, wilderness, visual and natural resources values, to promote public transportation and/or access to national forest recreation opportunities, and to provide outdoor recreation opportunities and activities that encourage study and

enjoyment of nature; highlight the importance of conservation; provide scenic and visual enjoyment; and instill an appreciation of the nation's history, cultural resources and traditional values" (FSM 2302).

Unmanaged recreation has been identified by the Forest Service as one of four "key threats" to the nation's forests and grasslands (USFS 2005j). 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 population trends throughout the West.

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). The 2004 Roper Report estimated that nine in ten Americans had participated in some sort of outdoor recreation during the previous twelve months (RoperASW 2004). However, the same report showed a decline in recreation participation beginning in 2001. It attributes this trend in part to travel concerns following September 11, 2001 but also to the expansion of indoor recreation opportunities through Internet and television (RoperASW 2004). Cordell and others (2004) also note slight decreases in several categories of outdoor recreation following September 11. Nationally, there were 209 million national forest visits in 2001.

In Arizona, where more than 42 percent of the land base is managed by federal agencies for public use, the population has increased about tenfold since 1940 to more than 5 million people in 2000. The state had the second largest growth rate in the nation in the 1990s (Arizona State Parks 2003). Perhaps even more importantly, the proportion of Arizona residents living in urban areas has increased dramatically, so that more than 88 percent lived in urban settings by the year 2000 (Arizona State Parks 2003). State research gathered for the Arizona State Comprehensive Outdoor Recreation Plan indicates that people who are college-educated, exceed \$50,000 annual incomes, and live in smaller households are a major growing outdoor recreation demographic (Arizona State Parks 2008).

In phone surveys conducted by the Arizona State Parks in 1994 and 1998, nearly 50 percent of Arizonans said that they had visited an Arizona national forest within the previous twelve months (Arizona State Parks 2003). Access to public lands is considered a major contributor to quality of life by many Arizonans, and many parks and forests are experiencing very high recreational use even while urban expansion is decreasing the amount of available open space. As a result, this trend of increasing pressure on recreational resources can be expected to continue well into the future

The majority of Utah's residents live in the Salt Lake City area (80 percent of the state's population) making the state the sixth most urban state in the nation (Utah Division of Parks and Recreation 2003). The large amount of federal land ownership in Utah has created tension between the State and Federal governments. The high quantity of public lands are seen as both a "boon and a bane". Some communities have resented the Executive designation of new national monuments e.g. dedication of nearly two million acres for a Grand Staircase-Escalante National Monument believing that their access to these areas and traditional uses is being further restricted. In the 2003 Utah State Comprehensive Outdoor Recreation Plan (SCORP), the State's then Governor Leavitt included a doctrine on public lands and outdoors that calls for "a better balance in the

federal system with regard to public land and environmental policy as well as to develop a state environmental and mitigation agenda and work for better balance in the federal system to develop a state plan to protect our quality of life”.

The lack of private land for development in Utah, and some public sentiment for acquiring public lands to fill this gap has created tension and intense competition of tax dollars for public facilities. The SCORP identifies adequate financing as a major obstacle for recreation managers. A statewide recreation needs inventory compared the recreation facilities and priorities currently being provided or emphasized to those that were desired. In urban areas, recreation facilities such as sports fields, playground equipment, public restrooms were most frequently requested, as well as protecting open space, controlling growth and ecological services. In the more rural areas retaining access and multiple use were identified as major priorities.

## **TRENDS IN NATURAL RESOURCES AND USES**

Historically, commodity industries 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 cutting, and mining are being slowly succeeded in policy and management by an emphasis on other uses such as recreation. These national trends are supported by information, which suggests a similar decline in timber harvesting on lands managed by the KNF. A new emphasis on forest health may provide an opportunity for new industries to develop. Emphasis on reducing hazardous fuels and moving toward a more sustainable forest will result in the harvesting of small diameter trees.

In fiscal year 2002, 7,750 operators had permits to graze livestock on a total of about 95 million acres of available FS-administered land (Vincent 2004)<sup>6</sup>. As Davis (2001) notes, the number of permits issued for livestock grazing on public lands has decreased slightly over recent years. The KNF issued thirty grazing permits in 2000, down from thirty-six in 1990 (Higgins 2007).

The FS sells timber for a variety of reasons, most commonly to support local mills and communities that were, in some cases, built around a specific forest’s timber supply and to modify forest structure or composition to meet a variety of management goals (Gorte 2004). Timber sales on national forest land have been steadily decreasing since the late 1980s, when total production reached 11 billion board feet annually (GAO 1999b). In contrast, just over 2 billion board feet were harvested during fiscal year 2004, at a total value of approximately \$218 million; an additional \$3.17 million in special forest products, including Christmas trees, fuel wood, pinyon nuts and other materials were harvested that year (USFS 2005g). In 1997, the FS timber sales program reported a loss of \$88.6 million (GAO 2001a).

The KNF issues permits for the harvest and sale of sawtimber, pulpwood, and commercial fuelwood. Between 1990 and 2000, Kaibab reported a drastic decrease in sawtimber permits (from over 114,000 CCF to under 10,000 CCF), a decrease in commercial fuelwood permits (from 2,518 to 1,676 cords), and a large increase in pulpwood permits (from 30 to 4,770 cords). Since 2005 the timber market has picked up sold. Over the last three years about 57,000 CCF of sawtimber and pulp wood have been sold, averaging about 20,000 CCF per year.

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<sup>6</sup> Data given are the most recent available.

The forest also reports the sale of permits for non-commercial fuelwood gathering. 1,843 fuelwood permits were issued in 2000, down from more than 7,000 in 1990. Like the sawtimber and pulpwood market, non-commercial fuelwood has also had a resurgence of activity in from 2005 to 2008.

Nationally, mineral and energy production, from gravel to gold to carbon dioxide, totaled about \$2 billion in fiscal year 2003 (USFS 2005i). In 2002, Region 3 issued \$557,042 in sale permits and \$1,773,756 in free use permits for mineral extraction (Jevins 2005). In 2002, the Kaibab forest issued slightly more than \$250,000 in mineral permits for about 100,000 tons of landscape rock, dimension stone, cinders, and sand and gravel (Mutz and Jenner 2006).

In 2005, the price of uranium began to climb. In response, claims on the Tusayan Ranger District increased significantly. Currently there are a number of companies who are pursuing test drilling of claims. Uranium mining is controversial. Many local communities have been effected by previous activities and are contending with the health effects of improper waste disposal and groundwater contamination, mining practices such as abandoned mines that have not been properly sealed , and "down wind" effects of nuclear testing in the Nevada military ranges. Uranium mining may begin on the KNF.

Growing populations and urbanization place greater demands and potential risks to national forests than at anytime in the past. The value of national forests as open space are multi-faceted, the benefits include: clean air and water, providing water supplies from health watersheds, timber, forage and other products, wildlife habitat and corridors, climate regulation, scenic beauty, recreation opportunities, quality of life, and others (USDA Forest Service 2007).

As the Baby Boomers (the population segment of 76 million people born between 1946 and 1964) approach retirement, Arizona is expected to see an increase in the population of residents age 65 and over. Between 2000 and 2030, it is projected that Arizona's population of residents 65 and older will increase by 255 percent (Arizona State Parks 2008).

The Baby Boomers typically have higher levels of income than other segments of society, thus affording them the opportunity to seek out unique and trendy forms of recreation suited for their interests. Chick and Hood (1996) state that recreation preferences generally change with age, where new forms of relaxing and educational activities are preferred by older generations compared to more physically demanding activities are favored by young recreationists. Between the 1982-1983 National Survey on Recreation and Environment and the most recent survey (2000-2001), participation among older Americans increased in nearly every participation activity (Cordell et al 2004). This is especially true for age groups 45 to 59 and 60-and-older where activities such as walking, visiting nature centers and museums, sightseeing, day hiking, and driving off-road.

## **Key Resource Management Topics**

- Commodity uses have decreased in recent decades; new markets may be developed that utilize smaller diameter forest products from vegetation management activities.
- Recreation uses are expected to increase, as are potential conflicts between different users. Motorized and non-motorized users are one example of this, as are

communities where traditional uses and values are important and urban recreationists who do not have the same land ethic.

- The Baby-boomer generation as a segment of the population is expected to be an increasing important recreation user group. Members of the group are more highly educated, have higher incomes, and are interested in a wider variety of recreation activities than other segments of the population.
- Natural resource damage may increase depending on the types of recreation activities the public engages in and an overall increase in visitation.

## 5. Community Relationships

### COMMUNITY INVOLVEMENT

The communities surrounding the KNF have long been dependent upon natural resources for commodity production, tourism, and aesthetic enjoyment. A review of state and local newspapers reveals a general interest in the use and management of forest resources with particular attention paid to recreational uses such as hunting and fishing as well as management of wildlife and regional water sources. Table 17 lists national forest related articles from local newspapers.

**Table 17. Newspaper articles on natural resource topics, 2007**

<b>Category</b>	<b>Article Topics</b>
Fire	Prescribed Burning Wildfire/Fire Fighting Wildland Fire Use
Forest Restoration	Forest Health/Fuel Reduction/Ecosystem Sustainability Logging/Old Growth Salvage Sales Small Diameter Wood/ Manufacturing/Biomass Energy
Recreation	Off-Highway Vehicle Travel Management Inventoried Roadless Areas Management Campground Reconstruction Recreation Facilities Planning Recreation Fees Seasonal Road Closures Christmas Tree Permit Sales
Lands	Proposal to Sell National Forest Lands Land Exchanges
Mining	Uranium Exploration/Mining
Other	Land Management Planning Rule FS Centennial Celebration

### COMMUNITIES OF INTEREST AND FOREST PARTNERSHIPS

The purpose of this chapter is to describe the relationship between the KNF and its neighboring communities. Knowledge of local communities is of interest to the Kaibab 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.

The communities within and adjacent to the KNF boundary, have a close relationship to the forest. Traditionally, the forests served as the source of natural resources for families and employment. The extractive industries such as mining, timber harvest/sawmills, and grazing were dependent upon the forests. While these uses have decreased in number and size, many communities still have relationships with the FS that revolve around these. More recently, forest-based recreation has become a resource to communities as tourism becomes an important economic component. The Forest Service manages watersheds that contribute to surface water reservoirs and aquifers. National forest lands also contribute to the quality of life that communities advertise to attract new residents.

Forest Partnerships have been developed with local, state and federal agencies, Tribes (Hogan project, vendor permits), organizations (Trout Unlimited, Rocky Mountain Elk Foundations, Sierra Club Wilderness Volunteers, and others), Public Lands Interpretive Association and the Grand Canyon Interpretive Association, community and rural fire departments, Chambers of Commerce, and many others. The forest has developed Memoranda of Understanding together with the Hopi, Havasupai and Hualapai Tribes and Kaibab Band of Paiute Indians. These relationships provide reciprocal benefits such as the ability to apply for grants, co-hosting events of mutual interest, prioritization of fuels reduction projects, partnerships that promote restoration work, and provision of information and interpretive programs, and other topics.

Information gathered on the nature of the relationships between the Kaibab National Forest and surrounding communities reveals a complex network of interests and a variety of issues that affect forest management and planning. In addition to wider public concern for issues such as water supply, wildlife protection, and fire prevention, a growing number of local government organizations and special advocacy groups are seeking to participate directly with the KNF in the formation of policy. Although a comprehensive analysis of the social network surrounding the forest is beyond the scope of this assessment, this section provides insight into the roles and purposes of key stakeholders and establishes a framework for the development of a comprehensive community-relations strategy.

The KNF has many communities and entities of interest: that is, entities that share an interest along with the Forest Service in the management of the forest. For the purposes of this assessment, a distinction should be made between communities of interest and forest partners. Communities of interest may include residents of physical communities or members of an interest group, agency, or private organization that are influenced by, and in turn, stand to influence forest planning and management. Consideration of their stake in forest management is important, but not specifically directed through formal partnership agreements. American Indian Tribes represent some especially noteworthy communities of interest to the Kaibab National Forest. The forest routinely consults with seven federally recognized tribal governments and has developed strong working relationships with area tribes over years of partnership and consultation.

Volunteerism on the KNF has not been emphasized in the past. Many national forests use volunteers extensively as a way to augment the capacity of the forest staff. Volunteerism can assist with visitor information, office work, trail patrol and maintenance, wilderness patrols, recreation site hosting, invasive weed control, and in many other areas. As the baby-boomer generation retires, opportunities for engaging volunteers increase exponentially. Participants in public meetings have expressed their concern about lack of agency funding, and have urged the forest to make use of their willingness and skills to assist with work.

## **AMERICAN INDIANS**

Although American Indian populations represent a relatively small percentage of the state's population, Tribes represent a comparatively high percentage of the population in close proximity to the forest. As shown above, the 2000 Census indicates that nearly 29 percent of Coconino County residents are American Indian (page 16).

The Navajo Tribe is the most populous in the US (Navajo Nation 2006). Statistics from the Navajo Nation will be presented here as an example of some of the challenges that may face tribal communities. The population on the Navajo reservation was 80,462 in 2000; the tribe estimates the population to be growing at a rate of 2 percent annually.

Unemployment using the US Dept. of Labor calculations is 43 percent, although the tribe estimates it at about 67 percent. While per capita income has increased, the tribe estimates 71 percent of member spending takes place in off-reservation communities. This is due to a lack of retail businesses on the reservation, necessitating travel to surrounding locales for groceries, clothing, and other purchases.

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. 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 KNF Heritage program works closely with local Tribes to consult on projects, and to work through the FS processes to accommodate special needs. On the Kaibab, building these relationships has been a central emphasis for many years. The KNF routinely consults with the Havasupai Tribe, the Hopi Tribe, the Hualapai Tribe, the Kaibab Band of Paiute Indians, the Navajo Nation, the Yavapai-Prescott Indian Tribe and the Pueblo of Zuni on a quarterly basis. The KNF has Memoranda of Understanding (MOUs) with the Hopi, Kaibab Band of Paiute Indians, Hualapai, and the Havasupai. These MOUs formalize the consultation relationships and identify areas of mutual interest and concern. These relationships are expected to grow as the Forest and Tribes continue to work together on land management issues.

## **HISPANIC**

Historic use on the KNF has been by a relatively narrow segment of the population. The KNF has not assessed needs of different ethnic populations in the past. As with many national forests, the Kaibab has not offered experiences for people of varied ethnic backgrounds (Chieh-Lu Li et al 2003). Some traditional uses such as firewood gathering, grazing, and hunting have probably been utilized by a larger segment of the population possibly crossing cultural boundaries, but data has not been recorded about the demographics of these uses.

One of the fastest growing ethnic segments of the United States is the Hispanic population. Despite this rapid growth, few research studies exist on the relationship of this growing population segment to recreation trends in the United States (Chavez 2000), although many studies have suggested that recreation managers begin recognizing Hispanic recreationists in their planning and management efforts (Chavez 1992, Clawson 1985, Gramann 1996). One recent study cites that Hispanic Americans are having increases in overall leisure time at roughly the same rate as whites. However, they still have nearly 45 minutes less of leisure time per day than whites and about 35 minutes less than African Americans (Adams et al 2006). The amount of leisure time and more specifically, the increase in leisure time is important when considering outdoor recreation activity participation (Adams-Russell 2006, Shaw 1994).

A study by the Outdoor Industry Foundation (2006) suggests the following strategies would be effective in targeting outdoor recreation opportunities to the Hispanic

population of Arizona; a focus on family, community and personalization of service. A focus on family and community might include providing facilities that accommodate larger family groups, or planning group activities appropriate for multigenerational groups. Personalization of services may include providing materials in Spanish, employing bilingual employees, and connecting with community leaders in primarily Hispanic communities.

## **CHILDREN**

Many generations of American children grew up with an understanding of the value of forests and nature. They played outdoors, saw the connection of natural resources to their lives, homes and communities, and learned about the plants and animals surrounding their communities.

The shift in population from rural to urban settings means that children have fewer connections to rural or natural settings and don't have easy access to parks and forests. In addition many children live more sedentary lifestyles and spend more time watching television and playing video games than playing outdoors. Interest in natural resource careers continues to decline (USDA Forest Service 2007). There is a need for forests to play a part in helping to develop and maintain a connection with nature. This in turn can help to foster support of public lands and conservation of natural resources.

## **COMMUNITY AND FOREST SERVICE INTERACTION**

In recent years, the FS has placed increasing priority on the social relationships between national forests and surrounding communities. As awareness and commitment to these processes grows, so does the need for forest managers and planners to understand the dynamic linkages between the forest and surrounding communities. Although the concept of community relations is a relatively new component of forest planning, frameworks exist to help planners develop a comprehensive strategy for monitoring and enhancing these relationships.

The communities surrounding the KNF are involved with the national forests and with natural resource issues in general. Northern Arizona, like the states of Arizona and Utah, has long been dependent upon natural resources for commodity production, tourism, and recreation.

## **Key Resource Management Topics**

- Communities within and surrounding the KNF will continue to interact and influence forest management topics and activities. This relationship may intensify as the population grows and more demands are placed on the forest's resources.
- Although the Forests will continue to provide the resource base for activities and uses, the agency's ability to meet the needs is limited by funding and personnel. The KNF would need to rely more on partnerships and volunteers if it is to increase its capacity and provide services.
- Changing population demographics increase the need to provide information, interpretive programs and other opportunities to help urban dwellers understand national forests and the resources associated with them.

- American Indian Tribes are key stakeholders. The forest recognizes the importance and value of Tribal relationships. As the state's population grows so will issues of importance to area Tribes and there will be a corresponding increase in the need for communication and cooperation between the Forest and Tribes.
- Hispanic population growth may influence the types of facilities and services the forest provides. There will be a greater need for communication in Spanish (signing and Spanish-speaking employees). Understanding the needs and desires of the Hispanic community can be built through better relationships with community leaders.
- Children have a decreasing awareness of natural resources and there is a need to ensure that all generations of people remain socially connected to public lands and natural resource conservation.

## Summary of Key Findings

The communities surrounding the KNF have undergone substantial social and economic changes over the last twenty years. The intent of this assessment has been to illustrate some of the more dramatic trends in key indicators and discuss their likely implications for future forest planning and management.

Among the most noteworthy trends in the assessment area is a significant increase in population in the state of Arizona, as well as Utah (although not at as dramatic a rate of growth). While the five counties surrounding the area have also grown, the increases have not been as dramatic as those in southern Arizona nor Washington County, Utah. Within this overall increase, growth in the retirement-age population has been strong and brings a new generation of forest users with a wide variety of interests in recreation, and higher levels of education and income. More of the population resides in urban areas. Changes in racial and ethnic characteristics have not been as apparent in the 5-County region, but projections show the Hispanic population will grow to 25 percent of the population. Along with increases in population, the area has had substantial growth in housing, especially homes intended for seasonal use. Together, these trends warrant careful consideration by forest planners. A larger and more diverse population suggests not only an increased number of potential forest users but also a change in the level and nature of interaction between the KNF and surrounding communities.

The economy of northern Arizona is likely to have a large impact on future planning and management of the KNF. The historic dependence on national resource commodities is shifting toward a reliance on tourism and service industries. Activities such as mining, forest products, and ranching continue to play an important role in rural areas; however, in recent years, there has been a shift away from extractive industries and toward an increasingly diverse regional economy that supports growing urban populations. The KNF does not play a large part in the regional economy, but is very important to local communities. When combined with ongoing demographic changes, economic factors are likely to have a direct impact on the KNF's role within the local and state economy.

Population and industry growth has resulted in an expansion of the regional road networks, but has not kept pace with travel demands. In the past, transportation planning has not been implemented in ways that support long-range land use plans. Limited amounts of private land and the demands of a growing population will put increasing pressure on the Forest Service (FS) for land exchanges. Increasing land values, the cost of infrastructure development, and limited water supplies are among the key factors that will make forest policies increasingly contentious in the coming decades.

The KNF has an opportunity to play a role in the resolution of current and future transportation and land use issues. The forest contributes by promoting sustainable regional planning policies, informing local stakeholders of the environmental and economic impacts of transportation and land use alternatives, and effectively involving surrounding communities in forest planning and management.

Many assessments have demonstrated a substantial increase in recreational uses and users. The KNF will face many challenges in meeting these demands. Unmanaged recreation and the increase in off-highway vehicles use is of particular concern. There are

opportunities to work with forest users to develop a sustainable recreation program that meets the needs of both motorized and non-motorized users.

Incorporation of “special places” into forest management plans will continue to be a challenge to forest managers. A wealth of cultural and natural resources provides opportunities for designation of some areas, as well as management of others within the multiple uses that occur on national forest lands. Although not a particular place, natural quiet has been identified as an important value to retain in forest settings. Providing a spectrum of recreation opportunities will be increasingly difficult as traditional uses come into conflict with new user trends.

Regional trends and Forest Service planning regulations have influenced the relationships between the KNF and surrounding communities. Complex and changing use of national forest lands has led to greater interest from a diverse array of stakeholders. In recent years, more attention has been paid to land management issues and there has been a greater expectation for public participation in decisions affecting public lands. The KNF will need to continue coordination and communication with area Tribes. Development of a robust framework and processes for public involvement will assist in collaborative development of future forest management plans.

This assessment summarized the social and economic context of the KNF. These conditions and trends as well and the interaction between communities and forest resources is important to informing management strategies that will contribute to social and economic sustainability. Below is a summary table of key topics and issues that will continue to be revisited throughout the forest plan revision process.

**Table 18. Summary of key social and economic issues**

Topic	Key Issue
Population Increases	Need to provide for a spectrum of recreation opportunities to meet diverse wants and needs
	Increased demand for land exchanges or disposal
	Increased demand for forest products and minerals (timber, fuelwood, minerals, etc.)
	There may be an increase in demand for utility corridors and transportation infrastructure
	Increasing recreational use may result in irreversible resource damage
	Reduced opportunities for natural quiet and solitude
Changing Visitor Demographics	May need to provide additional services facilities that accommodate older visitors
Economic Characteristics and Vitality	Ability to provide natural resources and settings that support a diverse and stable economy.
Natural Resources and Uses	Recreational conflicts exist between forest users (motorized vs. non-motorized, mountain bike vs. equestrian, traditional/religious/recreation).
	There are strong differing opinions about the appropriate tools, scale, and intensity of vegetation treatments
	Increasing recreation pressures may result in irreversible resource damage

	Potential for new wood products industries to become established
	Loss of traditional lifestyles relating to ranching and logging
	There are diverse public opinions the risks and benefits of uranium mining
Community Relationships	Loss of a connection between urban populations and nature
	Opportunities exist to increase capacity through volunteers and partnerships
	Opportunities to implement adaptive management using community, Tribal and stakeholder involvement is increasing and communication and cooperation between the Forest and Tribes, and other stakeholders will grow in importance
	Segments of the population may be underserved

# Appendix A – Economic Descriptions by County

## Current Conditions

The following pages provide a series of charts depicting the economy within each county in the analysis area. This analysis will display the differences between the counties and the relative importance of natural resource industries to each.

### Coconino County, Arizona

Figure 1 displays the relative size of the labor income produced in the natural resource related sectors to the county-wide economy in 2003. Figure 2 displays the 2003 employment. Forest related sectors represented 4 percent of labor income and 8.6 percent of employment. The largest of the natural resource related sectors was tourism at 3.6 percent of labor income and 7.9 percent of employment.

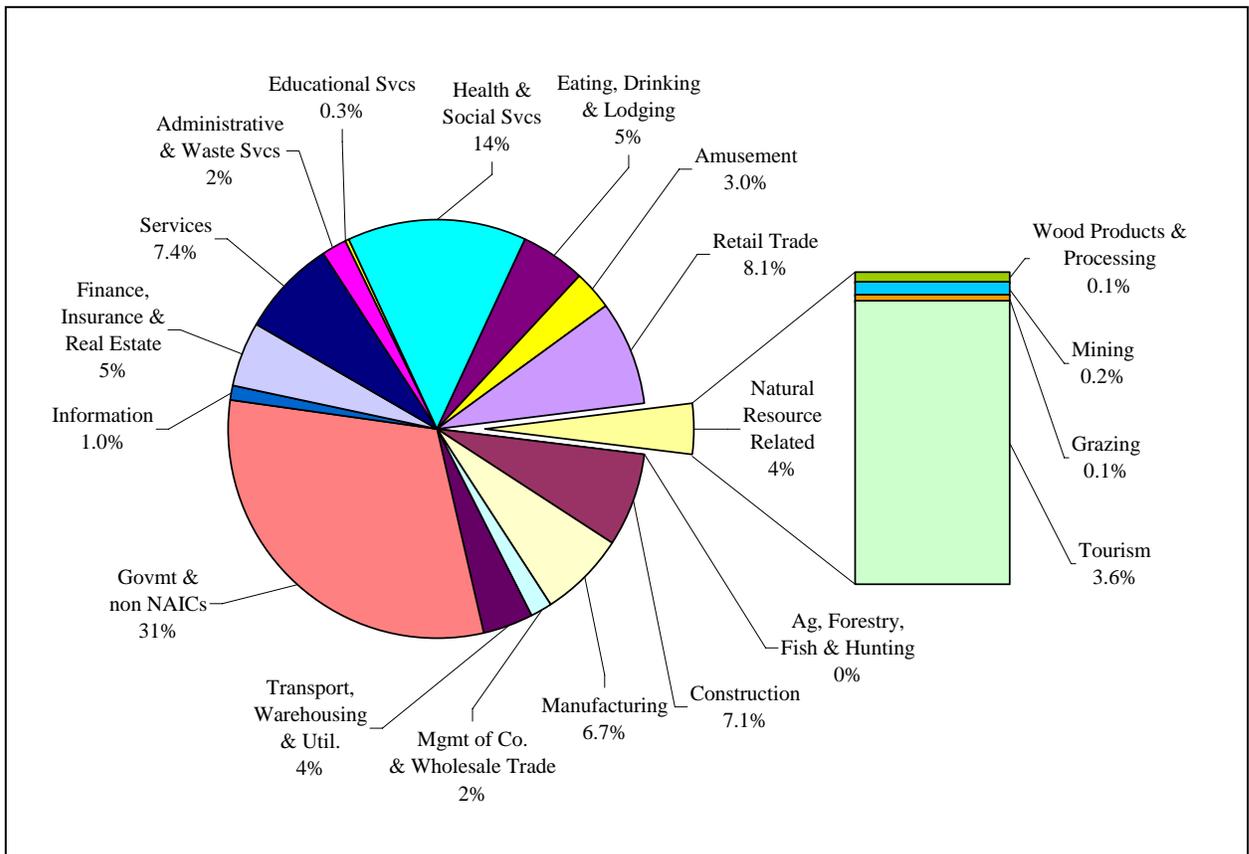


Figure 1. Labor income from natural resources sector for Coconino County, Arizona.

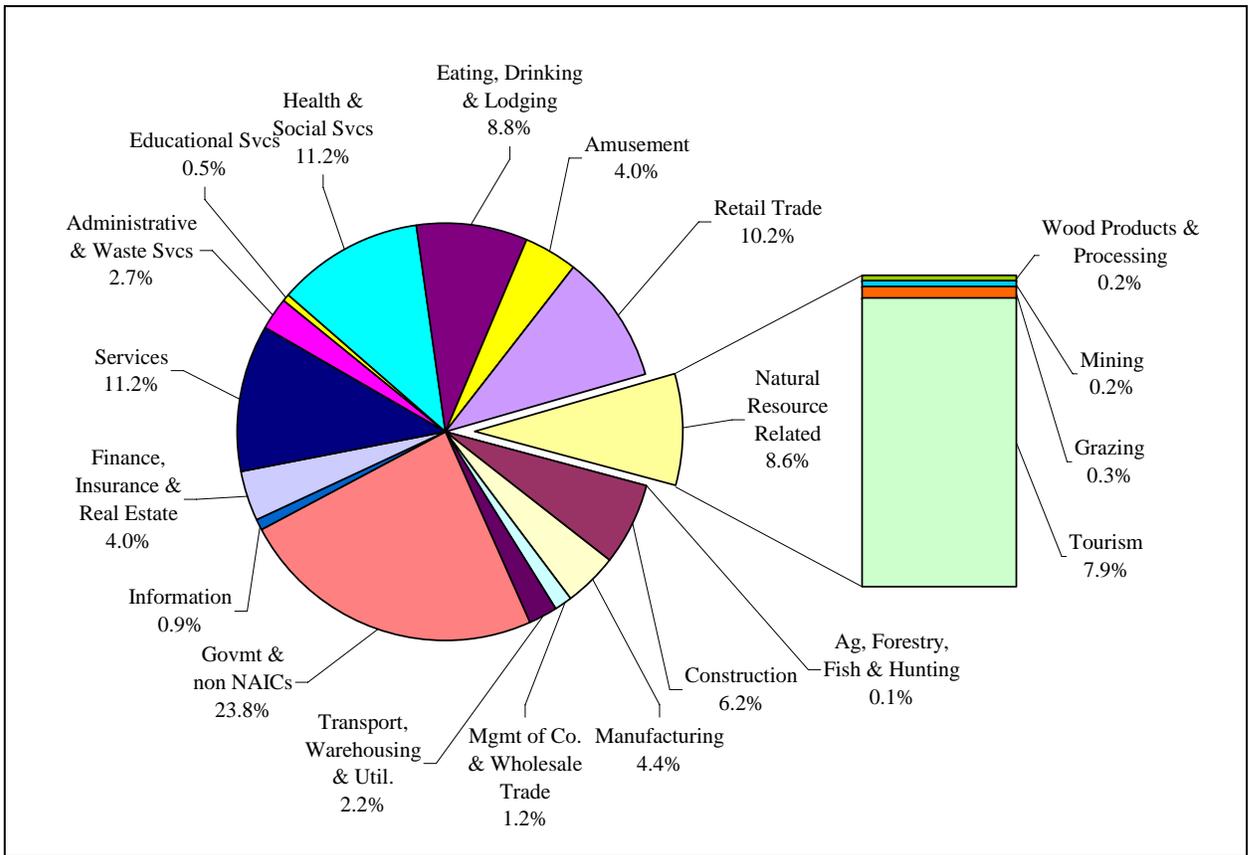


Figure 2. Employment from natural resources sector for Coconino County, Arizona.

## Mohave County, Arizona

Figure 3 displays the relative size of the labor income produced in the natural resource related sectors to the county-wide economy in 2003. Figure 4 displays the 2003 employment. Natural resource related sectors represented 5.5 percent of labor income and 6.2 percent of employment. Within that, the tourism industry was the largest contributor of labor income at 3.3 percent. Tourism also contributed the largest portion of natural resource related employment at 5.4 percent.

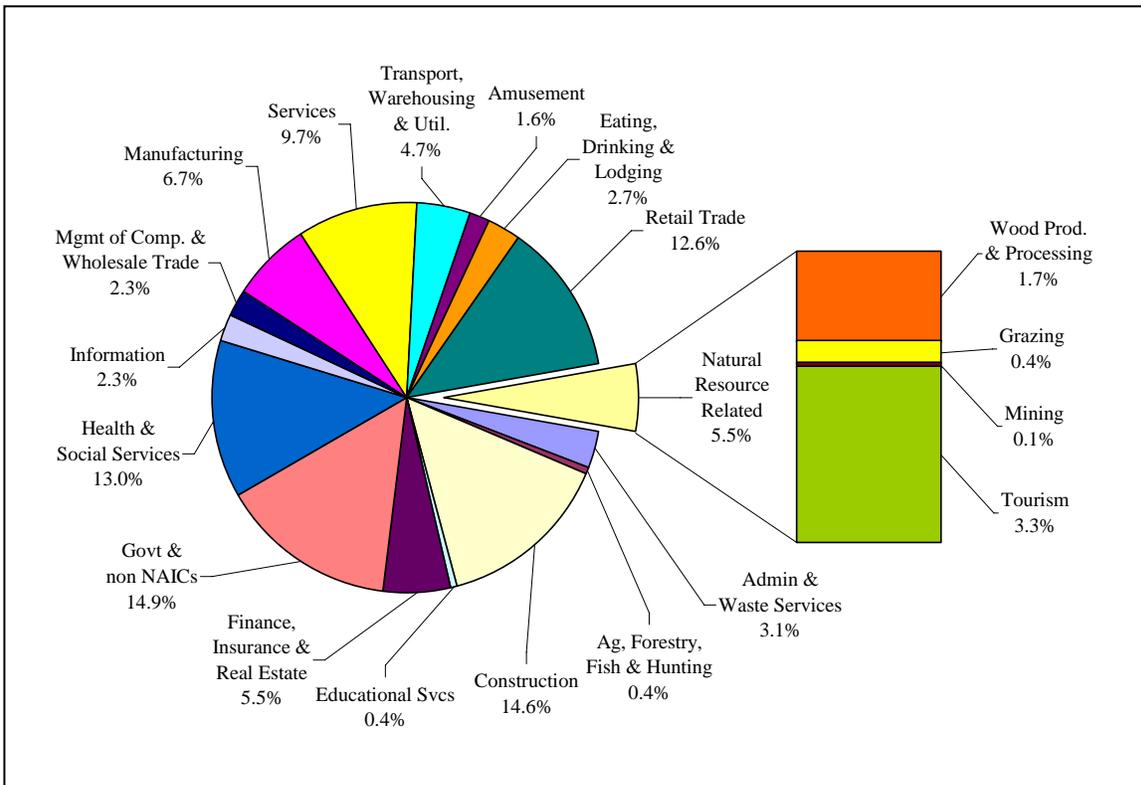


Figure 3. Labor income from natural resources sector for Mohave County, Arizona.

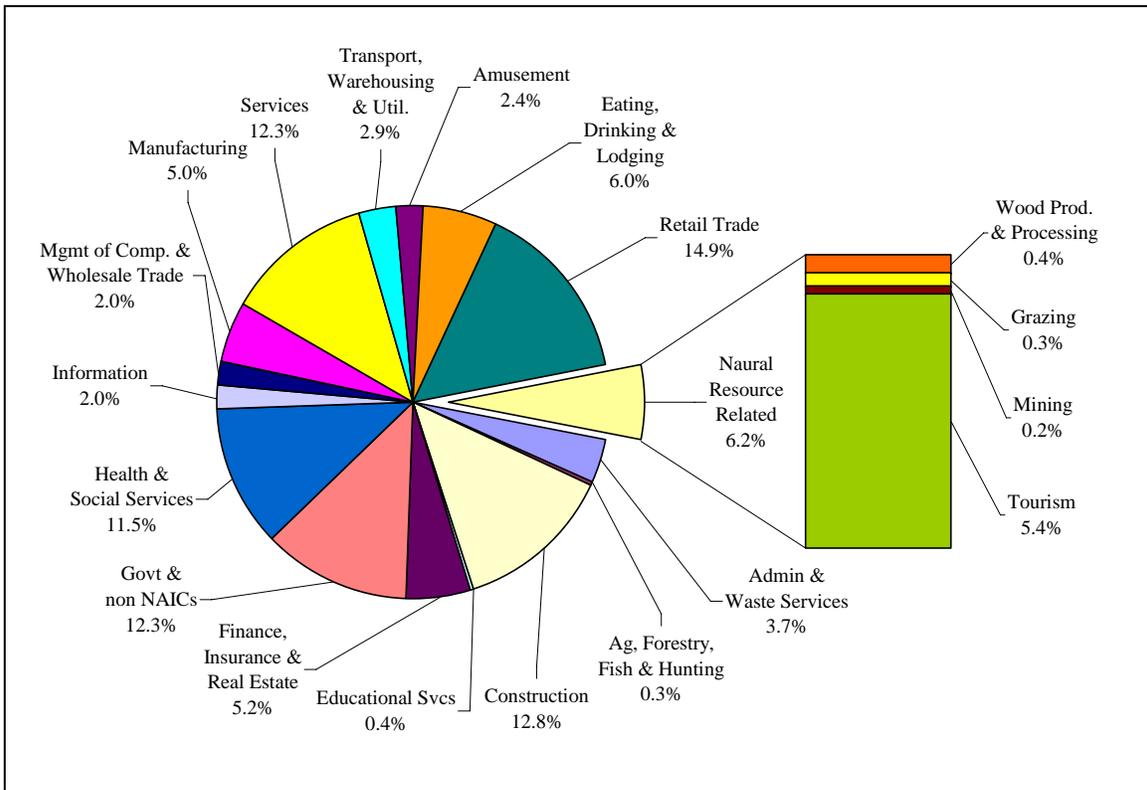


Figure 4. Employment from natural resources sector for Mohave County, Arizona.

## Yavapai County, Arizona

Figure 5 displays labor income by industry with in the Navajo County economy and Figure 6 displays employment. Natural resource related sectors produced 8.2 percent of labor income and provided 8.0 percent of employment. Mining produced the largest portion of labor income within the natural resource related industries at 4.4 percent. Tourism provided the largest share of natural resource related employment a 5.3 percent.

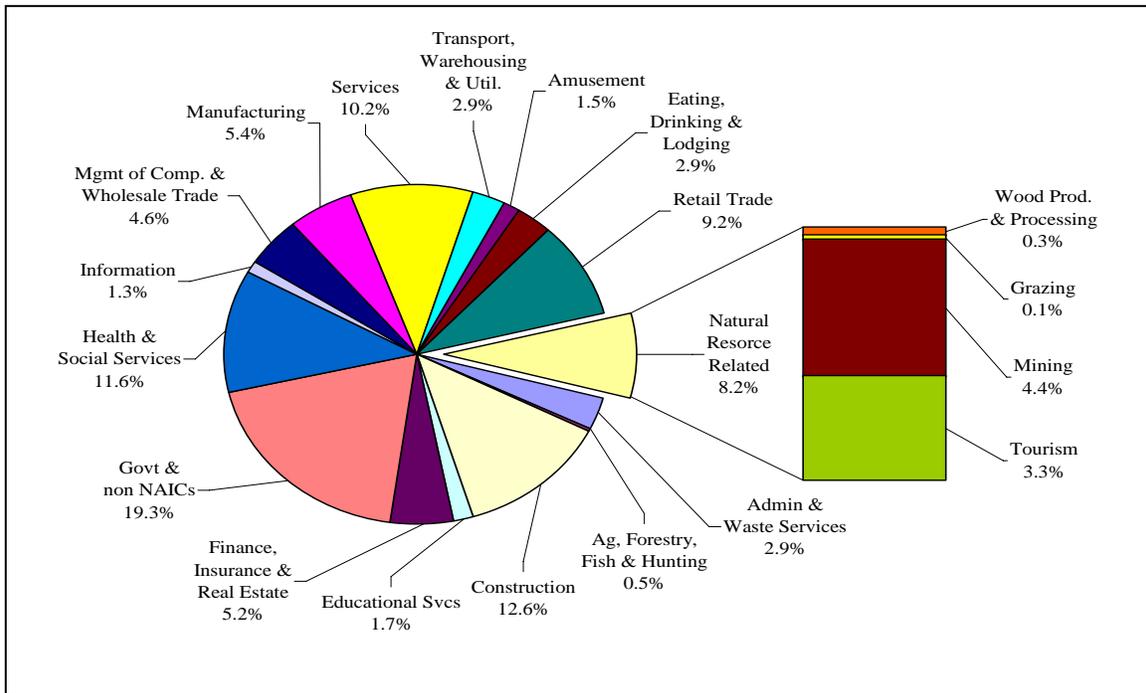


Figure 5. Labor income from natural resource sector for Yavapai County, Arizona.

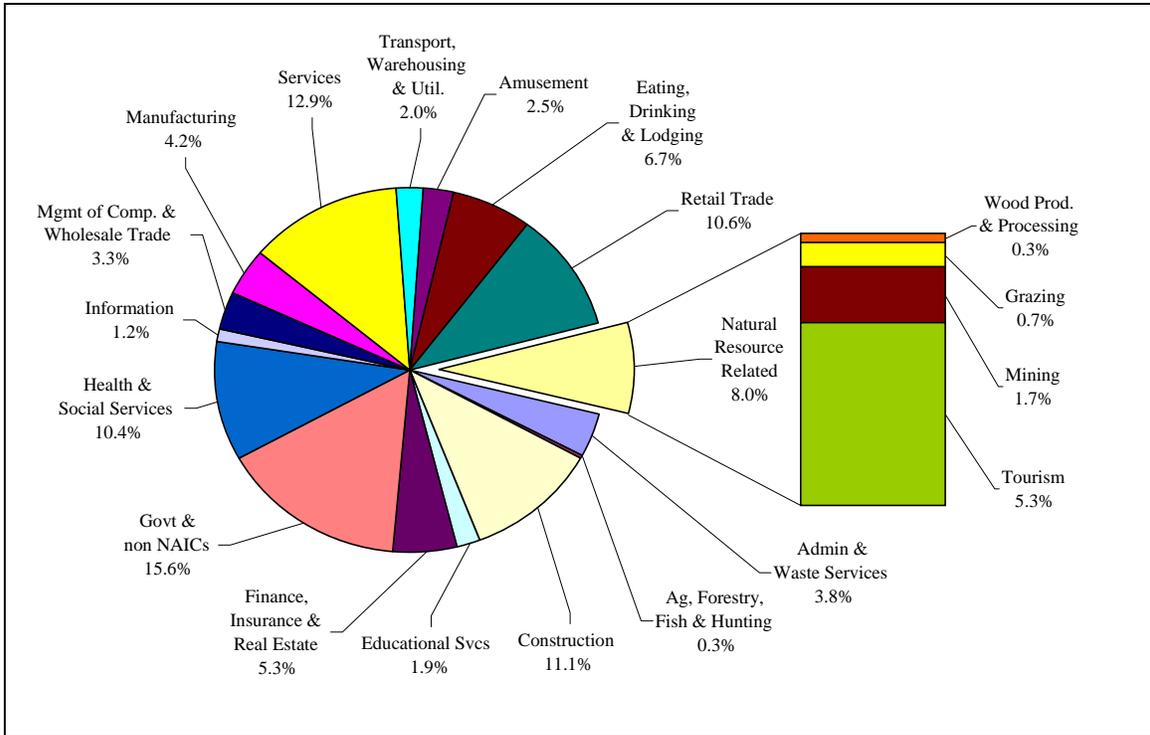


Figure 6. Employment from natural resources sector for Yavapai County, Arizona.

**Kane County, Utah**

Figure 7 displays the relative size of the labor income produced in the natural resource related sectors to the county-wide economy in 2003. Figure 8 displays the 2003 employment. Natural resource related sectors represented 18.8 percent of labor income and 15.0 percent of employment. Within that, the grazing industry was the largest contributor of labor income at 13.5 percent. Tourism contributed the largest portion of natural resource related employment at 9.8 percent.

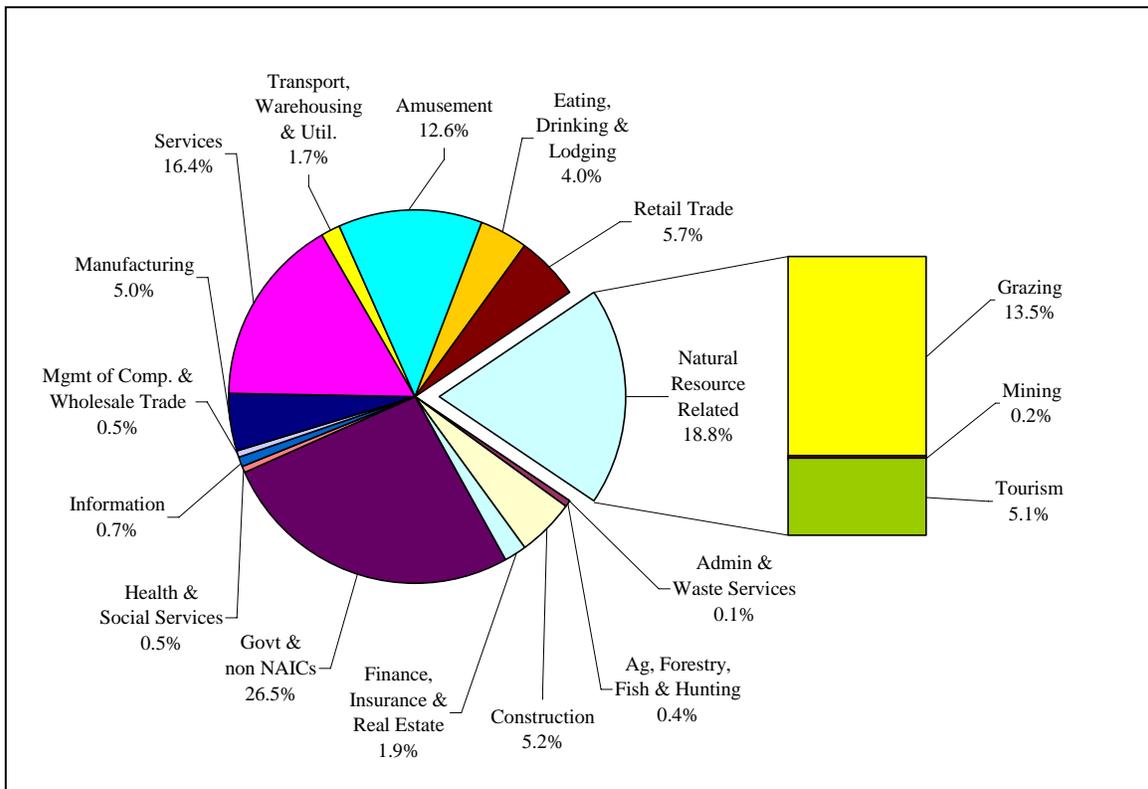


Figure 7. Labor income from natural resources sector for Kane County, Utah.

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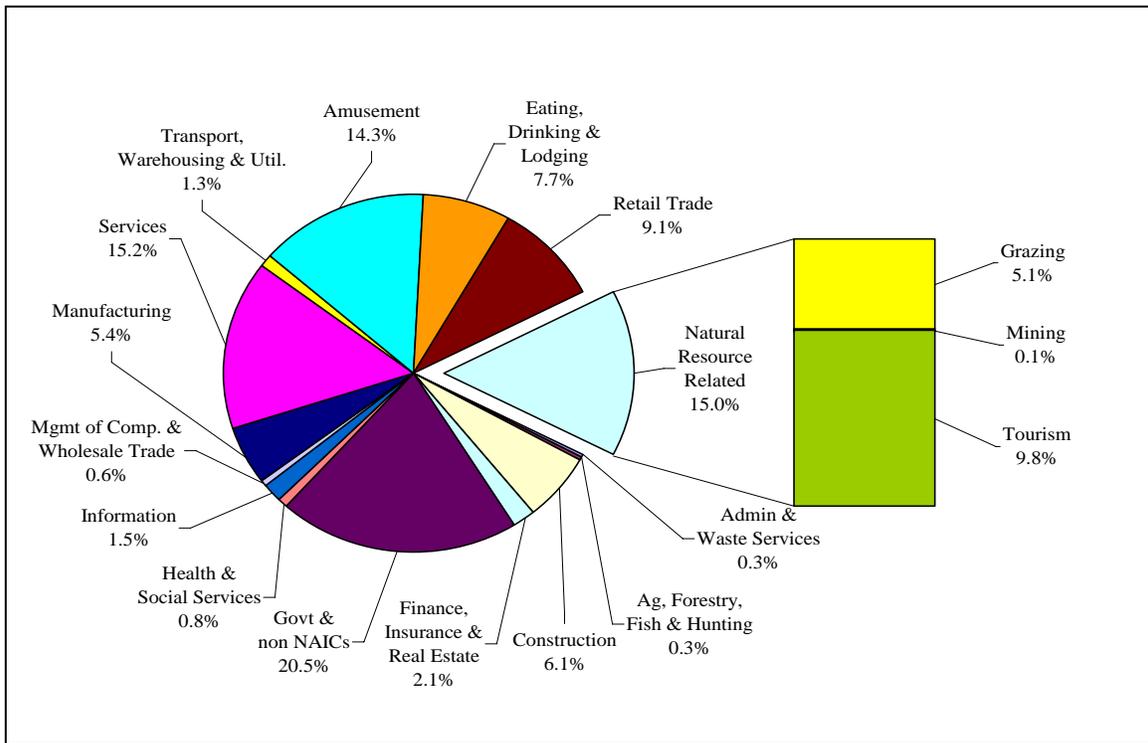


Figure 8. Employment from natural resources sector for Kane County, Utah.

**Washington County, Utah**

Figure 9 displays the relative size of the labor income produced in the natural resource related sectors to the county-wide economy in 2003. Figure 10 displays the 2003 employment. Natural resource related sectors represented 6.0 percent of labor income and 6.9 percent of employment. Within that, the tourism industry was the largest contributor of labor income at 3.6 percent. Tourism also contributed the largest portion of natural resource related employment at 5.6 percent.

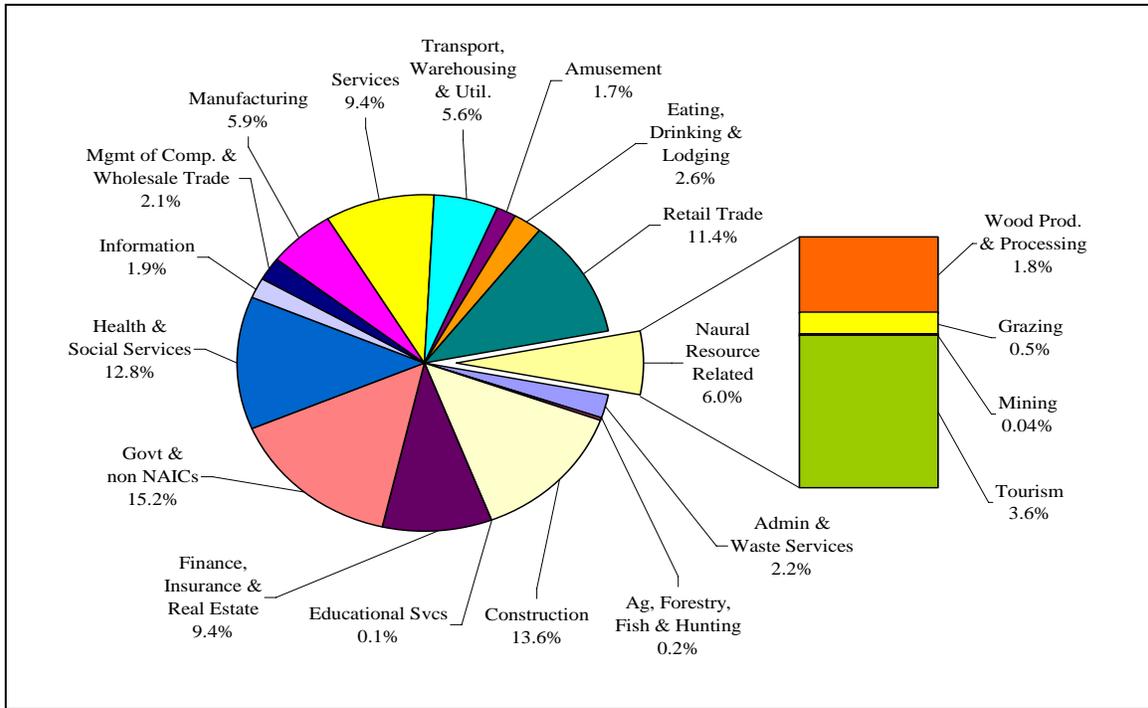


Figure 9. Labor income from natural resources sector for Washington County, Utah.

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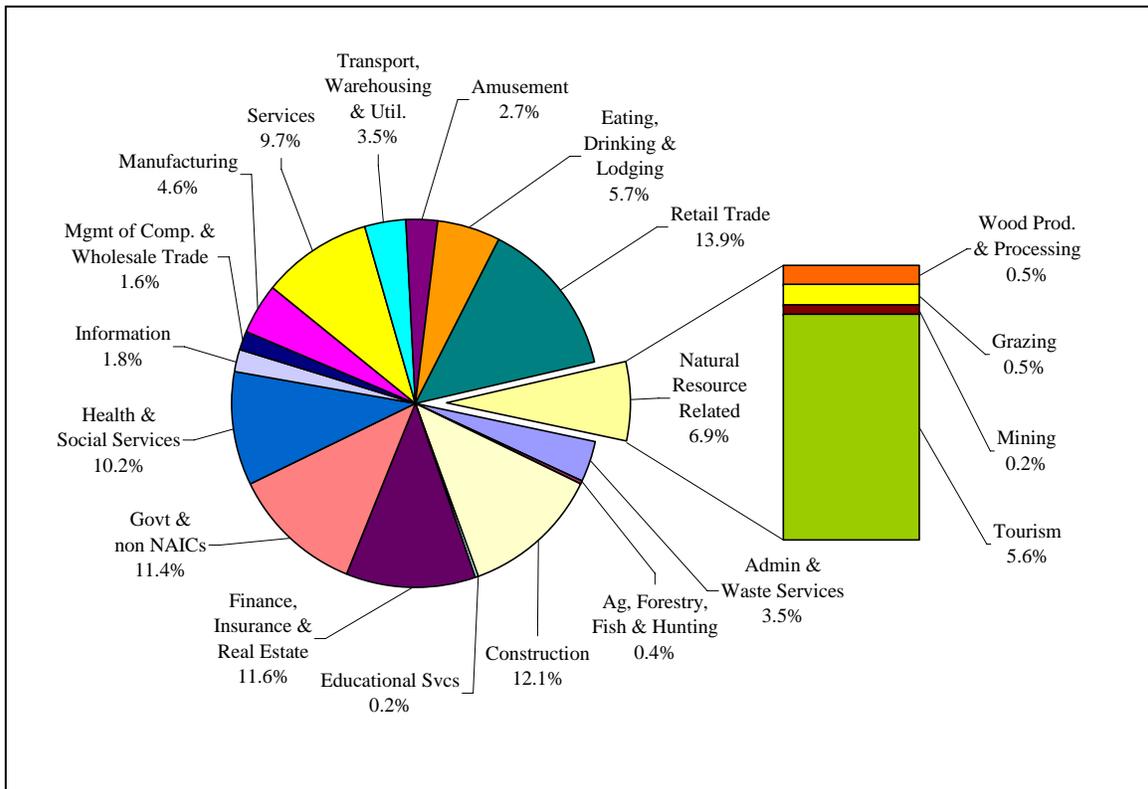


Figure 10. Employment from natural resources sector for Washington County, Utah.

## **Appendix B - Identification of Key Topics for the Kaibab National Forest Social and Economic Assessment**

### **Background**

The Kaibab National Forest identified three primary topics of interest from review of the existing KNF Management Plan. These were wildland-urban interface, restoration and sustainability of forest resources outside of the wildland-urban interface, and unmanaged recreation. Using secondary research, the following documents were used to substantiate or refute these primary topics. The results were generally favorable, with some variation depending upon the report. One additional topic was identified, that of the value of natural quiet. It was added to the primary topics.

Following analysis of two rounds of public meetings in local communities within or adjacent to the forest, as well as meetings in Phoenix, the topics were reviewed; no additional topics were identified.

The following matrix presents topics by source (the numbers in the left hand column correspond to the sections in the report. e.g. 1 is demographic patterns and trends and 5 is community relationships):

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<b>Key Issues</b>	<b>Issue or Topic</b>	<b>AVB Focus Groups</b>
1	<b>Pop composition and growth</b>	Availability of resources and user interactions. Availability of land for development. Concern about affordability and pricing out of the market. Small amount of private land so it becomes important. Public land is an asset, and concerned about its mgt. Urban versus rural populations.
2	<b>Transitioning local economies</b>	Traditional natural resources lifestyles uses to amenity and recreation based activities. Economic diversification. Boom and bust of timber, uranium mining. Tourism results in economic stratification. Interaction of commercial uses and recreation uses. Commercial uses include flagstone, fuel wood harvest, tourism and guiding, grazing and limited timber harvesting. Generally some benefit, but skepticism about grazing and timber harvesting. Grazing supporters believe use helps maintain forest resources and decrease fire threat. Timber harvest needs to be focused on restoration and stewardship contracting versus commercial harvesting.
4	<b>Fire</b>	Forest fire is perceived threat and past suppression has contributed to unhealthy conditions. Use of fire is a resource that can benefit forest. Need to monitor effects of fire and get natural fire back into the management scheme to make a healthy forest. Need to start with wildland-urban interface areas.
4 & 5	<b>Forest as an asset</b>	Grand Canyon National Park enhances value and inter-dependence of park and forest. Forest provides a buffer for the park where there is no commercial development or activity. Important to maintain these values beyond economics. Water, elevation, soil cause forest to be fragile and prone to damage. Forest is rich environment with variety. Want to sustain the forest and all of its values from the ponderosa pine to wildlife. Need to sustain the forest to sustain the diversity of life. Don't have to leave your house to appreciate the importance of the forest, we need these places to exist; once they are gone they are gone forever. The KNF has exceptional scenic resources from grasslands to mountain peaks, this enhances the quality of life for residents and visitors. Heritage resources are important assets and need to be managed as well.
4	<b>Forest Health</b>	Poor forest health and increase threat of wildfire to communities and forest resources. Promote forest health by addressing fire, drought and insect outbreaks, tree density. Focus on restoration as a key concept for future management. Purpose of vegetation management should be to ensure a healthy resource and healthy communities, and some economic benefit may result from these activities. Desire for sustainable use. People move here because of forest, but don't realize poor forest health. Inc WUI. Need to find a way to harness the capacity of our communities to help.

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4	<b>Forest Mgt</b>	Clarify and promote mission. Must communicate more about what the forest is doing. Continue collaboration and strengthen desire for community stewardship; consistency in policies across forest. Concern about decreasing budgets and personnel, desire for agency presence on ground, community effects of turnover in leadership positions. Fire mgt communication is an example of positive. Agency decision making is cumbersome and not timely. Too cautious and unwilling to take a risk. Change in managers difficult because info is not exchanged and emphasizes change. Attitude of managers is preservation versus utilization, and more about advancing their career than being part of the community.
4	<b>Grazing</b>	Generally some benefit, but skepticism about grazing and timber harvesting. Grazing supporters believe use helps maintain forest resources and decreases fire threat. Make sure abuses of the past don't occur again and that there is improving range condition.
4	<b>Hunting</b>	OHV and hunting are problematic: Hunting is a common recreation activity across the forest and valued use of forest. Concerns about problem behavior including litter, cross-country OHV riding, mud bogging and causing damage to roads when they are wet, and disrupting wildlife. I'd like a buffer between residential areas and the areas hunters use.
4	<b>Natural Quiet</b>	Perceived as a resource. Need quiet places in response to noise generated by motorized activities. Places where natural sounds predominate. Quiet is also important because of the peace and quiet it provides. It is a place where urban dwellers can get away. We need to make sure these places are available for re-creation.
3	<b>OHV</b>	Effective management for OHV use. Increase attention to recreation management. Road closures and road maintenance. OHV because it disrupts other users and resource damage. Noise, littering, cross-country riding causing erosion and resource damage. Unsafe speed and riding practices, lack of trail etiquette. Increasing population will increase OHV use and numbers of problem users. Buffer areas are needed where OHV cannot go, especially where FS land meets private land. Some quiet camping areas are needed too. Forest needs to think about allocation of areas and zoning rather than a broad scale approach. Communities need to take some responsibility.

4	<b>Recreation</b>	Increasing recreation use of public lands. Pressure from Phoenix, Las Vegas, St George residents for recreation opportunities. Feel displaced by urban users and sense that this increased use decreased opportunities for locals to get away. More conflicts about uses and resources. Importance of scenery management for communities adjacent to KNF. Need more scenery management especially in land exchanges. The scenery is part of the community. I'd like to see some buffers created so that development and land exchanges don't disturb those areas around communities where scenery creates exceptional places. Response to trash and litter problems. GCNP draws visitors and inc use of land as people engage in recreation opportunities such as OHV or jeep tours, etc. Recreation use is predominant use. Include range of activities from skiing, mountain bike riding, camping, hunting, fishing, OHV riding, bird watching, hiking, wildlife viewing. Concern about resources to maintain facilities and expand trails in response to demand is decreasing. Need to expand recreation planning to be responsive to increasing demand.
4	<b>Recreation</b>	Commercial permit holders believe their activities benefit forest resources and assist forest when funding is limited. Enforcement and education/interpretation are needed to address perceived misuse and problem behavior such as littering, vandalism and poaching, cross-country motorized use as well as to help visitors understand forest resources and how their use impacts them. Littering is a major problem. Many people illegally dump trash and appliances on the forest. These would improve quality of visitor experiences and health of forest resources. Trails are a way that people can enjoy the forest. Roads and trails are an important link to the forest. Don't create new roads; maintain some of the key roads.
4	<b>Special Areas</b>	Special areas including primitive roadless areas and wilderness are valued assets. People wanting a peaceful experience may be using these more to avoid the noise of motorized uses. Some places are special and not designated as wilderness. May want to avoid designation but just protect it. Different types of values and uses associated with special places and types of uses. Scenery and solitude have intrinsic value and are part of forest as an entity. Sense of place and specialness where users can gain inspiration, and feel forest is part of lives.
3	<b>Land ownership</b>	Clarify criteria for land exchanges including heritage and aesthetic values. Need to involve the community and get input into consolidation of lands. There is little private land available.
5	<b>Interaction of forestlands with rural lifestyles</b>	Types of uses. Political-governmental actions ie: Grand Staircase-Escalante. Downwinders and uranium effects to forest communities and tribal communities. Latter Day Saints faith shaped the community and some traditions. Tourism. Concern about loss of traditional uses and access to the forest. Traditional lifestyles provide a connection to family roots and some families are able to maintain ties through ranching.

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2	<b>Economic Benefits</b>	KNF provides direct economic benefits to residents thru tourism. KNF is a draw to communities for recreation opportunities, and local businesses benefit from the forest. Forest products, grazing, flagstone and fuel wood also provide economic benefits.
	<b>Community Relationships</b>	Need for education and information about forest resources, uses, land ethics. Use of volunteers. Resource traditions and interactions between adjacent communities and the KNF. Lack of land ethics and values by urban residents. Diminished awareness of norms about personal responsibility in use of natural resources and national forest lands. Act like these are city parks and individuals are not responsible for cleaning up after themselves.
Key Issues	<b>Issue or Topic</b>	<b>Coconino County Comprehensive Plan</b>
1	<b>Pop composition and growth</b>	Integrate new development in a way that respects environment, supports community values and considers long-term viability of water sources. Incorporated communities include Flagstaff, Fredonia, Page, Sedona and Williams. Unincorporated communities include Mormon Lake, Marble Canyon, Valle, and Tusayan. Indian reservations include established communities as well including Cameron, Tuba City, Kaibito, and Leupp. Twentyone percent of residents live in County jurisdiction, with about half in Flagstaff, and half in rural areas. American Indians comprise about 28.5 percent of population in 2000, only 20 percent continue to live on reservations. The median age is 29.6 and retirement age category remains stable.
4 & 5	<b>Forest as an asset</b>	Quality of life, rural atmosphere, natural beauty. Value natural landscapes for beauty, solitude, recreational opportunities and ecological function. Ensure their long-term health and viability.
4	<b>Forest Health</b>	Improve forest health and promote restoration of forest ecosystems. Accommodate connectivity of trails and wildlife corridors. Protect and preserve old growth habitat and ecosystems. Wildland-urban interface areas are encouraged to participate in forest planning, management and restoration efforts. Reduce the treat of wildfire in Wildland-urban interface.
4	<b>Natural Quiet</b>	Preserve natural quiet and reduce the effects of noise pollution.

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4	<b>Recreation</b>	Improve non-motorized circulation networks and opportunities of alternative modes of travel. In coordination with AZ Dept. of Transportation, FS, land managers and owners, promote connection of existing communities with trails, non-motorized, and multi-modal facilities. Support a regional system of trails that link communities, public lands and activity centers. Preserve and enhance the integrity of the county's scenic resources. Protect and enhance scenic corridors.
4	<b>Special Areas</b>	Preserve open space. Preserve working ranches, un-fragmented landscapes and the county's natural character.
3	<b>Land ownership</b>	Rapidly decreasing private land base. Thirteen percent of land is privately owned, mostly by ranchers with large holdings. Many subdivisions built out, developing in-holdings. Pressure to acquire and develop State and federal lands. Land prices escalate because of scarcity.
5	<b>Interaction of forestlands with rural lifestyles</b>	Need for high density develop and desire to maintain rural character. Avoid effects of human use and development on ecological processes, critical ecosystems, minimize fragmentation of areas and restore connectivity. Minimize spread of invasive species. Acknowledge the unique tribal governments and promote coordination of planning efforts. Protect the county's historic, cultural and architectural heritage.
5	<b>Community Relationships</b>	Public and private interests work together. Planning activities cross jurisdictions successfully. Support good resource practices and interact with state, federal and tribal agencies in development of each other's plans and policies.
4	<b>Water and watershed</b>	Surface water is scarce, few rivers or natural lakes. Constructed reservoirs provide water for communities (South Zone KNF: Cataract, Kaibab, Dogtown). Depth to groundwater typically exceeds 1,000 feet. Protect soil and improve soil conservation practices.
<b>Key Issues</b>	<b>Issue or Topic</b>	<b>City of Williams General Plan</b>
2	<b>Transitioning local economies</b>	Maintain a balanced mix of business, jobs and housing in designated areas. Encourage light industry (e.g. forest products). Themes for growth include residential variety, tourism expansion and job creation. Approximately 89 percent of the City's total area borders the KNF. Williams's environment. Preserve and improve connections to surrounding natural areas.

2 & 5	<b>Forest as an asset</b>	The City must promote its status as a Gateway community. Marketing for a larger share of tourism revenue entails a variety of factors: activities, events, shopping variety, community appearance, and friendly atmosphere.
4	<b>Forest Health</b>	Plan to mitigate negative impacts on the City's land, air and water resources. Cooperate with Coconino County, the Forest Service and other entities to prevent degradation of the area's forests, water courses and other natural assets. Evaluate development suitability and consider protective measures for habitat, wildlife corridors, and natural vegetation. Promote reduction in forest overgrowth.
4	<b>Recreation</b>	Develop pathway systems tied to Forest Service trails. Plan linkages for integrated, non-motorized transportation routes. Establish standards to ensure the continued spaciousness of the community and its surroundings. Consider land exchanges, scenic easements and buffering techniques to retain picturesque and spacious character. The large amount of national forest land creates a scenic backdrop for residents and visitors. Configure development to maintain the open and scenic values.
5	<b>Interaction of forestlands with rural lifestyles</b>	Williams seeks to project an image of relaxed, small town living and outdoor enjoyment. Vision: Williams residents see their community strengthen its friendly, easy-going, family oriented spirit through continued respect for the natural environment, the history and cultural heritage that are the foundation of its distinctive, inclusionary and hospitable character. As Gateway to the Grand Canyon, the City welcomes visitors and growth that appreciate and blend with the small town image. Desired attributes a generation from now include: educational excellence, a balanced economy with employment and affordable housing choices, and especially, continuing spaciousness offering the best of outdoor living and recreational variety.
2	<b>Economic Benefits</b>	Sound economic development initiatives address business retention, housing, and education opportunities as well as job creation and municipal revenue generation
4	<b>Water and watershed</b>	Due to depth of water table, about 3,000 feet below the surface, the City is dependent upon surface water collection for its water supply. <i>The city has drilled several wells in the last 5 years and uses ground water to supplement surface water supplies.</i> Develop a comprehensive water plan to include conservation and additional sources. Water resource management is the key to community stability and growth.

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Key Issues	Issue or Topic	NVUM
1	<b>Pop composition and growth</b>	NF visits in 2005 224,6000, 19,100 wilderness visits. Most from AZ especially Phoenix area, Prescott, northern AZ, Kingman, and other countries especially Canada and Europe. Visitor incomes: under \$25K 5.6 percent, \$25-49.9K 25.3 percent, \$50-74.9K 28.9 percent, \$75-99.9K 15.5 percent, \$100-149.9K 15 percent, \$150 + 9.8 percent.
4	<b>Recreation</b>	Participation in activity by use (most to least): viewing natural features, hiking/walking, viewing wildlife, driving for pleasure, relaxing, some other activity, visiting historic sites, nature center, developed camping, primitive camping, picnicking, nature study, resort use, other non-motorized, motorized trail activity, bicycling, hunting, fishing, OHV use, backpacking, horse riding, other motorized activity, gathering forest products, downhill skiing, no activity reported, motorized water, non-motorized water, cross-country skiing, snowmobiling.
Key Issues	Issue or Topic	NAU Visitor Use Study
1	<b>Pop composition and growth</b>	76 percent urban, 24 percent rural, Majority from AZ (89 percent), other countries, across US. Most repeat visitors, come with families.
4	<b>Recreation</b>	Activities participated in by use (most to least): sightseeing, short hikes, watching birds and wildlife, long hikes, primitive camping, developed camping, collecting forest products, OHV driving, fishing, visiting an historic site, hunting, mountain biking on roads, picnicking, visiting arch site, snow play, reading interpretive signs, mountain biking on trails, boating/canoeing, rock climbing, down hill skiing, horseback riding, overnight backpacking, cross-country skiing, snowmobiling.
5	<b>Interaction of forestlands with rural lifestyles</b>	Come to forest for: close to home, cool weather, scenery, hiking, hunting, quiet and peaceful and relaxing, forest vegetation, campgrounds and facilities, close to GCNP, fishing. Settings preferred: more primitive settings, less regulation, fewer facilities, less contact with other people, motorized access versus non-motorized (60-30).

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<b>Key Issues</b>	<b>Issue or Topic</b>	<b>Arizona and Utah Statewide Comprehensive Outdoor Recreation Plans</b>
1	<b>Pop composition and growth</b>	Large increases in state populations, especially urban areas. Increase in racial and ethnic diversity. Increase in population over 65 years.
4 & 5	<b>Forest as an asset</b>	Residents link recreation to quality of life. Benefits of parks, open space and outdoor recreation: inc land, property and home values, attracts and retains businesses, residents take pride in improving their community, reduces healthcare costs, preventative health service, increase workforce productivity and job satisfaction, reduce cost associated with crime and juvenile delinquency, attracts tourists, maintains agricultural economies, encourages investment in environmental protection and green practices.
4	<b>Forest Mgt</b>	Want to maintain multiple use management of public lands.
3	<b>OHV</b>	Provide for OHV trails/activities.
4	<b>Recreation</b>	Over half of AZ residents surveyed expressed interest in outdoor recreation activities. Urban park facilities important. Large nature-oriented parks and open spaces in natural settings were preferred. Recreation participation as represented by days spent doing the activity: playing an organized sport, hike or backpack or jog, drive for pleasure or sightseeing, ride bike, mountain bike or horse, visit a park, natural or cultural feature, visit a wilderness or nature preserve, attend outdoor event, picnicking, OHV driving, canoe, kayak, swim in natural setting, fishing, boat, jet ski, water ski, go to a dog park, target shooting, winter activities, nature study, tent camping, RV camping, hunting, rock climbing, extreme sports, geo-caching.
3	<b>Land ownership</b>	Concern about access to public land.
2	<b>Economic Benefits</b>	1 in 3 Americans participate in outdoor rec. \$730 billion nationally to economy, supports 6.5 million jobs, generates \$88 billion in annual state and national tax revenue, and generates \$289 billion annually in retail sales and services across country. The jobs, tax revenues, and business created by the outdoor recreation economy are the lifeblood of rural communities that rely on recreation tourism to enjoy a high quality of life. Mining, logging, oil and gas, and agriculture are the traditional backbone of many rural economies. Today, the sustainable outdoor recreation economy has joined that list as communities seek to create a balanced and stable base for long-term economic and community development.
5	<b>Community Relationships</b>	Want to ensure public participation in land management decisions.

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Key Issues	Issue or Topic	Tribal Government – Forest Service Consultation
4	<b>Mining</b>	Concerns with environmental and cultural effects from mining (particularly uranium mining) and other extractive industries.
4	<b>Recreation</b>	Keep forest conditions primitive; limit off-road travel; limit impacts to the landscape from recreation.
4	<b>Forest Mgt and Recreation</b>	Protect significant areas including sacred sites and traditional cultural properties.
4	<b>Forest Mgt and Recreation</b>	Promote environmentally responsible and sustainable undertakings on National Forest lands over non-sustainable undertakings.
4	<b>Forest Mgt and Recreation</b>	Protect the ability of tribal members to collect resources for traditional ceremonial or medicinal purposes.
5	<b>Community Relations</b>	Desire for strong working relationships between the Forest and tribes and meaningful consultation based on collaboration.
5	<b>Community Relations</b>	Protection by the Forest of confidential information shared by tribes regarding ceremonial practices and sacred lands.

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