

Executive Summary

The purpose of this assessment is to profile the social and economic environment surrounding the Prescott National Forest. The collection and analysis of quantitative and qualitative socioeconomic data in this report will serve as a baseline by which the Prescott National Forest and the wider public can assess management alternatives developed through the process of forest plan revision. It will do so by 1) facilitating a better understanding of the relationship between public lands and surrounding communities, 2) aiding in the identification of specific forest plan elements capable of responding to socioeconomic trends, and 3) assembling a wide array of information needed to evaluate trade-offs between various forest management alternatives.

Multi-county areas of assessment provide the framework for compiling social and economic data for this report. The boundaries of the Prescott National Forest extend into Coconino and Yavapai Counties in northern and central Arizona. The methods of inquiry for this assessment were described in an initial work plan that was reviewed and approved by the Southwest Regional Office of the USDA Forest Service and by Forest Planners from each of the six national forests in Arizona. The plan identifies socioeconomic indicators, the geographic and temporal scale of analysis, and potential sources of information for each assessment topic. This Executive Summary highlights collected information pertaining to each of these seven topics.

Demographic Patterns and Trends

Total population

Data from the 1980, 1990, and 2000 censuses show that total population growth was greatest in Yavapai County over the twenty-year period. In fact, population growth in Yavapai County far exceeded the rate of increase in overall state population over the same period (146% versus 89% respectively). Population growth between 1980 and 2000 was considerably less in Coconino County (55%). Among individual cities, Prescott Valley, Chino Valley, and Camp Verde experienced the greatest increases in total population between 1980 and 2000.

Population age

The two counties within the area of assessment demonstrated divergent trends with respect to the population of individuals age 65 and over and those under age 18. Amid strong overall population growth in Yavapai County, the population of individuals 18 and under grew much more than the 65 and over population between 1990 and 2000. The opposite was true in Coconino County which reported an even greater disparity between the growth of the 65-and-over and under-18 populations over the same period. The cities of Prescott Valley, Cottonwood, Chino Valley, and Camp Verde reported the most significant increases in 65-and-over populations among selected cities within the area of assessment.

Racial / ethnic composition

Yavapai County reported a dramatic increase in the number of individuals of multiple race and Hispanic origin between 1990 and 2000, clearly outpacing increases in the same categories at the state level over the same period. Despite substantial increases in individuals of multiple-race and Hispanic ethnicity, whites remain the predominant racial group in both counties within the area of assessment. As of 2000, Coconino County was the most racially diverse due to its considerable Native American population.

Housing

Increases in total housing and housing density were greatest in Yavapai County between 1990 and 2000, mirroring similar growth in the overall population. Although increases in seasonal housing within the area of assessment were less than that for the state, increases in median home values between 1990 and 2000 were greater than the average for Arizona.

Economic Characteristics and Vitality

Employment

Economic growth for the area of assessment was significant between 1990 and 2000. Yavapai County reported the strongest gains in total full- and part-time employment with especially strong increases in the construction, manufacturing, and wholesale trade sectors. Yavapai also reported rates of unemployment that were lower than the state average, while those in Coconino County were considerably higher.

Occupational structure

The occupational structures within Coconino and Yavapai Counties closely resembled those of the state overall. The management, professional, and related occupations grouping is the dominant occupational category for Arizona followed by sales and office occupations and finally by service occupations. For both counties within the area of assessment, construction, extraction, and maintenance, along with production, transportation, and material moving was also among the five most dominant occupational categories.

Income

As of 2000, both Coconino and Yavapai Counties maintained levels of per capita and median family income that were lower than average for Arizona. Coconino County saw the greatest increases in per capita income while Yavapai County reported the strongest gains in median family income between 1990 and 2000. Both counties also saw substantial declines in individual and family poverty that were greater than reductions in poverty at the state level over the same period. Nonetheless, as of 2000, Coconino County maintained rates of poverty that were greater than average for the state of Arizona.

Natural resource dependent economic activity

Changes in income from natural resources were particularly dramatic in Coconino County between 1990 and 2000. Data for the county show a precipitous decline in income from wood products and processing and a substantial increase in income from special forest products and processing over the period. Yavapai County reported an especially strong increase in tourism employment between 1990 and 2000.

Access and Travel Patterns

Existing federal and state highway conditions

County and state transportation plans reviewed for this assessment acknowledge that current circulation networks have been developed as needs have arisen and are therefore inadequate for accommodating projected long-term growth. As such, these 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” (ADOT 2004b).

Modes of travel and seasonal flows

Travel by motorized vehicle is by far the most dominant mode of travel throughout the state of Arizona, 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. Increase in vehicle miles traveled (VMT) was 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 (OHVs).

Planned improvements

The Arizona Department of Transportation currently has relatively few plans for road improvements in proximity to the Prescott National Forest over the next five years. Although county governments throughout the area of assessment envision improvements to arterial road networks to accommodate expected population growth, implementation of plans is dependent upon the pace of development and the level of infrastructure funding. There are currently no plans to expand the existing network of internal roads in the Prescott National Forest.

Barriers to access

On external road networks, the greatest barrier to access is likely poor road maintenance resulting from constrained county transportation budgets. Internally, the most common barrier to access in the Prescott National Forest is the proximity of forest roads and trails to private property. Information obtained from forest personnel suggests that private land owners have increasingly sought to limit passage through their property for the purpose of accessing public lands.

Land Use

Land ownership

As a whole, land ownership within the area of assessment closely resembles overall ownership patterns for the state of Arizona. Coconino County has the greatest amount of Native American lands whereas Yavapai County reported the greatest amounts of private and State Trust land, both of which are likely to influence future development patterns.

Land coverage and land use

Evergreen forest constitutes the predominant land cover in Coconino County whereas shrub, brush, and mixed range land is predominant in Yavapai County. Within the area of assessment, Yavapai County reported the highest percentage of residential and industrial land cover while Coconino County reported the greatest amount of commercial and services land cover.

Long range land use plans and local policy environment

County land use within the area of assessment 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.

Forest Users and Uses

Extractive uses

Historically, extractive uses have played a major role in public land management throughout the area of assessment. National studies show, however, that land uses such as livestock grazing, timber cutting, and mining are being slowly succeeded in policy and management by an emphasis on non-extractive uses. Available information from the Prescott National Forest only partly substantiates these national trends, demonstrating consistent grazing activity and a slight decrease in timber extraction from forest lands.

Non-extractive uses

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 Prescott National Forest received approximately 772,000 visits during fiscal year 2001—a majority of which were male, white, and between the ages of 31 and 70. A significant increase in the use of off-highway vehicles (OHVs) has been identified by the Forest Service as a major component of unmanaged recreational use.

Special uses

A number of special user groups were identified for the Prescott National Forest including Native American tribes, OHV users, wildlife users, and wilderness users. The management and accommodation of these and other special user groups have involved increasing administrative and political implications in recent years.

Designated Areas and Special Places

Natural, recreational and interpretive resources

The Prescott National Forest encompasses considerable natural, recreational, cultural, and interpretive resources including over 100 dispersed sites, campgrounds, picnic areas, scenic areas, and administrative sites.

Issues surrounding identification of cultural resources

Due to the cultural, emotional, and spiritual bonds formed between individuals and specific environments, the identification and management of special places can be rather contentious. Making these tasks more difficult is the fact that the relationships people form with special places often cut across traditional boundaries dividing liberal and conservative political ideologies, extractive and environmentalist interests, and urban and rural user groups. Ultimately, incorporation of “special places” into revised Forest Plans is best supported by a commitment to primary research and participatory decision making.

Community Relationships

Community involvement with natural resources

The communities surrounding the Prescott National Forest 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 regional water sources and issues surrounding hunting, fishing and management of wildlife.

Communities of interest and historically underserved communities

The management activities of the Prescott National Forest must take into account the interests of a growing number of community groups and forest partners. Organizations and individuals influencing forest planning and management represent government agencies, Native American tribes, special advocacy groups, business interests, educational institutions, and the media. Meanwhile, the Forest Service is making a concerted effort to address the needs and desires of historically underserved communities, a fact that is increasingly important to the Prescott National Forest given the rates of demographic change in the region.

Community/forest interaction

In recent years the Forest Service has placed increasing priority on the social relationships between national forests and surrounding communities. As awareness and commitment to these processes grow, 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.

Key Resource Management Topics

In addition to the initial seven topics of socioeconomic assessment, forest planners identified several issues of growing importance to the management of natural resources within Arizona's national forests. Although these issues are identified throughout previous chapters, this section provides greater detail on the status of policy debates as well as potential implications for forest planning and management.

Findings suggest that susceptibility to catastrophic wildfire and invasive species, the environmental and economic sustainability of livestock grazing on public lands, and the effects of human land use on existing open space will likely continue to have a strong impact on future management activities of the Prescott National Forest.

Similarly, changing demographic patterns and forest user trends will surely affect the alternatives considered in the process of Forest Plan revision. In particular, a significant increase in recreational forest uses and the ongoing concern the economic and environmental sustainability of livestock grazing and timber harvesting will continue to be important issues for the Prescott National Forest.

Given rates of population growth and urban expansion in northern and central Arizona, the Prescott National Forest stands to be affected by ongoing debates regarding the management of public land and regional water supplies. Reforms proposed by lawmakers and the Arizona State Land Department are likely to have a significant impact on the forest given the abundance of State Trust land within the area of assessment. Likewise, the role of managing regional watersheds places the Prescott National Forest at the center of contentious debates over water provision, particularly in light of the ongoing regional drought.

Finally, specific issues under the heading of forest access and travel will undoubtedly affect the future management activities of the Prescott National Forest. Recent reinterpretation of the "Roadless Rule" has been a particularly controversial issue involving extractive business interests, environmental advocacy groups, and the general public at the local and state level. Additionally, the effort on the part of the Forest Service to respond to a dramatic increase in OHV travel promises to raise concerns from various user groups and affect natural resource management in the Prescott National Forest over the coming years.

1. Introduction

1.1 Statement of purpose

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

- Better understand the relationship between public lands and communities,
- Aid in identifying specific elements of the current forest plans that may need to be changed, and
- Assemble information needed to evaluate trade-offs between options for future forest management.

Finally, this assessment is intended to be broadly useful as a basis for well informed consideration of future alternatives within and beyond the planning process. It does so by clarifying relationships between various socioeconomic characteristics of local communities and natural resource management activities of the PNF.

1.2 Assessment methodology and topics

This assessment of the social and economic environment surrounding the PNF is based entirely on the analysis of secondary research. Secondary research is defined as data which have already been collected and published for different purposes but which may prove useful in any number of other inquiries or applications. Examples of secondary data include demographic and economic information compiled by the United States Census Bureau as well as information contained in FS documents.

Specific lines of inquiry were identified in the initial Project Work Plan agreed to by the University of Arizona and Region 3 of the USFS in Albuquerque, New Mexico. This document prescribes the methods of assessment of socioeconomic trends for each of Arizona's six national forests. In addition to individual information elements for each assessment topic, this document identifies the desired geographic and temporal scales of analysis as well as potential sources of information.

In accordance with the Work Plan, and following the example of similar socio-economic assessments, this study uses counties as the primary unit of analysis for social and economic data. For each of the national forests in Arizona, the area of assessment consists of all counties adjacent to particular forest boundaries. For the Prescott National Forest, this includes Coconino and Yavapai Counties in the northern and central portions of the state.

In addition to analyzing information at the county and regional levels, this assessment includes data on individual communities of interest to PNF. The Work Plan defines communities of interest as those that are proximate to forest boundaries, those which share a stake in the management of the forest, and those communities of access and egress. During the collection of demographic and economic data, the decision was made to collect information on selected Census Designated Places (CDPs) as well as the more commonly used Minor Civil Divisions (MCDs). Inclusion of CDPs provides data for settled population concentrations that are identifiable by name but are not legally incorporated under the laws of the state in which they are located (U.S. Census Bureau 2005).

The report provides a profile of socioeconomic conditions and trends deemed most relevant to natural resource policies in general and the management of Arizona's national forests in particular. Secondary demographic, economic, and social data have been drawn from readily available sources, including the U.S. Census Bureau, the USFS Natural Resource Information System (NRIS), and the Minnesota

IMPLAN Group (MIG). The information contained in this report is well-suited to serve as a comparative baseline for each of the counties, presenting descriptive data to assist the PNF and local communities analyze and monitor trends most likely to influence the management of forest resources throughout the region.

Specific variables used to profile existing socioeconomic conditions and trends within the geographic area of assessment are based on both explicit and implicit assumptions about relationships between various forest management alternatives and affected communities. The individual topics of assessment and specific variables have been identified in conjunction with regional and local FS administrators and are similar to measures used in other social assessment studies (Adams-Russell 2004; Leefers, Potter-Witter, and McDonough 2003). The profiles, generated through collection of secondary data, will serve as valuable tools for estimating the potential impact of policy changes, resource management activities, and development trends for each of the assessment topics.

1.3 Report organization

The organization of this assessment is based on the collection and analysis of data pertinent to each of seven individual assessment topics. Following this introductory chapter, collected data on selected socioeconomic indicators are provided for each topic. Additionally, each topic is discussed in its historical context as well as its potential implications for forest planning and management. Chapters 2 and 3 provide information on demographic trends and economic characteristics of counties and selected cities within the area of assessment. Chapter 4 discusses the access and travel patterns within the area of assessment and Chapter 5 examines land use patterns and policies. Chapter 6 uses available secondary data to discuss trends for current forest users and uses. Chapter 7 identifies designated areas and known special places within the PNF and discusses their importance in forest management. Chapter 8 assesses relationships between the PNF and various communities at the local and regional levels. Chapter 9 offers a brief analysis of key management topics identified by forest planners at the inception of this assessment. The final chapter summarizes major trends within each topical area and discusses their combined relevance to Forest Plan revision. A list of works cited is included in this assessment and a fully annotated bibliography will be presented to individual forests.

2. Demographic Patterns and Trends

This section discusses historic and current conditions affecting local populations and illustrates demographic trends for both counties within the area of assessment for Prescott National Forest (PNF). Data on selected cities within the area of assessment are also included in order to illustrate important factors contributing to demographic change for specific populations. Indicators used to assess demographic patterns and trends include total population, racial/ethnic origin, urban and rural populations, age structure, educational attainment, and housing density.

A review of secondary social data for area of assessment shows divergent trends, with Yavapai County growing much faster than Coconino County and at a greater rate than the entire state over the same twenty-year period. Substantial growth in total and seasonal housing units as well as the under-18 and 65-and-over populations was driven largely by the rapidly expanding cities of Prescott Valley, Chino Valley, and Camp Verde. The last twenty years have also seen Yavapai County shift from a largely rural population to one that is predominantly urban. Differences are additionally seen in the racial and ethnic diversity of the two counties. Although Yavapai County experienced enormous increases in both multiple race and Hispanic populations between 1990 and 2000, it remains much less diverse than Coconino County due primarily to the latter's relatively large Native American population.

2.1 Historical context and social characteristics

Human interaction with the lands including and surrounding the Mogollon Rim has been continuous for at least 5,000-6,000 years. The first communities in the region were highly mobile hunting and gathering camps that had only a light effect on the landscape. During the period of time between C.E. 100 and C.E. 900, the resident populace established a more sedentary lifestyle. This transition was typified along the Arizona highlands by cultures such as the Anasazi and the Hohokam. There was an increased use of ceramics, development of more complicated architecture, and the beginnings of horticulture and domesticated livestock. This more sedentary lifestyle led to an associated rise in human population. By the periods encompassing C.E. 900-1200, more long-term human effects were noticeable on the environment, including a depletion of wild game, the institution of standing agricultural fields, and the resultant diversion of water sources (USFS 1999a).

The entrada of Francisco Vasquez de Coronado in 1540 marked the first significant Spanish interest in the Arizona highlands. On a route that led from western Mexico to central Kansas, Coronado's explorations were primarily motivated by a search for silver and gold. He failed to find it in Arizona, and Spanish interest in the area was largely quelled until the discovery of mineral wealth at the turn of the 17th century (Sheridan 1995). Athapaskan (Apache and Navajo) groups played a major role during this time. In fact, the mountainous regions of Arizona were often referred to as the Apacheria. Apaches formed loosely confederated groups based on matrilineal kinship and thrived on a combination of agriculture, hunting, trade, and raiding. Both Navajos and Apaches absorbed skills and traits from neighboring groups, including the Pueblo peoples and the Spaniards. Through most of Spanish and Anglo colonization, Apache raiders were seen as a major threat to settlers. Nonetheless, by the 1700s, Spanish explorers and missionaries routinely made the trip between Tucson and Santa Fe. The area became, by the 1800s, a driving route for livestock, specifically sheep, primarily by Mormon settlers. Due to limited water sources, overgrazing occurred primarily near standing aquifers. However, with the spread of standing agriculture, the pressures of grazing began to spread across the range (USFS 1999a).

In 1864, Yavapai County became one of the first created by the Territorial Legislature. It covered an enormous amount of space and would later be divided into six separate counties. In its original borders, Yavapai County spanned from the New Mexico state line to its current western boundary, and from the Gila River up to the Utah state line. For much of the latter half of the 19th Century, the city of Prescott

served as the capital of the territory. In the final decade of the 1800s, Coconino County was established from lands formerly of Yavapai County. Flagstaff won a landslide vote over Williams to become the county seat and remains so today (Coconino County Website, Yavapai County Website, Baker et al. 1988). When gold was first discovered on the land, large numbers of Euro-Americans came to the area, settling in the present-day chaparral forest area (Huebner et al. 1999). This led to the development several mining towns including Prescott, Crown King, Walker, and Jerome (Baker et al. 1988).

The Prescott Forest Reserve, later to become the Prescott National Forest, was established in 1898 by presidential proclamation—the second such reserve in Arizona after the Grand Canyon Forest Reserve. The Prescott reserve consisted of sixteen sections of land located south and west of the town of Prescott. One of the primary purposes for the formation of the reserve was to protect the community's domestic watersheds (USFS 2005).

The PNF currently covers 236,902 acres across central Arizona. The majority of the forest lies in Yavapai County, with a small portion located in Coconino County. The forest was initially created in 1908 from the Verde and Crown King Forest Reserves. Additional acreage came from the Tusayan National Forest, which is no longer in existence (Baker et al. 1988). The forest is located both north of Phoenix and is composed of two distinct divisions. The eastern portion of the forest comprises the headwaters of the Verde River and borders the Kaibab National Forest on the north, Coconino National Forest on the east, and the Tonto National Forest on the south. The western portion of the forest includes the Bradshaw and Santa Maria mountains and is separated from the eastern portion by state, private, and BLM land (Baker et al. 1988).

Climate within the forest varies with elevation. Annual precipitation ranges from eight to twenty-five inches with the majority occurring from July-September. Runoff from the forest land flows into the Verde, Agua Fria, Hassayampa, and Bill Williams Rivers. Elevations from 3,000 to 8,000 feet offer a variety of vegetation, including mixed conifer, ponderosa pine, chaparral, pinyon-juniper, open grassland, and desert shrub. Recreation opportunities offer year-round possibilities. Major vegetation changes have been observed in the area, due to both climatic and anthropogenic causes. In the PNF area, livestock grazing, fire, and conversion of woody plants to available forage for cattle have all been cited as major disturbances (Baker et al. 1988, Huebner et al. 1999).

The demographic history of the area surrounding the PNF, and the region as a whole, represents one of sustained and rapid growth. In the period since 1930, the Mountain West has doubled its share of the U.S. population, from 3% to 6.5%. This growth increased dramatically in the 1950s and then reduced again in the 1960s. The pattern was repeated for the next forty years, with alternating decades of intense growth followed by decades of slower growth (Otterstrom and Shumway 2003). Yavapai County has, in general, grown steadily over the past ninety years with the exception of fluctuations during the 1940s and 1950s. The state has grown from 120,000 residents to well over 5 million: along with Washington, one of only two states to show such a startling demographic expansion (U.S. Census Bureau 2005). Yavapai County itself has grown from 13,799 residents at the turn of the 20th Century to 68,000 in 1980 to nearly 170,000 today (Forstall 1995, U.S. Census Bureau 2005). The average age in the state has been steadily increasing: 31% of the state was under 15 in 1950, but only 22.4% is in the under-15 bracket today. Some of these shifts can be attributed to Arizona's amenable climate, relatively affordable property values, and the continued importance of area military bases. Long-term population increases are also supported by seasonal visitors wishing to permanently relocate to environs with increased outdoor opportunities (McHugh and Mings 1996).

The past fifty or sixty years have seen only moderate racial diversification in the state. While the Hispanic population has increased from 20.4% to 25.2% of the population since 1940, African Americans, despite an especially rapid influx in the two decades following WWII and an average population growth rate of 49% per decade, remained static at 3.1% of the population in 2000, only 0.1% above their relative numbers in 1940. The Native American population as a percentage of the total, by contrast, has declined

significantly over the past five or six decades, falling from 11% in 1940 to 5% in 2000 (U.S. Census Bureau 2005)¹.

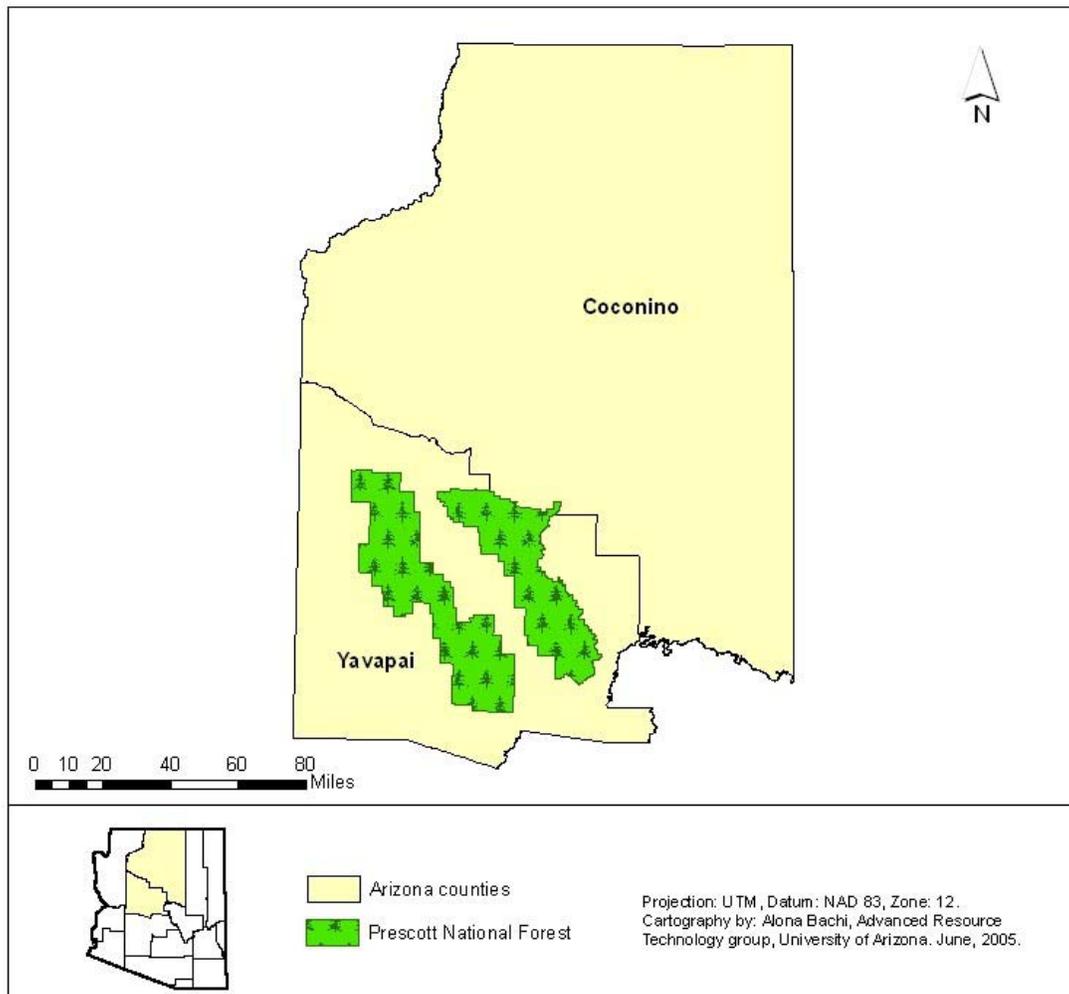


Figure 1. Map of Forest Boundaries and Counties in Area of Assessment

¹ The specific numbers for these historical comparisons are found at <http://www.census.gov/population/documentation/twps0056/tab17.pdf> in the U.S. Census Bureau website and are juxtaposed with the Census 2000 findings.

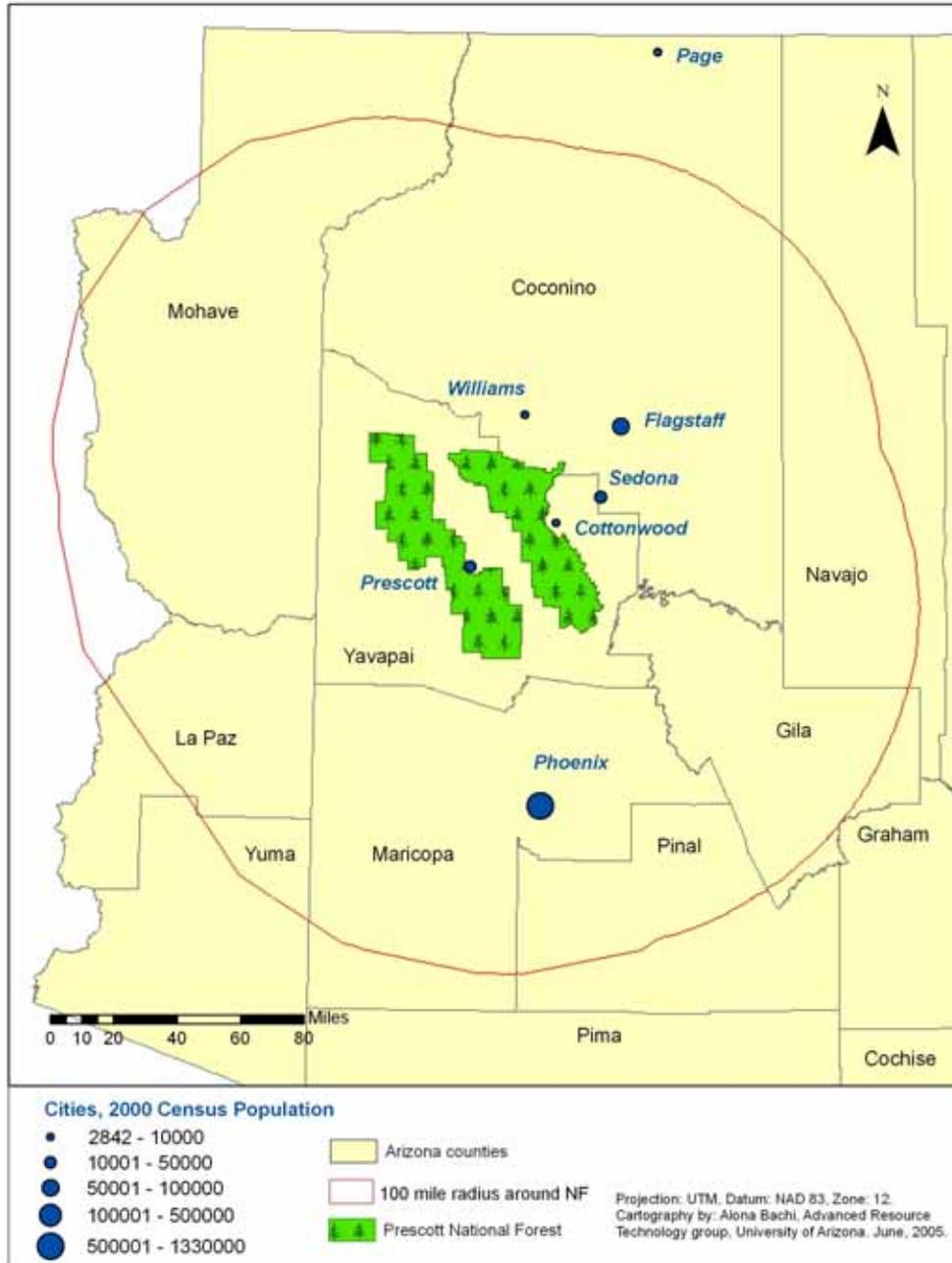


Figure 2. Proximity of Population—MCDs within 100-Mile Radius

2.2 Population, age structure, net migration, and tourism

Information concerning total land area, USFS acreage, total population, and population density for each of the counties is presented in Table 1. Data show that Coconino County is much larger in total area than Yavapai County and contains more FS land than any other county in the state with well over 3 million acres. Yavapai County, however, hosts a larger population within this smaller area, resulting in a substantially higher population density than that of Coconino County. According to Table 1, Flagstaff is the most populous city within the area of assessment with a population of 52,894 in 2000. All other towns throughout the region support much smaller populations, the smallest being Fredonia, which, according to the 2000 census, had a population of 1,036.

While both counties have experienced consistent population growth over the past two decades, they exhibit opposite trends when viewed in comparison to the state as a whole. Since 1980, growth within Coconino County has slowed and remains well below state growth rates reported over the same time period. Yavapai County, on the other hand, has continued to experience population growth rates that far outpace those for the state of Arizona over the last twenty years (Table 2). Within Coconino County, Sedona and Page experienced significant population growth between 1980 and 1990 while the population of Williams decreased by more than half over the same period. Of the selected cities in Coconino County, Page is the only one that continued to exceed county population growth rates between 1990 and 2000. In Yavapai County, Camp Verde and Prescott Valley both experienced dramatic population growth between 1980 and 1990 (454.93% and 287.83% respectively). While growing at a much slower pace, the population of Chino Valley has also increased considerably during the same period, exceeding county-wide population growth over the entire twenty-year period.

Table 3 displays the overall decline in rural populations for both counties with the most dramatic changes in urban and rural composition occurring in Yavapai County. In 1980, the majority of the population of Yavapai County lived in rural areas (54.43%). By 2000, an increase in urban population as a percentage of total population of nearly twenty percent and a commensurate decline in the rural population had reversed this relationship, significantly altering the residential characteristics of the county.

Table 1. Total Area, Total Population, Population Density, and Forest Service Acreage by County and Place

County/Place	Total Area	2000	Pop. Density	USFS
	Sq. Miles	population	per sq. mile	Acres
Coconino County	18,661	116,320	6.23	3,275,320
Flagstaff	63.6	52,894	831.67	n/a
Sedona	18.6	10,192	547.96	n/a
Page	16.6	6,809	410.18	n/a
Williams	43.5	2,842	65.33	n/a
Fredonia	7.4	1,036	140.00	n/a
Yavapai County	8,128	167,517	20.6	1,968,976
Prescott	37.1	33,938	914.77	n/a
Prescott Valley	31.7	23,535	742.43	n/a
Cottonwood - Verde Village*	8.8	10,610	1205.68	n/a
Sedona	18.6	10,192	547.96	n/a
Camp Verde	42.6	9,451	221.85	n/a
Cottonwood	10.7	9,179	857.90	n/a
Chino Valley	18.6	7,835	421.24	n/a

* Cottonwood - Verde Village is an unincorporated Census Designated Place (CDP)

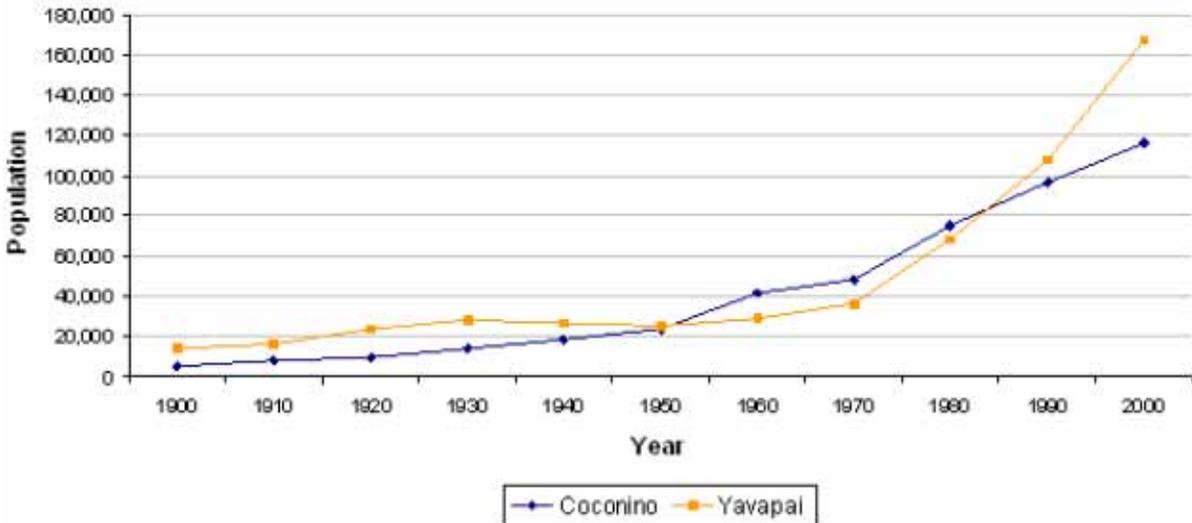
Source: NRIS - Human Dimensions

<http://www.city-data.com/city/Arizona.html>

Table 2. Decennial County, Place, and State Populations, 1980-2000 and % Change

County/Place/State	Total Population			1980-1990	1990-2000
	1980	1990	2000	% Change	% Change
Coconino County	75,008	96,591	116,320	28.77%	20.43%
Flagstaff	34,743	45,857	52,894	31.99%	15.35%
Sedona	2,266	6,598	6,809	191.17%	3.20%
Page	4,907	7,645	10,192	55.80%	33.32%
Williams	5,368	2,461	2,842	-54.15%	15.48%
Fredonia	1,040	1,197	1,036	15.10%	-13.45%
Yavapai County	68,145	107,714	167,517	58.07%	55.52%
Prescott	20,055	26,427	33,938	31.77%	28.42%
Prescott Valley	2,284	8,858	23,535	287.83%	165.69%
Cottonwood - Verde Village	n/a	7,037	10,610	n/a	50.77%
Sedona	4,907	7,645	10,192	55.80%	33.32%
Camp Verde	1,125	6,243	9,451	454.93%	51.39%
Cottonwood	4,550	5,918	9,179	30.07%	55.10%
Chino Valley	2,858	4,837	7,835	69.24%	61.98%
Arizona	2,718,215	3,665,228	5,130,632	34.84%	39.98%

Source: NRIS - Human Dimensions



Source: U.S. Bureau of the Census, Census of Population

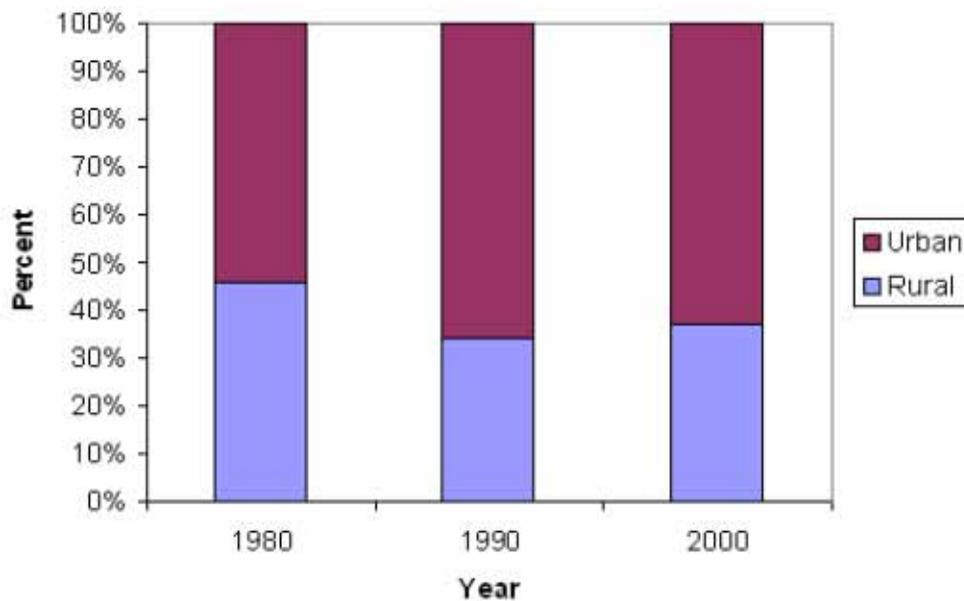
Figure 3. Two-County Assessment Area Population Change, 1900-2000

Table 3. Urban and Rural County Populations, 1980-2000 and % Change

County		1980			1990			2000		
		Population	% of Total	% Change	Population	% of Total	% Change	Population	% of Total	% Change
Coconino	Urban	46,473	61.96%	n/a	63,988	66.25%	37.69%	74,462	64.01%	16.37%
	Rural	28,535	38.04%	n/a	32,603	33.75%	14.26%	41,858	35.99%	28.39%
Yavapai	Urban	31,053	15.68%	n/a	70,641	65.58%	127.49%	104,862	62.60%	48.44%
	Rural	37,092	18.73%	n/a	37,073	18.62%	-0.05%	62,655	37.40%	69.00%

N.B.: % Total is the percentage of total population. % Change is the percentage of change from prior census year

Source: NRIS - Human Dimensions



Source: NRIS - Human Dimensions

Figure 4. Two-County Assessment Area Urban/Rural Composition, 1980-2000

The age structure of populations in Coconino and Yavapai Counties as well as selected cities and the state of Arizona is presented in Table 4. Data show that the percentage of individuals 65 and over grew considerably between 1990 and 2000 for both counties. In fact, the increase in retirement-age populations for both counties (45.80% and 44.28% respectively) exceeded the rate of growth for the same cohort within the state as a whole, which was nearly 40% over the same period. Other noteworthy changes in the age structure of the population within the area of assessment include a significant increase (54.20%) in the under-18 population within Yavapai County and a relatively low increase in the same age group for Coconino County. Among the cities, Prescott Valley experienced the largest gains in both its under-18 and 65-and-over populations with increases of 183.23% and 122.13% respectively.

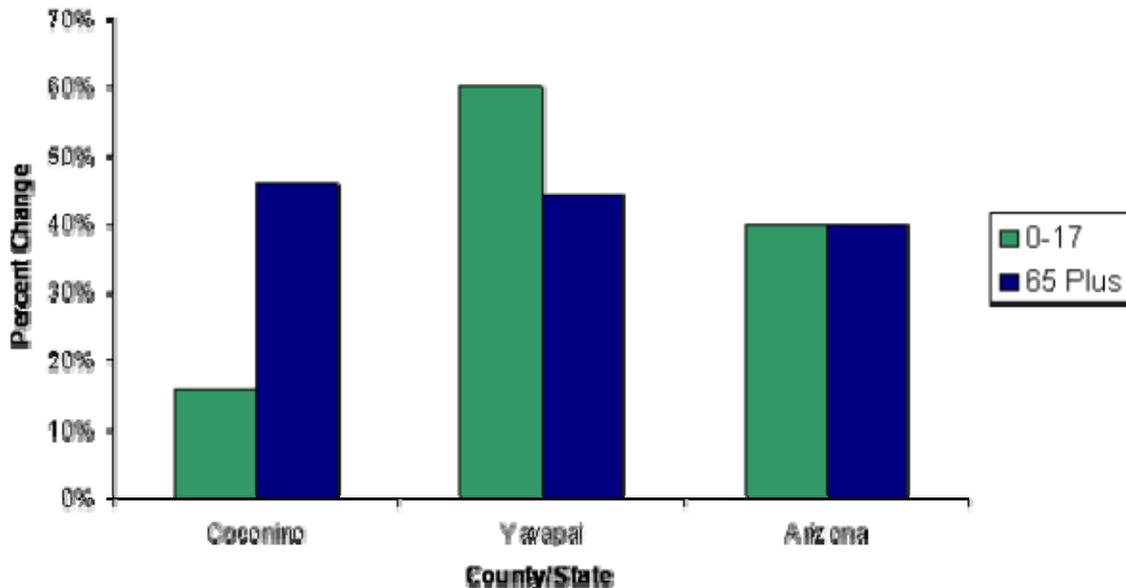
Table 5 presents data on net migration for each county for the years 1990 and 2000 as well as the percent change. The data represent numbers of individuals who reported living in a different location five years previously. As such, the 1990 data provide information on location of residence in 1985 and the 2000 data indicate location of residence in 1995. Once again, net migration data show that population growth in Yavapai County has been especially strong, fueled by in-migration of individuals previously living

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

Table 4. Age Structure of County, Place, and State Populations (Under-18 and 65+), 1990-2000 and % Change

County/Place/State	Under 18			65 And Over		
	1990	2000	% Change	1990	2000	% Change
Coconino County	29,624	33,425	12.83%	5,585	8,143	45.80%
Flagstaff	11,321	12,834	13.36%	1,988	2,826	42.15%
Sedona	2,559	2,178	-14.89%	351	432	23.08%
Page	1,098	1,401	27.60%	2,456	2,605	6.07%
Williams	743	847	14.00%	323	316	-2.17%
Fredonia	470	335	-28.72%	72	115	59.72%
Yavapai County	22,959	35,403	54.20%	25,517	36,816	44.28%
Prescott	4,645	5,387	15.97%	6,894	9,085	31.78%
Prescott Valley	2,224	6,299	183.23%	1,821	4,045	122.13%
Cottonwood - Verde Village	1,782	2,610	46.46%	1,711	2,324	35.83%
Sedona	1,098	1,401	27.60%	2,456	2,605	6.07%
Camp Verde	1,527	2,265	48.33%	1,365	1,936	41.83%
Cottonwood	1,450	2,149	48.21%	1,478	2,184	47.77%
Chino Valley	1,295	2,079	60.54%	887	1,273	43.52%
Arizona	978,783	1,366,947	39.66%	477,200	667,839	39.95%

Source: NRIS - Human Dimensions



Source: NRIS - Human Dimensions

Figure 5. Percent Change in under-18 and 65+ Populations by County, 1990-2000

Table 5. Net Migration by County, 1990-2000 and % Change

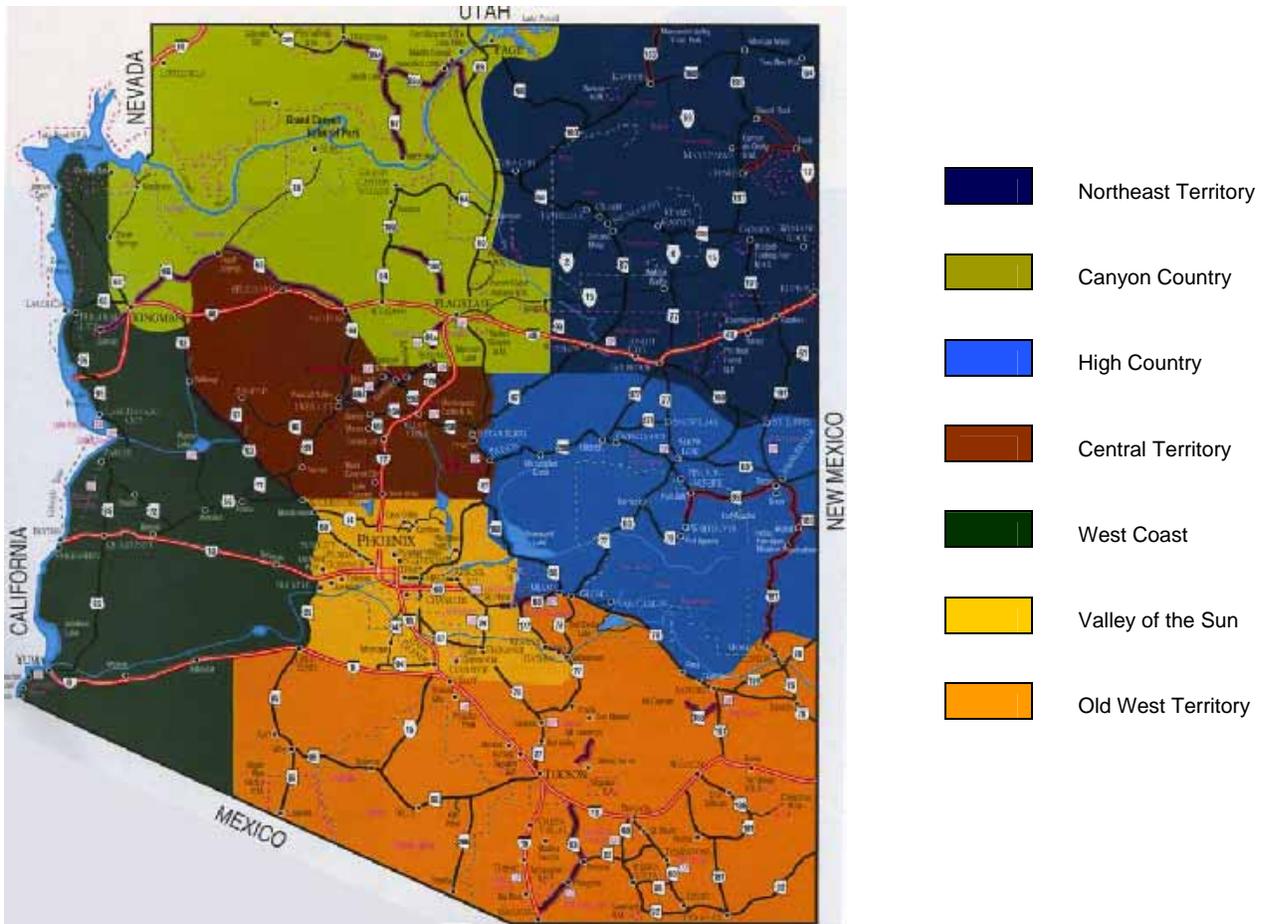
	Coconino County			Yavapai County			Arizona		
	1990	2000	% Change	1990	2000	% Change	1990	2000	% Change
Total*	88,003	107,775	22.47%	101,667	158,931	56.33%	3,374,806	4,752,724	40.83%
Same House	36,558	49,841	36.33%	42,240	70,108	65.98%	1,454,319	2,103,907	44.67%
Different House	51,445	57,934	12.61%	59,427	88,823	49.47%	1,920,487	2,648,817	37.92%
In United States	50,117	56,247	12.23%	58,759	86,079	46.50%	1,840,216	2,465,345	33.97%
Same County	21,006	24,801	18.07%	21,154	34,448	62.84%	1,026,332	1,456,345	41.90%
Different County	29,111	31,446	8.02%	37,605	51,631	37.30%	813,884	1,009,490	24.03%
Same State	13,634	14,870	9.07%	14,513	20,461	40.98%	164,063	213,070	29.87%
Different State	15,477	16,576	7.10%	23,092	31,170	34.98%	649,821	796,420	22.56%
Northwest	927	1,658	78.86%	1,522	2,997	96.91%	63,950	84,288	31.80%
Midwest	2,373	3,055	28.74%	4,374	6,359	45.38%	179,202	190,720	6.43%
South	2,755	2,856	3.67%	3,422	4,419	29.14%	118,041	140,608	19.12%
West	9,422	9,007	-4.40%	13,774	17,395	26.29%	288,628	380,804	31.94%
In Puerto Rico	0	7	n/a	21	12	-42.86%	665	1,745	162.41%
Elsewhere	1,307	1,680	28.54%	637	2,732	328.89%	78,618	181,237	130.53%

* Totals do not include persons under the age of 5
 Source: 1990- US Census of Population- Social and Economic Characteristics
 2000- US Census American Factfinder- <http://factfinder.census.gov>

Figure 6 displays the seven distinct tourism regions designated by the Arizona Office of Tourism (AZOT). AZOT has traditionally gathered and reported visitation statistics within these regions rather than by counties. The area of assessment of the PNF is located primarily within the region referred to as the “Central Territory.” The 2003 profile for the Central Territory reported 1.9 million domestic overnight leisure visitors, representing a 40.7% increase over the 1.35 million domestic overnight leisure visitors a decade earlier. This placed the Central Territory as the fifth most visited region in the state in terms of the number of domestic overnight visitors. Approximately 77% of Central Territory visitors came to the area for leisure while the remaining 23% were visiting on business (AZOT 2004b).

In 2002, 39.9% of domestic visitors to the Central Territory came from within Arizona while 24.9% were visitors from California. New Mexico, Nevada, Texas, Washington, and Florida also contributed significant numbers of tourists. AZOT data confirm that the Central Territory is a predominantly outdoor-based activity destination with 59% of visitors engaging in sightseeing and 52% participating in nature activities (camping, eco-travel, visiting national and state parks). The flow of visitors is greatest during spring and summer with 55% of FY2002 visits taking place between the months of April and September (AZOT 2004a).

Statistics for overseas visitors are not made available for individual tourism regions; however, AZOT reports that the state of Arizona experienced a 15.3% decline in overseas visitors in 2003 (dropping to 544,000 from 636,000 in 2002) while the U.S. as a whole saw a decline of 4%. The primary countries of origin for overseas visitors to Arizona were the U.K. (18.4%), Germany (16.4%), Mexico (11.0%), Japan (9.1%), and France (8.5%) (AZOT 2004a).



Source: Arizona Office of Tourism

Figure 6. Map of Arizona Tourism Regions

2.3 Racial/ethnic composition and educational attainment

Tables 6 and 7 present collected data on the racial and ethnic composition of the population in the four counties as well as the state of Arizona. Table 6 presents reported numbers and percentage change in individuals of specific racial and ethnic categories between 1990 and 2000. Table 7 represents these racial and ethnic categories according to their proportional representation in the overall county and state populations. As a point of clarification, race and ethnicity are defined as separate concepts by the federal government. People of a specific race may be of any ethnic origin, and people of a specific ethnic origin may be of any race. Race, in this section, covers the following five groups: White, Black or African American, American Indian and Alaska Native, Asian and Pacific Islander, and Multiple Races. The population of Hispanic origin is defined for federal statistical purposes as a separate group and may be of any race (Hobbs and Stoops 2002; Leefers, Potter-Witter, and McDonough 2004).

Reported census data may indicate the possibility of an increase in individuals who identify themselves as being both of multiple racial backgrounds and of Hispanic origin. Notably, the decade between 1990 and 2000 saw significant increases in both segments of the population for Coconino and Yavapai Counties as well as for the state as a whole (Table 6). Yavapai County experienced a dramatic increase in individuals of multiple races (350.75%) as well as in the population of Hispanic origin (138.93%). Although much

less dramatic than those of Yavapai County, increases in the multiple race and Hispanic populations for the state of Arizona demonstrate a similar trend.

Although the counties did experience significant increases in the number of individuals within certain racial and ethnic groups, data show that, overall, the counties' white and non-white populations fluctuated less than those of the state as a whole (Table 7). The data also show that Native Americans continue to represent a considerable portion of the population of Coconino County, and that, while those of multiple race and Hispanic origin make up an increasing portion of county populations, they remain well below state averages.

Educational attainment for the population 25-years of age and older is shown for both the counties and the state in Table 8. Data show that recipients of high-school diplomas and Bachelor's degrees within both Coconino and Yavapai Counties are near or above state averages. In contrast, both counties fall well short of the state average in percentages of the 25-and-over cohort with graduate or professional degrees.

Table 6. Racial/Ethnic Composition of County and State Populations, 1990-2000 and % Change

Race/Ethnicity	Coconino County			Yavapai County			Arizona		
	1990	2000	% Change	1990	2000	% Change	1990	2000	% Change
American Indian or Alaska Native	28,270	33,161	17.30%	1,764	2,686	52.27%	204,589	255,879	25.07%
Asian or Pacific Islander	724	1,018	40.61%	492	861	75.00%	54,127	98,969	82.85%
African American or Black	1,255	1,215	-3.19%	244	655	168.44%	110,062	158,873	44.35%
Multiple Races	4,086	7,545	84.65%	2,053	9,254	350.75%	328,768	743,300	126.09%
White	62,256	73,381	17.87%	103,161	153,933	49.22%	2,967,682	3,873,611	30.53%
Hispanic	9,768	12,727	30.29%	6,854	16,376	138.93%	680,628	1,295,617	90.36%

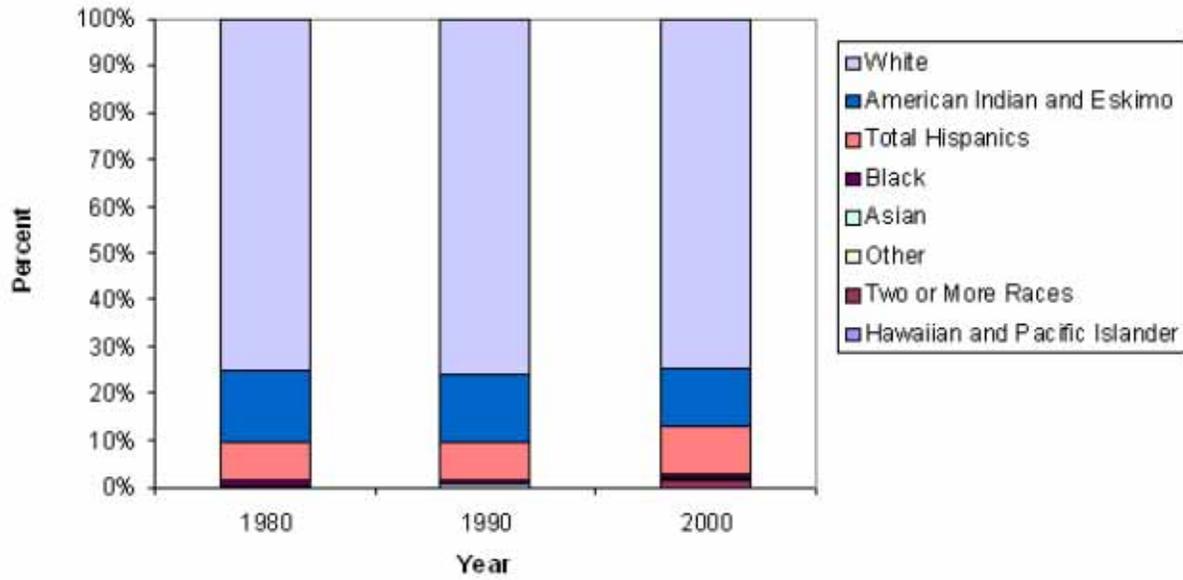
Source: NRIS - Human Dimensions

Table 7. Racial/Ethnic Composition of County and State Populations by Percentage, 1990-2000 and Change

Race/Ethnicity	Coconino County			Yavapai County			Arizona		
	1990	2000	Change	1990	2000	Change	1990	2000	Change
American Indian or Alaska Native	29.27%	28.51%	-0.76%	1.64%	1.60%	-0.03%	5.58%	4.99%	-0.59%
Asian or Pacific Islander	0.75%	0.88%	0.13%	0.46%	0.51%	0.06%	1.48%	1.93%	0.45%
African American or Black	1.30%	1.04%	-0.26%	0.23%	0.39%	0.17%	3.00%	3.10%	0.10%
Multiple Races	4.23%	6.49%	2.26%	1.91%	5.52%	3.62%	8.97%	14.49%	5.52%
White	64.45%	63.09%	-1.37%	95.77%	91.89%	-3.88%	80.97%	75.50%	-5.47%
Percent Non-white	35.55%	36.91%	1.37%	4.23%	8.10%	3.88%	19.03%	24.50%	5.47%
Hispanic	10.11%	10.94%	0.83%	6.36%	9.78%	3.41%	18.57%	25.25%	6.68%

N.B.: 1990 and 2000 data expressed as a % of total population. Change simply illustrates the trends in proportional representation of various racial/ethnic groups in the overall population.

Source: NRIS - Human Dimensions



Source: NRIS - Human Dimensions

Figure 7. Two-County Assessment Area Racial/Ethnic Composition, 1980-2000

Table 8. Educational Attainment of County and State Populations 25-Yrs. Old and over

	Coconino County		Yavapai County		Arizona	
	Number	Percent	Number	Percent	Number	Percent
Population 25 years and over	65,976	100%	120,223	100%	3,256,184	100%
Less than 9th grade	4,596	6.97%	5,547	4.61%	254,696	7.82%
9th to 12th grade, no diploma	6,108	9.26%	12,829	10.67%	364,851	11.20%
High school graduate (includes equivalency)	14,279	21.64%	33,877	28.18%	791,904	24.32%
Some college, no degree	12,159	18.43%	23,660	19.68%	859,165	26.39%
Associate degree	3,891	5.90%	7,940	6.60%	219,356	6.74%
Bachelor's degree	12,316	18.67%	15,685	13.05%	493,419	15.15%
Graduate or professional degree	1,090	1.65%	2,021	1.68%	272,793	8.38%
Percent high school graduate or higher	(x)	83.80%	(x)	84.70%	(x)	81.00%
Percent bachelor's degree or higher	(x)	29.90%	(x)	21.10%	(x)	23.50%

Source: U.S. Census Bureau, Census 2000 Summary File
<http://www.census.gov/census2000/states/az.html>

2.4 Housing characteristics and population projections

Housing characteristics for the area of assessment supply further evidence of a trend towards rapid growth throughout the region, particularly in Yavapai County (Table 9). In that county, the decade between 1990 and 2000 saw significant increases in total housing units (49.13%), seasonal housing units (39.84%), and median home value (61.78%). Given the disparity between housing gains in both counties, the data clearly point towards Yavapai County as the primary center of growth for the area surrounding the PNF. Data again point towards the cities of Prescott Valley, Cottonwood, and Chino Valley as leading areas of growth with each experiencing substantial gains in total housing units between 1990 and 2000. The cities

of Flagstaff, Prescott, Prescott Valley, Camp Verde, and Chino Valley saw especially strong gains in median home value during the ten-year period.

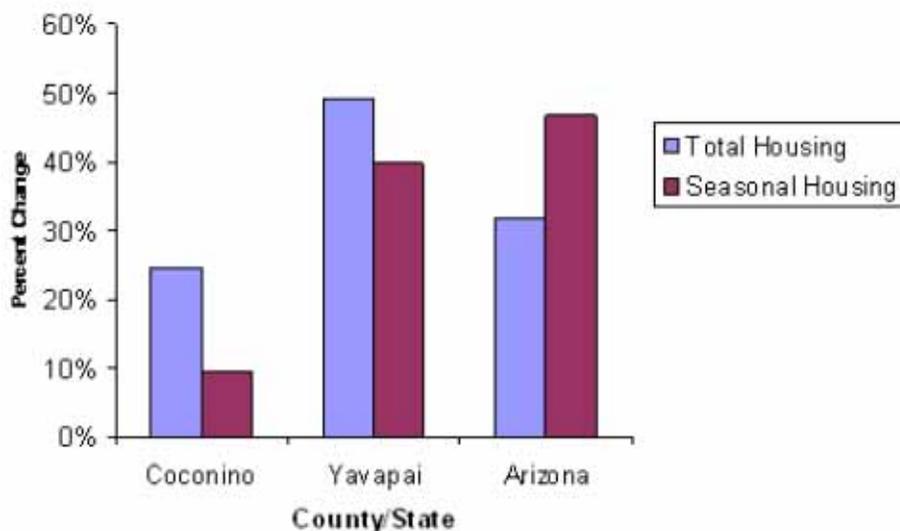
Table 10 suggests that population growth at the county and state level is expected to continue although at somewhat lower rates than were experienced over the last two decades. For example, while Yavapai County experienced a fifty-five percent increase in population between 1990 and 2000, ADOC estimates that the population of Yavapai County will have increased by only slightly over eighteen percent by 2010.

Table 9. County, Place, and State Housing Characteristics, 1990-2000 and % Change

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
Coconino County	42,914	53,443	24.54%	8,361	9,155	9.50%	2.30	2.87	24.55%	\$82,600	\$142,500	72.52%
Flagstaff	16,313	21,430	31.37%	925	977	5.62%	258	337	30.62%	\$90,300	\$161,000	78.29%
Sedona	2,307	2,606	12.96%	33	76	130.30%	139	157	12.95%	\$91,700	\$138,600	51.15%
Page	4,658	5,709	22.56%	430	446	3.72%	237	307	29.54%	\$159,600	\$253,700	58.96%
Williams	1,118	1,224	9.48%	40	52	30.00%	39	28	-28.21%	\$64,800	\$100,300	54.78%
Fredonia	464	428	-7.76%	7	18	157.14%	91	58	-36.26%	\$54,300	\$77,900	43.46%
Yavapai County	54,805	81,730	49.13%	4,325	6,048	39.84%	7.00	10.00	42.86%	\$85,300	\$138,000	61.78%
Prescott	13,393	17,431	30.15%	787	1,026	30.37%	414	470	13.53%	\$93,400	\$162,700	74.20%
Prescott Valley	3,913	9,481	142.29%	134	162	20.90%	237	299	26.16%	\$64,500	\$108,100	67.60%
Verde Village*	3,200	4,327	35.22%	84	43	-48.81%	376	493	31.12%	\$78,000	\$114,900	47.31%
Sedona	4,658	5,709	22.56%	430	446	3.72%	237	307	29.54%	\$159,600	\$253,700	58.96%
Camp Verde	2,839	3,988	40.47%	179	136	-24.02%	67	94	40.30%	\$75,900	\$129,600	70.75%
Cottonwood	2,768	4,386	58.45%	31	55	77.42%	525	411	-21.71%	\$61,600	\$106,800	73.38%
Chino Valley	2,156	3,251	50.79%	24	56	133.33%	116	175	50.86%	\$76,400	\$135,500	77.36%
Arizona	1,659,430	2,189,189	31.92%	96,687	141,965	46.83%	15.00	19.00	26.67%	\$79,700	\$121,300	52.20%

*Cottonwood – Verde Village is an unincorporated Census Designated Place (CDP)

Source: NRIS - Human Dimensions



Source: NRIS - Human Dimensions

Figure 8. Percent Change in Total and Seasonal Housing Units by County, 1990-2000

Table 10. County and State Population Projections, 2010-2030 and % Change

County/State	Total Pop.	Projected		Projected		Projected	
	2000	2010	% Change	2020	% Change	2030	% Change
Coconino County	116,320	147,352	26.68%	169,343	14.92%	189,868	12.12%
Yavapai County	167,517	198,052	18.23%	240,849	21.61%	278,426	15.60%
Arizona	5,130,632	6,145,108	19.77%	7,363,604	19.83%	8,621,114	17.08%

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

2.5 Key issues for forest planning and management

Over the past two decades, continued population growth in predominantly rural areas has brought about significant changes in the dynamic relationships between human communities and publicly administered lands throughout Arizona. These changes have occurred amid ongoing resource policy debates concerning fire suppression, forest restoration, water allocation, road construction, and other economically and environmentally pressing issues.

Significant changes in the human populations surrounding the forest are likely to affect not only the quantity of goods and services demanded from public lands but also significantly influence the character, or quality, of those goods and services. Research shows that areas with an abundance of natural resource-based amenities (mild climate, forested mountains, rivers, lakes, access to hiking and camping, presence of clean air and water) are increasingly attractive to retirement-age populations in addition to others seeking to take advantage of the quality of life offered by small, rural communities. In particular, migrants are increasingly attracted to smaller communities with relatively affordable housing, low crime rates, and cultural traditions associated with small, rural towns throughout the Mountain West (Booth 2002, McCool and Kruger 2003, Bodio 1997). These demographic shifts are borne out by collected data for the PNF which show substantial increases in population and housing in Yavapai County as well as increases in both the retirement-age population and the number of seasonal housing units throughout the areas characterized by small, rural towns.

Although population growth can potentially enhance the economic vitality of rural areas through greater employment opportunities and an expanding tax base, it can also challenge the capacity of rural communities and public land managers to provide for the wide array of services. This is particularly true in areas where potential conflicts in value systems between established community interests and recently arrived immigrants can create friction over natural resource management. For example, the growth in populations seeking natural amenities from forest lands may pit them against traditional commodity interests. Likewise, the dramatic growth in multiple race and Hispanic populations (sometimes referred to as “hidden populations”) may force different demands for public services and may interact with natural resources in fundamentally different ways than has been the historic norm for the resident population (McCool and Kruger 2003).

Together, these shifts in the demographic makeup of communities surrounding the PNF carry important implications for the development of good relations between management agencies and their local publics. For example, how might agencies contribute to the maintenance of viable resource economies given increasing demands for amenities? Similarly, how does expansion of the wildland-urban interface influence issues such as forest access, water quality, habitat fragmentation, or fire management? Finally, demographic change within forest communities may not influence only the management of natural resources, but also the social and political acceptability of processes used to develop management plans. Land management objectives of new property owners may lead to demands for change in how adjacent federally administered land is managed. In addition, immigrant populations may lack a thorough understanding of underlying community values while at the same time acting on a thorough

understanding of planning regulations and methods of influencing political processes (McCool and Kruger 2003, Booth 2002, Wilkinson 1992).