

# **Social and Economic Overview of the Uwharrie National Forest**

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## **Introduction**

The Uwharrie National Forest is comprised of 50.2 thousand acres of public lands located in three counties in the North Carolina piedmont. The District Office is headquartered in Troy, North Carolina. The forest grew out of federal purchases of land during the Great Depression and was proclaimed a national forest in 1961. It is one of the newest and smallest forests in the National Forest System. The forest is within a two hour drive from the largest population centers in North Carolina.

The Uwharrie NF land is comprised of many parcels interspersed with private lands. The vegetation is approximately half hardwoods and half pines. A portion of the forest is managed for sustainable timber production and timber management is used as a tool to sustain wildlife habitats. The forest has the highest hunting use per acre of any game lands in North Carolina. Fishing is popular as well. Small streams and adjacent lakes provide habitat for warm and cool water fisheries.

The Uwharrie is rich in heritage resources: everything from prehistoric rock shelters to historic mines and settlements. Old gold mines dot the landscapes, and recreational gold panning occurs.

The following socioeconomic overview will discuss the socioeconomic trends and changes in these three counties which contain Forest Service lands. The analysis area counties and composition are presented in table 1. This overview provides information on the role that social, economic and demographic changes have had on this small area and how they may relate to future forest planning activity.

In order to place this forest in its proper context, discussions are provided for several important variables. County and forest-wide average results are compared and contrasted to that of the state.

For the three county areas under analysis, Montgomery County has the highest percentage of national forest lands at over 12 percent. The total Uwharrie acreage is only slightly more than four percent of the three-county area. Such a small share of county acreage is an indicator of the small reliance these counties have on Payments to States and Payments in Lieu of Taxes as substitutes for property tax.

Table 1: Uwharrie National Forest Boundary County Lands

County/State	Square Miles	NF Acres	NF Area in Square Miles	NF Area as % of County/State
Davidson	567	958	1.5	0.3
Montgomery	502	39,891	62.3	12.4
Randolph	790	9,340	14.6	1.8
Total	1,859	50,189	78.4	4.2
North Carolina	361,347	1,244,295	1,944.2	0.5

Source: USDA Forest Service “Land Areas of the NF System; [www.en.wikipedia.org](http://www.en.wikipedia.org)

Characteristics of an area, such as the growth of population and its various racial and ethnic components, can be used to determine how dynamic and subject to change an area may be.

A static area will imply few possible factors affecting change, but a dynamic growing population may produce many conflicting concerns for land managers to consider. Certain areas of the National Forest System and surrounding lands, which are seen to be attractive to urban dwellers for recreation and second or retirement home residence, may cause conflict with traditional residents of the area. In the following subheading we will discuss economic and demographic characteristics that may assist land managers in identifying issues for current and future projects. Many of the tables presented below are summaries of more in depth tables found in Appendix B.

### Demographic Indicators

Information about population characteristics helps describe the general nature of a community or area. An analysis of population trends can help determine if changes are occurring for specific groups defined by age, gender, education level, or ethnicity, thereby influencing the nature of social and economic relationships in the community.

North Carolina’s population, presented in table 2, increased from 5,881,766 in the 1980 Census to 8,049,313 in the 2000 Census. The change from 1980 to 1990 was 12.7 percent and an increase of 21.4 percent from 1990 to 2000. Much of this growth is spurred by the major cities in the state and the technology development in the Research Triangle area of Raleigh, Durham, and Chapel Hill.

Table 2: Population Change for North Carolina 1980-2000

Year	Total Population	Population Change	Percent Change from prior period
1980	5,881,766	-	-
1990	6,628,637	746,871	12.7
2000	8,049,313	1,420,676	21.4

Source: U.S. Census Bureau from USDA NRIS HD Model

Table 3 below shows the population trends for all Uwharrie NF counties combined. The trends are similar to those of the entire state between 1980 and 1990 (12.8%) and slightly less than the growth rate of the state between 1990 and 2000 (18.7%) (see table 1 of Appendix B). In Appendix B, table 1 shows that Randolph County is the fastest growing of the three forest boundary counties. Randolph grew faster than the state in both decades.

Table 3: Population Change for Uwharrie NF

1980	1990	2000	% Change 1980-1990	% Change 1990-2000
227,359	256,569	304,522	12.8%	18.7%

Source: U.S. Census Bureau from USDA NRIS HD Model

Table 4 below shows the population of the forest and North Carolina by race in 1980, 1990, and 2000. In 2000, 86 percent of the population in the counties that contain NF land was white, as compared to 72% for the state (see Table 2 of Appendix B). Since 1980, forest county share have decreased in white inhabitants from almost 90 percent to about 86 percent. This is contrasted with the state's share decreasing from 76 percent to 72 percent.

All three counties have significantly increased their share of Hispanics from 1980 (see table 2 of Appendix B). The trend has gone from less than one percent for all counties to over 10 percent for Montgomery County in 2000. Blacks make up less than the state share of population in both Randolph and Davidson Counties (6 and 9 percent, respectively) in 2000. These shares are compared with North Carolina's 2000 share of 5 and 22 percent for Hispanics and blacks, respectively.

Table 4: Racial Composition of Uwharrie NF and North Carolina

	<b>Race</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
Uwharrie NF	Hispanic	0.6%	0.6%	<b>5.3%</b>
	Black	9.9%	9.5%	8.8%
	White	89.6%	89.4%	86.4%
North Carolina	Hispanic	1.0%	1.0%	4.7%
	Black	22.4%	22.0%	21.6%
	White	75.8%	75.6%	72.1%

Source: U.S. Census Bureau from USDA NRIS HD Model

Population age differences between young and old are similar for forest boundary counties and the state. Table 5 below shows the share of population as represented by young (age 17 or less) and the elderly (age 62 or greater). The share of youth and elderly are very similar for the forest and the state. In both areas the progression from 1980 to 2000 has been a reduction in the share of youth (from 29 to 25 percent on the Uwharrie) and increase in the elderly component (from 13 to 15 percent on the Uwharrie) (see Table 3 of the Appendix). This may mean that the fertility rate has decreased over time and that adults are living longer, rather than any significant demographic changes.

Table 5: Population Age of Uwharrie NF and North Carolina

Forest	1980 % of Area	1990 % of Area	2000 % of Area
Age 17 or less	28.6	24.1	24.6
Age 62 or Greater	12.7	14.7	15.1
<b>North Carolina</b>			
Age 17 or less	28.2	24.3	24.4
Age 62 or Greater	12.8	14.7	14.4

Source: U.S. Census Bureau from USDA NRIS HD Model

US aggregated population density is about 80 persons per square mile (in 2000) in contrast to North Carolina which has a population density of 165 persons per square mile. Population density is dependent in part on the amount of land available for settlement and on transportation systems. The population density (Table 6) of the counties that comprise the Uwharrie was 204.7 as of the 2000 Census. This is caused in large part by the higher population density of Davidson (277.7), and Randolph (165.7) counties. Montgomery County had a very low density of 54.6 in 2000. Table 4 of Appendix B shows the change from 1990 to 2000 for the three counties of this forest. These numbers are a bit misleading. Of the two most populated counties, Davidson County has only a little more than 2 percent of the Uwharrie acres and Randolph has 23 percent. The

acreage in Montgomery County is 75 percent of the forest and is also the least dense county.

The increased density is the result of the very vigorous population increase in the 1990 decade both for the forest and the state. These densities reflect a rural area.

Table 6: Population Density

Geographic Area	Land Area in Square Miles	Population Density 1990*	Population Density 2000*
Uwharrie NF	78.4	173.8	204.7
North Carolina	361,347	136	165

Source: U.S. Census Bureau from USDA NRIS HD Model

\*weighted average for the Uwharrie NF

In terms of regional neighbors to the Uwharrie, there are several major population concentrations within two hours drive of the forest including Winston-Salem, Greensboro, Raleigh, Durham, Chapel Hill, and Charlotte. These growing areas suggest that this national forest may provide increasing opportunities for recreation, fishing and hunting for the population in the piedmont region of North Carolina. This will have implications for land use and regulations.

Population projection is often times a hard task to accomplish with accuracy. The state of North Carolina has made projections to 2030 for each of its counties. Table 7 shows the population and percentage change for the Uwharrie NF and North Carolina. Table 5 of Appendix B has projections for each county associated with the Uwharrie. All counties are expected to gain population to 2030. The state is expected to increase by 50 percent; the forest is expected to increase by 37 percent. Randolph County is expected to be the fastest growing county with about 44 percent increase from 2000 to 2030. Growth of the state will be much faster because of the many urban areas and the more vigorous economic activity associated with them. The rural nature of Uwharrie NF counties limits their rate of growth.

Table 7: Population Projections to 20030- Percentage increase

	2000 to 2010	2010 to 2020	2020 to 2030	2000 to 2030
Uwharrie NF	11.2%	11.7%	10.6%	37.5%
North Carolina	15.8%	14.7%	13.0%	50%

Source: State of North Carolina

A rural area is defined as towns and areas with less than 2,500 persons. The rural nature of the area is contrasted with the state in the table below. The Uwharrie NF counties are becoming less rural over time. In 1980, 71 percent of these areas were considered rural.

The land area has changed to about 37 percent rural in 2000. Compared with North Carolina, the decrease in rural area was from 52 percent of the state to 40 percent in the 20 year period from 1980 to 2000. Thus, urbanization has occurred at a faster pace on the forest; in fact the land area was less rural than the state in 2000. Each county's rural characteristics over time are given in table 6 in Appendix B.

Table 8: Percentage of Population in Rural Areas

	1980	1990	2000
Uwharrie NF	70.5	42.4	36.7
North Carolina	52.0	49.7	39.8

Source: U.S. Census Bureau from USDA NRIS HD Model

Population change and characteristics from 1980 to 2000 has not been very different than that of the state. Growth in population has been somewhat faster in the 1990 decade and growth is projected to be significantly greater for the state to 2030. Because the Uwharrie counties are not near a major metropolitan area, their growth in population will tend to be below the state. Hispanic minority population, while it has grown significantly over the last decade is still only about 5 percent of the forest boundary area's population. Black share has decreased slightly over this decade. The white composition is still over 86 percent of the area share. Youth and elder compositions of the population change are about the same as the state. The youth share of the forest boundary counties has gotten about four percent smaller over the last 20 years while the elder share has increased slightly.

### **Economic Indicators**

When giving an overview of the economic characteristics of an area, indicators such as per capita income, unemployment rates, poverty rates, transfer payments, and household composition are used to measure economic progress and viability. Below for each of these variables is a contrast between the forest and the state.

Per capita income is a relative measure of the wealth of an area. It constitutes the personal income from all sources divided by the population of that area. For the Uwharrie analysis area, the per capita income average was \$12,301 and \$18,309 in 1990 and 2000, respectively (see table 9 below). In 2000, the per capita income rate was about \$2,000 less than that of the state. Thus, income grew at a slower pace (0.5 percent per year annual growth adjusted for inflation) for the forest over the 1990 decade. Table 7 of Appendix B illustrates the amounts and rates of real growth for each individual county in the analysis area. Montgomery County had per capita income about \$2,000 less than the other two counties in 2000. However, between 1990 and 2000, Montgomery County had the fastest growth in income of the three counties.

Table 9: Per Capita Income

<b>Forest</b>	<b>1990 Per Capita Income</b>	<b>1990 Per Capita Income in 2004 \$\$*</b>	<b>2000 Per Capita Income</b>	<b>2000 Per Capita Income in 2004 \$\$*</b>	<b>Real Avg. Annual Change 1990-2000</b>
Uwharrie NF	\$12,301	\$17,836	\$18,309	\$20,140	0.3%
North Carolina	\$12,885	\$18,683	\$20,307	\$22,338	0.8%

Source: U.S. Census Bureau from USDA NRIS HD Model

\*Real rates of increase were determined by inflating 1990 per capita income to 2000 with the Consumer Price Index Deflator

Another indicator of relative economic prosperity is the percent of the workforce out of work. Unemployment rates change dramatically over time, depending in large part on the national economy. Some areas, however, have protracted unemployment problems because of educational attainment and lack of skills.

Table 10 below shows in 2001 the Uwharrie counties had slightly more unemployment, 6.0 percent, than that of the state (5.5 percent). The forest unemployment rate was calculated as a weighted average (weighted by unemployment rate and number of unemployed) of all counties in the area (see table 8 of Appendix B). This is in contrast to six years earlier when the forest analysis area had an unemployment rate that was almost one percent less than that of the state. Even in 1998 the average unemployment rate for the forest analysis area decreased to 3.0 percent, one-half percent lower than that of the state. The 2001-2002 national recession had already taken effect in both North Carolina and the Uwharrie area; however the Uwharrie area was more severe.

Table 10: Unemployment Rate 1995 – 2001\*

	<b>1995</b>	<b>1998</b>	<b>2001</b>
Uwharrie NF	3.6%	3.6%	7.8%
North Carolina	4.3%	3.5%	5.5%

Source: U.S. Bureau of Labor Statistics from USDA NRIS HD Model

\*Forest area rates are weighted averages by unemployed for each county.

Poverty for the Uwharrie and North Carolina is represented in the following table:

Table 11: Percent of Individuals in Poverty 1980 - 2000

	<b>1980</b>	<b>1990</b>	<b>2000</b>
Uwharrie NF	11.2	10.5	10.9
North Carolina	14.8	13.0	12.3

## Carolina

Source: U.S. Census Bureau from USDA NRIS HD Model

\*Forest area rates are weighted averages by population for each county.

The weighted average poverty rate for the Uwharrie counties over time has been less than the poverty rate of the state. However, this difference has been closing from the 1980 to the 2000 decade. Poverty rates in Montgomery County have been much higher than the other two counties over the last 20 years (see table 9 of Appendix B). Montgomery County had a 15.4 percent rate in 2000 contrasted with the lowest county, Randolph County, 9.1 percent.

The growth rate of transfer payments from the federal government to the states and their citizens can be another indicator of relative poverty in an area. Transfer payments are payments to persons for which no current services are performed. As a component of personal income, they are payments by government and business to individuals and nonprofit institutions. Although most transfer payments are made in cash, they also include payments for services such as Medicare, Medicaid, and food stamps. There is often an inverse relationship between earnings and transfer payments. A high dependency in an economy on transfer payments can reflect few employment opportunities or a popular retirement area.

Table 12 below displays the analysis area average and the state receipts of transfer payments from the federal government. The growth rate in federal transfer payments for the Uwharrie analysis area was slightly more than that of the state from 1970 to 2003 (5.9 vs. 5.6 percent). Davidson County had a compound annual growth rates of 5.9 percent between 1970 and 2003 in real 2004 dollars (see table 10 of Appendix B for individual county numbers as well as other years). Montgomery County had a 5.0 percent growth rate, and Randolph had a 6.2 percent growth rate.

Table 12: Federal Transfer Payments to Individuals (in 2004 \$'s)

	<b>1970</b> <b>(Million</b> <b>\$'s)</b>	<b>1980</b> <b>(Million</b> <b>\$'s)</b>	<b>1990</b> <b>(Million</b> <b>\$'s)</b>	<b>2000</b> <b>(Million</b> <b>\$'s)</b>	<b>2003</b> <b>(Million</b> <b>\$'s)</b>	<b>Real</b> <b>Annual</b> <b>Change</b> <b>'70-'03*</b>
Uwharrie **NF	\$830.1	\$1,707.3	\$2,630.8	\$2,723.9	\$5,518.5	5.9%
North Carolina	\$25,164.1	\$52,232.0	\$76,580.6	\$128,267.5	\$151,285.5	5.6%

Source: U.S. Bureau of Economic Analysis from USDA NRIS HD Model

\*Real rates of increase were determined by inflating 1970 dollars to 2000 with the Consumer Price Index Deflator

\*\*Forest area rates are weighted averages by population for each county.

Although the forest growth rate as a whole is only 0.3 percent more than the state's, this growth rate over 33 years is a significant deviation from the average in dollar terms. Even though Randolph County had the highest growth in transfer payments over the last 33 years, Montgomery County's relatively high poverty rate, and greater rural character may indicate it is the less prosperous county in the analysis area.

### **Housing and households**

The following tables give information about housing and households. Housing and household growth are precipitated by population growth. Population growth is influenced greatly by employment growth.

Another factor indicating relative poverty and social disunity for an area is the percent of households with children present headed by a female. The greater percentage is, the more likely that these households may be in a poverty status. Table 13 below contrasts the female-head-of-households for the counties within the Uwharrie analysis area (more specific forest information can be identified in Table 11 of Appendix B). For this area households headed by females with children has stayed virtually the same from 1990 to 2000. Contrasted with the state's higher incidence of single mother households, the Uwharrie's more traditional values (than may exist in more urban areas) may keep this to a low level. It is not clear why North Carolina had an almost a 100 percent increase in its female head of household in 2000. Perhaps large urban areas where traditional values are not followed as greatly had something to do with this increase. Also, this may be indicative of a higher divorce rate or less family support in more urban areas of the state.

Table 13: Female-Head-of-Households with Children Present

	<b>1990</b>	<b>% of Total Households</b>	<b>2000</b>	<b>% of Total Households</b>
Uwharrie NF*	3,359	5.9%	7,152	6.0
North Carolina	164,000	6.5%	380,400	12.1

Source: U.S. Bureau of Census, USDA NRIS HD Model

\*Weighted by Number of Households

Table 14 illustrates that average household size has not changed much either for the analysis area or the state since 1990. Household size is important because large families sometimes indicate less affluent conditions. From this metric there is no indication of this condition. Table 12 of Appendix B breaks household size out by county. From 1990 to 2000 each of the three counties had a smaller household size---the greatest reduction was Montgomery County which went from 2.69 members to 2.61 members per household.

Table 14: Average Household Size

	<b>1990 Household size</b>	<b>2000 Household size</b>
Uwharrie NF*	2.58	2.53
North Carolina	2.54	2.49

Source: U.S. Bureau of Census, USDA NRIS HD Model

\*Weighted by number of households

Housing Vacancy rates for the analysis area and the state are given in Table 15 below. A drastic change in vacancies may indicate harsh economic conditions. Rates on the forest counties have increased by over three percent since 1990. This is greatly attributed to Montgomery county where an already high 1990 vacancy of 20.4 percent increased to 30.4 percent in 2000 (see table 13 of Appendix B). The high vacancy rates for Montgomery County are explained by the seasonal and recreational homes on Baden Lake. If seasonal homes are taken out of the vacancy count, Montgomery County's vacancy rate is a more normal 9.1 and 6.2 percent for 1990 and 2000, respectively. Davidson County's rate went down by over one percent while Randolph County increased by about one percent. Meanwhile, North Carolina's vacancy rate increased 0.4 percent over the decade to 11.1 percent.

Table 15: Housing Vacancy Rates

	<b>1990 Vacancy Rate</b>	<b>2000 Vacancy Rate</b>
Uwharrie NF	6.0%	9.4%
North Carolina	10.7%	11.1%

Source: U.S. Bureau of Census, USDA NRIS HD Model

Median housing value is contrasted in Table 16. Housing values within the Uwharrie analysis area are substantially below that of North Carolina. Housing values are determined principally by the extent of demand. Population and employment growth play a factor in the extent of demand for housing. Population growth in the analysis area was about the same as the state in the 1980 decade and about 3 percent less growth over the 1990 decade. Despite the population increase, the median value in 2000 is still approximately \$20,000 less than average values for the state. The influence of many urban areas, where more high paying jobs are found, within the state support higher priced housing. Population and wage and salary growth would have to greatly increase to warrant significant increases in housing values. Table 14 of Appendix B shows the average values for each of the Uwharrie NF impact area counties. Montgomery County's median housing values is much less than the other two counties.

Table 16: Median Housing Values

	1990 Median Value	1990 Median Value in 2004 \$'s	2000 Median Value -	2000 Median Value in 2004 \$'s	Real Avg. Rate of Change 1990 -2000*
Uwharrie NF*	\$54,567	\$79,122	\$90,167	\$99,183	1.32%
North Carolina	\$65,300	\$94,685	\$108,300	\$119,130	1.35%

Source: U.S. Bureau of Census, USDA NRIS HD Model

\*Real rates of increase were determined by inflating 1990 per capita income to 2000 with the Consumer Price Index Deflator

### **Economy's Diversity**

Analyzing the major sectors of an economy allows insight into how diverse and what industries may be driving its growth. Manufacturing is the most significant part of the Uwharrie economy. The table below shows the Manufacturing sector, which includes lumber and wood products, furniture, and pulp and paper products; and an estimate of the wild land recreation industry. Share percentages of manufacturing and wild-land recreation's labor income (employee compensation plus proprietors' income) and employment are given for 1990 and 2000. Recreation is not a sector of an economy but comprises several of the services and retail industries. The entire economy's major sectors are given in table 15 of Appendix B.

Table 17: Economic Diversity in 2004 \$'s

	1990 Employment % of Total Economy	2000 Employment % of Total Economy	% Average Annual Change '90- '00	1990 Labor Income % of Total Economy	2000 Labor Income % of Total Economy	% Real Average Annual Change '90- '00
Total Manufactu ring	42.8	33.3	-0.7	45.3	37.7	0.5
Wood Products	3.1	3.7	3.6	3.0	3.6	4.4
Wood Furn. & Fixtures	0.4	0.8	8.2	0.5	1.1	10.2
Paper & Pulp Products	12.7	9.7	-0.9	12.9	10.5	0.2
Wild land Rec.	NA	NA	NA	0.083	0.063	4.1
Total Economy*	125,136**	149,403**	1.8	\$3,754.5**	\$4,740.5**	2.4

Source: IMPLAN 1990 and 2000 Data

\*Real rates of change were determined by inflating 1990 to 2004 and 2000 to 2004 with the Gross National Product Price Index Deflator

\*\*Represents dollar totals for category

NA = Not Available

Table 17 helps explain the economy's diversity and the fact that the Uwharrie area economy is becoming more diverse because it is decreasing its reliance on the manufacturing sector. Manufacturing's employment share declined by nearly 10 percentage points, while labor income's share declined by more than seven percentage points from 1990 to 2000. Still, manufacturing is a sizable proportion of the local economy's labor income, representing almost 38 percent of the economy in 2000.

Of the wood-manufacturing sector, wood products maintained a 3.6 percent share of the local economy's labor income in 2000. This is a 0.6 percent increase in percent share from 1990. The share of employment increased by 0.6 percent by 2000 at which time wood product's share was 3.6 percent.

Furniture and fixtures represented about 1 percent of the local economy's labor income and 0.8 percent of its employment in 2000. Both employment and labor income grew in stature from 1990.

Pulp and paper products are a large segment of the manufacturing economy of the Uwharrie counties. By 2000 employment share was slightly less than 10 percent of the economy while labor income was slightly more than 10 percent. While both employment

and labor income shares decreased over the 1990 decade, only employment actually showed a decrease in jobs in these industries from 1990 (see table 15 of Appendix B). This is most likely explained by productivity enhancements which required less jobs for a similar or growing output.

Wild-land recreation, which includes federal and state recreation areas, had an estimated .06 percent share of the total labor income of the Uwharrie area economy in 2000. While the wild-land share of the economy decreased for labor income from 1990, the actual dollar amount increased (see table 15 of Appendix B). This apparent inconsistency is explained by the fact that the total economy grew faster. There are no estimates of employment for recreation.

Table 15 of Appendix B shows employment, labor income for the all nine major sectors of the economy broken out by major Standard Industrial Code (SIC) and by important industry sub-sectors for wood products. Other than the decrease in importance of manufacturing, the composition of other sectors of the area economy has not changed greatly from 1990. Services increased from 13.3 to 19.9 percent in 2000 as measured by employment change, or a 6 percent annual increase. Other sector share changes include Wholesale and retail sales' employment change of 2.8 percent per year (changing from a 16.5 percent to 18.3 percent share), and Government whose share decreased slightly from 10.2 percent to 9.6 percent over the decade.

The entire economy's labor income grew at an average annual rate of 2.4 percent over the 1990 decade (based in constant 2004 dollars). Thus, the local economy has changed modestly in the last 10 years with manufacturing sector with the most change. The economy's main drivers are Manufacturing, Services and Wholesale and Retail Trade.

Another way to indicate diversity of an economy is with the Shannon-Weaver Entropy Indexes of diversity. This process allows a relative measure of how diverse a county or a group of counties are with a single number. The entropy method measures diversity of a region against a uniform distribution of employment where the norm is equal-proportional employment in all industries. All indices range between 0 (no diversity) and 1.0 (perfect diversity). These two extremes would occur when there is only one industry in the economy (no diversity) and when all industries contribute equally to the region's employment (perfect diversity). In most cases diversity would be registered somewhere between 0 and 1.0. Another factor affecting the magnitude of the index is the number of industries in a local economy; the greater number the larger the index. Diversity is important because a diverse economy is less susceptible to harsh economic contractions either national or local.

The following table contrasts the change in diversity from 1990 to 2000 at the four digit SIC, or at the individual industry level. For a point of reference North Carolina serves as comparison guide. Table 16 of Appendix B illustrates indexes for all counties in the Uwharrie analysis area.

Table 18: Shannon-Weaver Entropy Indexes

	1990 Index	2000 Index	Percent Change
Uwharrie NF*	.6584	.6824	3.64
North Carolina	.7376	.7312	-0.88

Source: USDA Forest Service, Information Monitoring Institute

\*Weighted Average Estimate of Aggregated Counties. Weighted by full-time and part-time employment in their respective years.

The indexes measuring diversity indicate significantly more diversity in the state than in the analysis area during the 1990-decade. In 1990 the Uwharrie had an index of .6584 versus the state's .7376. However, the gap between the two areas narrowed from 1990 to 2000. In 2000, while the state's change from 1990 was virtually flat, the forest has increased nearly .03 or a 3.64 percent change. Because the analysis area is comprised of only 3 counties, a less diverse condition can be expected versus a larger area, such as the state, with more varied characteristics.

As indicated by the analysis above of the Uwharrie cumulative economy, the overall change during the 1990-decade was modest. In 2000 this small economy was moderately diversified.

### **Economy's Trade**

A principle way an economy grows is by export of goods and services. Most typically, manufacturing activity is thought of as providing most of this export related activity. However, services and retail trade can be considered "export" industries if significant visitors come in from outside in travel related activities to bring in new dollars to an economy. A manufacturing industry can be a net importer if it imports more of a commodity or service than it exports.

The chart below compares the exporting characteristics of the Uwharrie NF analysis area for 1990 and 2000.

Table 19: Exporting of Selected Industries in millions of 2000 dollars

	1990 Net Exports*	2000 Net Exports
Wood	\$954.3	\$1,192.9
Furniture & Fixtures		
Paper & Pulp Products	-\$58.4	\$151.6
Wood Products	\$37.7	\$318.4
Total Manufacturing	\$1,208.2	\$3,165.7
Total of All Sectors	-\$806.1	\$1,510.1

Source: IMPLAN 1990 and 2000 Data

\*1990 Dollars Converted to 2000 Dollars via GDP Price Deflator; in millions of dollars

The data in Table 19 shows that the Uwharrie's local economy transitioned from a net importing economy in 1990 to a net exporting economy in 2000. The 1990 decade saw the total economy's reliance on exports increase tremendously, thereby becoming less reliant on outside areas for its goods and services production. All three segments of the Wood Products manufacturing showed net exporting increases. Total manufacturing gained a significant share in net exporting, by about \$2,316 million in the 1990 decade. Agriculture, Minerals; Construction; Total Wood Products; and Other Manufacturing were sectors that showed the greatest change in net exports over the 1990 decade (see table 17 of Appendix B).

In summary, the Uwharrie area economy became less reliant on imports during the 1990's. More dollars, therefore, flowed into the economy than flowed out, increasing the ability of enhancement of further economic activity through the multiplier effect.

### **Federal Payments**

The Payments in Lieu of Taxes (PILT) program is administered by the Bureau of Land Management. PILT payments are made to local governments that have federal lands within their borders to compensate for loss of property tax revenues. If the Forest Service's Twenty Five Percent funds from timber harvesting, mining, and recreation do not cover at least \$1.75 per acre, PILT will make up the shortfall.

Trends in 25 Percent Funds and PILT are important to show a possible erosion of an area's tax base. Tables 20 and 21 of the Appendix B break out revenues for each of the Uwharrie counties. The chart below shows the aggregated forest county changes from various years for data that was common between the two sources (all data has been updated to 2004 dollars).

Table 20: Payments to States in \$000 of 2004 \$'s

	1985	1998	2004	Annual Avg. Percent Change
Uwharrie NF	\$132.0	\$40.3	\$18.2	-6.6
North Carolina	\$1,473.1	\$876.1	\$975.0	-3.3

Source: USDA Forest Service

Data adjusted to 2004 Dollars via Gross Domestic Price Deflator

County revenues from the Forest Service have been variable since 1985, the first year of available data for Payments to States (see table 18 of Appendix B). The variation reflects predominantly national forest timber sales in each county. For the forest as a whole, real prices (inflation adjusted prices) have declined since 1985 by 6.6 percent per year. Meanwhile 25 percent payments in total for North Carolina have declined 3.3 percent per year. These payments have declined in real terms over the 19 year period. The Uwharrie's share of state total payments has varied from almost 9 percent in 1985, to 4.6 percent in 1998, to almost 2 percent in 2004 (see table 18 of Appendix B).

Most payments over the years shown went to Montgomery County, which contains the most national forest acreage. Davidson County gained less than \$3,000 per year from 25 percent-payments, Montgomery County had 1985 payments of slightly over \$100,000 adjusted to 2004 dollars, but payments declined to \$50,000 in 2004. Randolph County had \$24,800 in 1985 and \$11,900 in 2004.

At the same time, PILT funds have increased to help offset somewhat the large acreage federal ownership of these counties' lands. While the magnitude of PILT payments is somewhat smaller than Payments to States, PILT payments have tended to increase over time as timber harvests have decreased on the Uwharrie NF. Inflation adjusted payments in the Uwharrie analysis area have grown from \$46,400 in 1991 to \$69,900 in 2004, a 3.2 percent average annual increase. This rate of increase was similar to the PILT payment increase in the state of North Carolina over this period, about 3.0 percent (see table 19 of Appendix B).

Table 21: Payments in Lieu of Taxes (000 of 2004 \$'s)

	1991	1998	2004	Annual Avg. Percent Change
Uwharrie NF	\$46.4	\$42.1	\$69.9	3.2
North Carolina	\$1,635.8	\$1,433.9	\$2,411.3	3.0

Source: U.S. Dept. of Interior

Data adjusted to 2004 Dollars via Gross Domestic Price Deflator

### Summary of Social and Economic Trends

National and local socioeconomic trends influence the ability of communities to adapt to changing circumstances. Trends identified in secondary and primary data analysis for the Uwharrie NF include demography, economy, attitudes, beliefs, and values.

Population growth in the 1980's and 1990's occurred at a relatively rapid, yet uneven, rate among the three counties. The area as a whole grew about 13 percent in the 1980's and 19 percent in the 1990's. These rates of growth were on par with the state in the 1980's and about three percent less than the state in the 1990's. The population is expected to grow by another 11 and 16 percent from 2000 to 2010 for the forest and the state, respectively.

The analysis area's rural characteristic decreased by about 28 percentage points to 42.4 percent from 1980 to 1990; and another 6 percent from 1990 to 2000, making the rural share about 37 percent in 2000. These counties have seen a rapid urbanization over the last 20 years. Urban growth means that demands on recreation resources as well as for land development have increased.

North Carolina as a whole has maintained a heterogeneous population of Whites and black for the past 20 years. The black share of the state has remained at about 22 percent over the 1980, 1990, 2000 period. The forest has about a 9 percent share of blacks which has decreased slightly over these years. A recent increase in Hispanic residents to almost a five percent share in 2000 and a subsequent projection for the Hispanic population to rise significantly in the next ten years translates into changes in community attitudes, values, and beliefs concerning forest management and recreation preferences.

These dynamic changes in community culture, lifestyles, local economies, and social structures may result in the changes that cause social disruptions or tensions about new

residents, new economic activities, or changes in forest management policies. This social disruption can amplify disagreements within communities or groups or it can migrate to conflicts about forest management issues.

Current attitudes, beliefs, and values concerning forest management were gathered during a telephone survey conducted by the USFS Southern Research Station. A general summary of the findings gives insight to attitudes toward national forest management. Area residents participate in outdoor activities; the majority prefers viewing nature via walking or driving, fishing, hiking, gathering non-timber products, off-road vehicle driving, and developed camping.

While the Region 8 did not conduct a specific study for the Uwharrie NF area, it included this area in its telephone calls for the southern Appalachian forests. It has become evident from surveying various forests from the southern Appalachians to the Ozark Mountains that public sentiment about natural resource management and how people would like to see national forests managed did not differ significantly from survey to survey. We therefore can assume that people's attitudes and beliefs are similar region-wide. Results of the southern Appalachian forest poll follow this overview.

Past surveys showed forest management activities that are most important to the respondents included maintaining stream quality, providing habitat for fish and wildlife, and protecting endangered plants. The public was also asked questions about their perceptions of the most important management activities on public lands. The largest share of the public's responses gave preference to forest management objectives that provide water sources, protect habitats, maintain the forests conditions, protect older forests, increase law enforcement, and prevent wildfires. The survey indicated that the local public has a fairly strong environmental conservation leaning. While extraction of natural resources is not completely discounted by the public, preservation and provision of wildlife and recreation services are highly desired.

The Uwharrie NF boundary counties' economic health, as measured by per capita income, grew at a rather slow rate during the 1990's. When considering the real rate of growth (inflation adjusted dollars to 2004), the forest impact area grew at 0.3 percent per year over the 1990 decade; compared with the state's growth of 0.8 percent per year. Still, per capita income in 2000 was only about \$2,200 less than that of the state.

The Uwharrie analysis area's unemployment rate decreased from 3.6 percent to 3.0 percent from 1995 to 1998. However, the rate climbed to 6.0 percent in 2001, reflecting the manufacturing bias of the economy. The rate in 2001 was more than the rate of North Carolina, 5.5 percent. Increasing income growth, as well as normal unemployment rates, indicates the area is relatively economically strong. People with strong incomes and jobs are more likely to have free time and need an outlet for recreation. The national forest is a prime outlet for these people.

The Uwharrie impact area had poverty rates which declined slightly from 1980 to 2000. The share of individuals living in poverty in 2000 was about 11 percent. This was slightly over one percent less than that of the state.

Transfer payments in the Uwharrie analysis area showed a 5.9 percent increase in average annual real rate of growth from 1970 to 2003, similar to that of the state, which showed a 5.6 percent increase. The Uwharrie NF transfer payment growth gives the local economies added economic support.

Percentage of female head of households was lower than the state percentage in the analysis area. In 2000, the Uwharrie NF was six percent below the state's 12 percent of all households, indicating a potential lesser degree of hardship at the local level.

The services and manufacturing sectors are a significant source of employment in the analysis area accounting for 20 and 33 percent, respectively, of the employment in 2000. The economy's main drivers, in the labor income area, are services and manufacturing as well. Although employment in the manufacturing sector, which includes lumber and wood products, has the highest share of any other sector in the economy, its share is declining. The area as a whole has become less reliant on the manufacturing sector. As indicated by the Shannon-Weaver Entropy indexes, over the 1990's decade the Uwharrie analysis area increased its diversity while that of North Carolina decreased marginally. These indexes indicate that overall, local and state economies are relatively diverse---making the area less prone to economic recessions.

Thus, the economy and demography of this area appears to be healthy. Population has grown steadily in the 1990's; poverty has decreased. Housing construction is vigorous. The economy's composition has changed only marginally in the last decade. It has become less reliant on importation of goods and services, and is producing more of its own goods and services for export so that the economy may more easily grow. The analysis area has a fairly diverse economy with resilient characteristics that may allow it to weather downturns in the economy. For the Uwharrie analysis area, most of the economic and demographic variables looked at in this overview were comparable with those of North Carolina. Except for housing values and per capita income which were below the state levels, most social and economic characteristics looked at in this overview seem to be on par with that of the state.

## Values, Attitudes, and Beliefs of Populations within the Pisgah National Forest Commuting Area

During Forest planning, it is desirable to ask the public how they perceive national Forest management; how they would like to see the national forest managed; and what their opinions of natural resource issues are.

In 2002, the Southern Appalachian National Forests commissioned the USFS Southern Research station to conduct a Values, Attitudes, and Beliefs random telephone survey of populations within 150 miles of the center of the Pisgah National Forests, the closest NF to the Uwharrie NF and whose counties were included in the sample of individuals surveyed. This being said, the planners on the Uwharrie NF are assuming the Pisgah survey serves as a close proxy to the values, attitudes, and beliefs of a similar survey that could be done for the Uwharrie market area.

Below is a general synopsis of the findings of the nearly 1,700 telephone calls made over counties determined to be in the Pisgah's market area. Appendix B contains the complete survey results. Summary results are tabulated in the analysis that follows.

Over 97 percent of the respondents were year-round residents in their respective county; approximately 34 percent of the respondents were from Tennessee and 31 percent from North Carolina. Of the entire sample population, 41 percent had lived in the southern Appalachian area their entire life. Of the telephone survey respondents, 30 percent had visited the Forest.

The survey had 51 percent female respondents; 88 percent white (10 percent black, 2 percent Hispanic.); 18 percent college educated; 58 percent employed; 44 percent retired; 25 percent age under 30; and 27 percent age over 55.

A majority (53 percent) remains in the area because of family or friends; and 6 percent remain the area because of their job.

Table 21 presents a "yes" response as to whether the surveyed person participates in given recreational activities.

Table 21 Public Participation in Recreational Activities

Mountain Biking	15%
Horseback Riding on Trails	10%
Day Hiking	44%
Backpacking	11%
Developed Camping	28%
Visit Wilderness	42%
Gather Mushrooms, berries	28%
Nature Viewing/Photography	62%
Big Game Hunting	11%
Small Game or Waterfowl Hunting	9%
Driving for Pleasure	77%
Off-Road Vehicle Driving	25%
Freshwater Fishing	36%
Canoeing or Kayaking	10%
Rafting	19%
Motor boating	28%

Source: Public Survey Report Southern Appalachian National Forests, Southern Region NFS, Southern Research Station, FS, University of Tennessee, Table 2 July 2002

Quite clearly, most people participate in the outdoors in their vehicle through driving-for-pleasure; nature viewing was second most predominant, while day hiking was third.

Table 22 indicates “Import & Extremely Important” and “Extremely Important” beliefs of respondents for given -forest management objectives of the Forest Service:

Table 22 Public Ranking of Forest Management Objective Importance

Forest Management Activity	Important & Extremely Important	Extremely Important
Maintaining Stream Quality	95 percent	89 percent
Providing Outdoor Recreation	75 percent	48 percent
Providing Habitat for fish & WL	90 percent	77 percent
Providing Quiet Places for Renewal	79 percent	58 percent
Leave Forest in Natural Appearance	89 percent	73 percent
Provide Abundant Timber Supply	73 percent	54 percent
Provide Access to Raw Materials	36 percent	22 percent
Protect Endangered Plants & Animals	85 percent	73 percent
Emphasize Managing Trees for Healthy Forests	90 percent	74 percent

Source: Public Survey Report Southern Appalachian National Forests, Southern Region NFS, Southern Research Station, FS, University of Tennessee, Table 4 July 2002

Maintaining stream quality, providing wildlife habitat, providing healthy forests, and leave forest in natural appearance are the most important management objectives to these publics surveyed.

Next, the public was asked questions about their perceived choices for forest management on public lands. Results indicating “Import & Extremely Important” and “Extremely Important” are listed in Table 23:

Table 23 Public Ranking of Management Activity Importance

Management Activity	Important & Extremely Important	Extremely Important
Protect Areas that are Sources of Water	95 percent	80 percent
Protect Important Wildlife Habitats	91 percent	75 percent
Create Open Areas for Wildlife	87 percent	69 percent
Allow Cultural Uses of Forest	76 percent	55 percent
Use Controlled Fires	75 percent	57 percent
Develop & Maintain Trail System	71 percent	40 percent
Increase Law Enforcement	68 percent	48 percent
Designate More Areas for Wilderness	67 percent	42 percent
Restrict Mining	67 percent	53 percent
Make Management Decisions at Local Level	67 percent	40 percent
Allow Diversity of Uses: Grazing, Rec., WL Habitat	66 percent	38 percent
Increase Acres in the National Forest	65 percent	43 percent
Allow Recreation Fees to go back to Management	61 percent	37 percent
Allow Management Activities Near Streams	61 percent	35 percent

Management Activity	Important & Extremely Important	Extremely Important
Limit People Who Visit Wilderness	51 percent	28 percent
Limit People of River at One Time	48 percent	27 percent
Trade Public for Private Lands to Eliminate In-holdings or to Acquire Natural Areas	48 percent	25 percent
Increase Wildlife for Hunting	47 percent	28 percent
Allow Harvesting & Mining to Support Communities	36 percent	21 percent
Expand Commercial Recreation Services	34 percent	18 percent
Provide New Paved Roads for Cars	34 percent	20 percent
Allow Recreational Gold Prospecting & Dredging	24 percent	13 percent
Expand Access for Motorized OHV	24 percent	13 percent

Source: Public Survey Report Southern Appalachian National Forests, Southern Region NFS, Southern Research Station, FS, University of Tennessee, Table 5 July 2002

The largest share of the public's wishes dealt with forest management objectives that preserve habitat, promote sources of water, allow cultural uses of the forest, and prevent wildfires.

Environmental attitudes of the public in this survey are captured with statements such as "Strongly Agree" or "Somewhat Agree."

Table 24 Environmental Attitude

Attitude	Agree & Strongly Agree	Agree
Critical Homes for Plant & Animal Species Should be Protected	95 percent	73 percent
More Controls on Tourism and 2 <sup>nd</sup> Home Dev.	78 percent	46 percent
Endangered Species Act has not Gone Far Enough	75 percent	43 percent
More Important to Protect Streams for Trout than other Species	51 percent	26 percent
More Timber Production, Mining, and Other Commercial Uses	26percent	8 percent

Source: Public Survey Report Southern Appalachian National Forests, Southern Region NFS, Southern Research Station, FS, University of Tennessee, Table 6 July 2002

The majority of “Agree” and “Strongly Agree” responses were tabulated for habitat protection, controls on tourism, and Environmental Species Act strengthening.

This Pisgah NF survey indicates that people have a fairly strong preference for environmental conservation. While extraction of natural resources is not completely discounted by the public, preservation and provision of wildlife and recreation services are desired for the most part, indicating that, in the public’s view, the mix of resources should be tilted more towards non-commodity use. It is believed those publics who frequent the Uwharrie NF have similar values, attitudes, and beliefs.

## Timber Supply and Demand Analysis

The Uwharrie NF timber “market area”, in which the forest supplies mills in its area, resides within its “competitive zone” where forest supplied mills compete for timber from other outlying areas. This additional area outside the market area is assumed to be one county distance outside the market area.

The Uwharrie market area where timber from this national forest is procured by mills consists of the following counties:

- Davidson
- Monroe
- Montgomery
- Montgomery
- Richmond
- Randolph
- Stanly

The “competitive zone” is considered to be the following counties:

- North Carolina – Alamance, Anson, Cabarrus, Chatham, Davidson, Guilford, Harnett, Hoke, Lee, Montgomery, Moore, Randolph, Richmond, Rowan, Scotland, Stanly, Union
- South Carolina – Chesterfield, Marlboro

Within these counties, other land ownerships compete for timber demand of the mills in this area. Thus, the area of analysis for this timber supply-demand study is the competitive zone. Timber removal is assumed to be an indicator of the demand for timber in this area. The Uwharrie NF meets only a small fraction of this demand within its competitive zone.

Data to perform a supply-demand analysis comes from the USDA-FS Forest Inventory Analysis (FIA) system at the North Central Research Station and the forest’s Cut & Sold report for fiscal year 2002. Data for North Carolina is based on the 2002 survey, and data for South Carolina is based on the 2001 survey. Tables 1-4 of the accompanying tables

show statistics for each of the counties, by land ownership, within the competitive zone for the Uwharrie National Forest.

Significant findings within this area where the national forest competes with other land ownerships follows:

- 1) Total growing stock volume for this forest (all ownerships) is 5.77 million MCF (see table 1). By an overwhelming majority, private landownership has 94 percent of the growing stock. The Forest Service with .075 million MCF represents 1.3 percent of the competitive zone's growing stock.
- 2) Of the total growing stock, only 1.0 percent has mortality (see table 2). The Uwharrie's mortality was very small (.04 percent) as a percentage of the competitive zone's growing stock, however, only one county, Montgomery, showed any mortality volume within the three forest boundary counties.
- 3) Removals from growing stock in each competitive zone county's respective survey year amounted to 4.1 percent of the growing stock available (see table 3). The ratio of removals to growing stock was seven percent or over (7 +) in Anson, Harnett, Richmond Counties, North Carolina, and Chesterfield County, South Carolina. None of these counties are within the national forest proclamation boundary.
- 4) Of the proclamation boundary counties, the highest removal from growing stock was in Montgomery County with 2.8 percent of growing stock removed.
- 5) FIA data estimated that 830,903 cubic feet of timber was removed from the Uwharrie NF (all from Montgomery County). Cut & Sold reports for 2002 indicated that 335,311 cubic feet were actually cut. Both of these volumes were a very small proportion of total growing stock in the competitive zone, .006 percent with Cut & Sold Report data and .014 percent with FIA data. Uwharrie NF Cut & Sold data for F/Y 2001 will be the metric used for volume removed.
- 6) The growth-drain ratio for the Uwharrie NF's competitive zone in total is about 1.1 indicating that growth is 10 percent more than harvest during the year of survey.
- 7) Cut & Sold data for 2001 reveals that about 51 percent of volume harvested was hardwoods and 49 percent softwood.

The same four variables from FIA data were used to assess the timber condition on the Uwharrie NF as was used to characterize the forest's role in its overall competitive area.

Mortality of growing stock on the Uwharrie as contrasted with total growing stock on the Uwharrie proved to be very small (2.9 percent) (see table 2 of the appendix).

Net Growth of growing stock on the Uwharrie NF to removals there was estimated to be 21.7 to 1 in 2001---a very healthy condition.

Removals compared to Uwharrie growing stock, was 0.45 percent.

Based on early 2000's FIA data, growth, mortality, and removals of timber are in a favorable position on this forest. Growth is healthy, mortality is very small, and removals are a very small part of the growing stock.

The table below summarizes this analysis' findings:

Uwharrie NF Timber Supply-Demand Characteristics		
	Competitive Zone Area	Uwharrie Boundary Cos.
Growing Stock (MCF)	5.77 Million	.075 Million
Removals (MCF)	.237 Million	.0003 Million
Mortality (MCF)	.057 Million	.0022 Million
Net Growth (MCF)	.253 Million	.0073 Million
Mortality as % of Growing Stock	1.0	2.9
Removals as % of Growing Stock	4.1	0.45
Net Growth to Removals	1.1	21.7

## Economic Impacts

### Uwharrie NF: Effects on the Local Economy

Local employment and total income effects are estimated by the Forest Service via the use of the IMPLAN (Impact for Planning) software along with the FEAST (Forest Economic Analysis Spreadsheet Tool) which marries the industry impacts of IMPLAN with resource outputs and budget estimates in FEAST. For FEAST the tables found below were published. All dollar amounts below are in 2006 dollars.

Economic impacts of the Current Direction and the Plan Direction are given in the tables below. The difference in these two levels of forest activity is that there is a 112 percent increase in the expected timber harvest and there is a 50 percent increase in the forest budget to implement their programs.

Table A illustrates how the Plan scenario differs from the current management direction by jobs. Due to possible substitution effects from competing non-government sources (such as similar volume of timber harvesting which may occur on private lands if national forest timber is not offered to the market), these jobs are characterized as being associated with local economic activity initiated by Forest Service programs and activities, rather than caused by these activities.

Employment changes from the current situation are an increase of 11.6 percent. The absolute job gain for the plan from the current direction is 48 jobs, for a total of 471.

Recreation and Wildlife expenditures are the programs that are associated most with jobs in this economy for the Plan and Current Direction.

Table A. Employment by Program by Alternative (Average Annual, Decade 1)

Resource	Total Number of Jobs Contributed	
	Current	Plan
Recreation	261	261
Wildlife and Fish	95	95
Grazing	0	0
Timber	41	85
Minerals	0	0
Payments to States/Counties	6	12
Forest Service Expenditures	19	17
Total Forest Management	423	471
Percent Change from Current	0.0%	11.6%

**Table B. Labor Income by Program by Alternative (Average Annual, Decade 1; \$1,000)**

Resource	Thousands of 2006 dollars	
	Current	Plan
Recreation	\$6,261.6	\$6,261.6
Wildlife and Fish	\$2,299.9	\$2,299.9
Grazing	\$0.0	\$0.0
Timber	\$1,570.8	\$3,291.8
Minerals	\$0.0	\$0.0
Payments to States/Counties	\$195.8	\$399.0
Forest Service Expenditures	\$467.8	\$703.2
<b>Total Forest Management</b>	<b>\$10,795.9</b>	<b>\$12,955.5</b>
<b>Percent Change from Current</b>	<b>0.0%</b>	<b>20.0%</b>

Labor income by scenario is given in Table B above. The current direction alternative has \$10.8 million of labor income associated with it. The Plan scenario has about \$13 million, an increase of 20 percent. The increase is due to an increase in anticipated volume harvest from current levels; and increase in payments to states; and an increase in forest expenditures.

Employment and income found in Tables A and B, respectively, are divided into the major sectors of the Uwharrie NF economy in Tables C and D. For each scenario, Retail Trade, Lodging & Food Services, Manufacturing, and Government are the sectors most affected by Forest Service programs and expenditures. Labor income in the form of wages and proprietors' earnings, has a similar effect as employment on the Retail Trade, Lodging and Food & Services, and Government sectors of this economy (defined as Davidson, Montgomery, and Randolph Counties).

Table C. Employment by Major Industry by Alternative  
 (Average Annual, Decade 1)

Industry	Total Number of Jobs Contributed	
	Current	Plan
Agriculture	21	39
Mining	0	0
Utilities	0	1
Construction	4	6
Manufacturing	25	42
Wholesale Trade	16	17
Transportation & Warehousing	11	13
Retail Trade	62	63
Information	1	1
Finance & Insurance	2	3
Real Estate & Rental & Leasing	5	6
Prof, Scientific, & Tech Services	5	5
Mngt of Companies	1	2
Admin, Waste Mngt & Rem Serv	8	9
Educational Services	0	0
Health Care & Social Assistance	2	3
Arts, Entertainment, and Rec	19	19
Accommodation & Food Services	161	162
Other Services	11	13
Government	67	68
Total Forest Management	423	471
Percent Change from Current	0.0%	11.6%

Table D. Labor Income by Major Industry by Alternative  
 (Average Annual, Decade 1; \$1,000)

Industry	Thousands of 2006 dollars	
	Current	Plan
Agriculture	\$635.9	\$1,282.9
Mining	\$3.3	\$8.7
Utilities	\$33.2	\$44.6
Construction	\$132.1	\$203.4
Manufacturing	\$1,168.0	\$1,940.1
Wholesale Trade	\$745.0	\$812.6
Transportation & Warehousing	\$432.7	\$492.6
Retail Trade	\$1,184.4	\$1,207.6
Information	\$48.4	\$52.8
Finance & Insurance	\$103.2	\$122.9
Real Estate & Rental & Leasing	\$134.0	\$148.0
Prof, Scientific, & Tech Services	\$189.3	\$211.3
Mngt of Companies	\$78.3	\$95.7
Admin, Waste Mngt & Rem Serv	\$115.1	\$127.4
Educational Services	\$3.8	\$4.6
Health Care & Social Assistance	\$96.6	\$121.1
Arts, Entertainment, and Rec	\$440.1	\$443.8
Accommodation & Food Services	\$2,746.3	\$2,760.0
Other Services	\$166.5	\$207.8
Government	\$2,339.8	\$2,667.7
Total Forest Management	\$10,795.9	\$12,955.5
Percent Change from Current	0.0%	20.0%

Forest Service revenues from program activities, which result in payments to States/counties, are expected to double from the current direction for the Plan scenario. The magnitude of payments to counties expected in the first decade is shown in Table E below. From \$0.29 million currently, the Plan would be expected to show a \$0.6 million payment.

Table E. Forest Service Revenues and Payments to Counties (Annual Avg, Decade 1; \$1,000,000)

	Current	Plan
All Program Revenues	\$1.2	\$2.4
Payment to States/Counties	\$293.0	\$597.0

Cumulative economic impacts to 2018 are estimated in table F below. The Plan is an estimate of forest resource outputs on an annual basis or a 15 year planning horizon. Therefore, estimates of jobs are constant from 2003 (the year of the IMPLAN data) to 2018 for forest employment and income impacts. Meanwhile employment and labor income (defined as salaries and wages plus proprietor's income) are estimated to grow by each category's historical growth rate for the last 36 years (1969 – 2005). The 423 and 471 jobs in the Current Direction and the Plan, respectively, are only expected to be about 0.2 percent of the total area jobs in 2003 and 2018. Total economic impacts as represented by total income are less than 0.1 percent in both years. The forest, therefore, has a very small contribution to this local economy.

Table F. Cumulative Economic Impacts in 2018

Economic Indicator	2003		2018				
	Area Totals	Forest Portion	Area Totals	Forest Portion			
				Current	Plan		
<b>Employment</b>							
Total (jobs)	217,861	423	279,300	423	471		
% of Area Totals	100%	0.2%	100%	0.2%	0.2%		
% Change from No Action	---	---	---	0.0%	11.6%		
<b>Labor Income (2006 dollars)</b>							
Total (\$ million)	\$6,649.0	\$10.8	\$8,663.0	\$10.8	\$13.0		
% of Area Totals	100%	0.2%	100%	0.1%	0.1%		
% Change from No Action	---	---	---	0.0%	20.0%		

Finally, Table G below illustrates the percentage contribution of the Uwharrie NF’s current management program to the area’s economy. The Uwharrie NF is associated with 0.2 percent of the total local economy’s jobs, and 0.2 percent of the labor income. Manufacturing, Health Care & Social Assistance, Retail Trade and Government are the sectors of the economy that show the most benefit from the forest’s activities.

**Table G. Current Role of Forest Service-Related Contributions to the Area Economy**

Industry	Employment (jobs)		Labor Income (Thousands of 2006 dollars)	
	Area Totals	FS-Related	Area Totals	FS-Related
Agriculture	4,788	21	\$102,810.8	\$635.9
Mining	544	0	\$32,588.2	\$3.3
Utilities	517	0	\$42,790.3	\$33.2
Construction	17,360	4	\$577,355.6	\$132.1
Manufacturing	49,828	25	\$2,015,882.4	\$1,168.0
Wholesale Trade	5,942	16	\$276,593.7	\$745.0
Transportation & Warehousing	5,220	11	\$216,566.0	\$432.7
Retail Trade	22,149	62	\$542,063.2	\$1,184.4
Information	1,306	1	\$59,768.2	\$48.4
Finance & Insurance	3,803	2	\$151,483.8	\$103.2
Real Estate & Rental & Leasing	6,257	5	\$136,175.7	\$134.0
Prof, Scientific, & Tech Services	5,338	5	\$224,872.2	\$189.3
Mngt of Companies	1,598	1	\$93,496.1	\$78.3
Admin, Waste Mngt & Rem Serv	10,798	8	\$156,536.4	\$115.1
Educational Services	1,585	0	\$34,289.4	\$3.8
Health Care & Social Assistance	22,137	2	\$805,376.6	\$96.6
Arts, Entertainment, and Rec	3,730	19	\$98,951.3	\$440.1
Accommodation & Food Services	14,116	161	\$208,223.2	\$2,746.3
Other Services	16,037	11	\$274,319.1	\$166.5
Government	24,808		\$910,034.9	\$2,339.8
Total	217,861	423	\$6,960,177.1	\$10,795.9
Percent of Total	100.0%	0.2%	100.0%	0.2%

Economically speaking, visitor-oriented activities have a greater roll in producing impacts on this local economy. Recreation and Wildlife play a significant part in the forest’s contribution to the local economy. Under the Plan scenario, Recreation and Wildlife produces 76 percent of the expected jobs contributed by this alternative and 66 percent of labor income.