

Socioeconomic Environment

Affected Environment

The Daniel Boone National Forest includes parts of 21 eastern Kentucky counties. These 21 counties constitute the Forest's Area of Influence (FAI).

The DBNF is adjacent to the southern Appalachian assessment Area (SAA), which extends southward from the Potomac River to northern Georgia and the northeastern corner of Alabama. This region includes parts of seven states, 135 counties, and covers approximately 37 million acres. The Daniel Boone National Forest Area of Influence is in close proximity to the SAA and the economic and social environment for the FAI are very similar to that of the SAA.

The USDA Forest Service, along with many other federal agencies, completed a broad assessment of this region in 1996 known as the Southern Appalachian Assessment (SAA). One component of this analysis, the "Social, Cultural, and Economic Technical Report," assesses social and economic conditions of the southern Appalachian area. The following assessment of the Daniel Boone National Forest attempts to compare the Forest's socioeconomic environment with similar findings from the Southern Appalachian Assessment. A comparison with the socioeconomic environment of Kentucky is also made. Data for the Forest's area of influence more nearly resemble those of the SAA than those of Kentucky at large. The following topics will be presented in the Forest's assessment:

- Demographic Changes and Trends in the Economy
- Effect of Demographic Changes on Natural Resource Management
- Impact of Natural Resource Management on the Economic and Social Status of Local Communities
- Influence of Publics Outside Southern Appalachia and their effect on Management of Ecosystems and Public Land
- Values and Attitudes of Southern Appalachia Residents toward Natural Resources and Ecosystem Management
- Priorities for Management of Private Land by Non-industrial Owners.

Social attitudes, values, and beliefs are elements used to describe and understand the human dimension of resource management. This information is used to predict possible effects on local communities. These effects may include acceptance of or resistance to the decisions made. Social analysis coupled with economic demographic information forms the human dimension of ecosystem management. This information is used with the biological and physical analysis to best understand potential effects on the land as well as the human environment.

DEMOGRAPHIC CHANGES AND TRENDS IN THE ECONOMY

DEMOGRAPHIC CHANGES

One measure of how dynamic and subject to change an area may be is the growth of population and its various racial and ethnic components. A static area will imply few potential issues affecting change. Conversely, a dynamic and growing population may produce many conflicting issues for land managers to consider. Certain areas of National Forest System and surrounding lands, which are attractive to urban dwellers for recreation as well as for second or retirement homes, may produce issues which conflict with traditional residents of the area.

Demographic changes for the Southern Appalachian (SA) Assessment area are given first in the analysis followed by that of the Forest's area of influence (FAI); then a contrast is given between the SAA region, the FAI, and Kentucky. Many time frames used in the SA Assessment were not available for the DBNF, and data more recent than 1990 were not available in the Assessment. Therefore, direct comparisons between the two are not possible at times.

Population increased by 7.3 percent from 1980 to 1990 in the southern Appalachian region. This compared with a decline 0.6 percent for the FAI, and an increase of 0.7 percent for Kentucky. During the 1990-2000 decade the Forest counties went from a net loss in population to a growth just one-percentage point less than the state of Kentucky for the period. Tables E - 1 through E - 7 of Appendix E show population characteristics and their rates of change for each county within the Forest proclamation boundary, while the table below illustrates significant population changes from 1980 to 1990 and 1990 to 2000 for all counties within the DBNF analysis area:

Table 3 - 95. Minority and percent population change in the DBNF analysis area, 1980-2000*.

Area	Percent Population Change 1980-1990	Percent Population Change 1990-2000	Percent Minority Population 1990	Percent Minority Population 2000
DBNF Counties	-0.6	8.59	1.52	2.69
Kentucky	0.7	9.70	7.96	9.92
SAA Findings	7.3	NA	8.1	NA

*Data obtained from U.S. Census Bureau.

While minority population increased by a little over one-percentage point between 1990 and 2000 within the proclamation boundary, it remains at a very low level. The minority population within Kentucky increased by almost two percentage points during the same time. Meanwhile, the SAA had a minority population of 8.1 percent in 1990, about 6.5 percent more than that of the FAI.

Table 3 - 96. Population density within the DBNF analysis area, 1980-2000*.

Area	Population Density 1980 (people/square mile)	Population Density 1990 (people/square mile)	Population Density 2000 (people/square mile)
DBNF Counties	55.9	55.6	60.4
Kentucky	92.1	92.8	101.7
SAA Findings	94.0	102.0	NA

*Data obtained from U.S. Bureau of Census.

Population density, meanwhile, was 102 people per square mile in the SAA in 1990, while the population density for the FAI was 55.6 people per square mile, and 92.8 people per square mile in Kentucky. While population density changed from 94 persons per square mile during 1980 in the SAA, it changed from 56 persons per square mile in the FAI and 92 for the state. Population density increased only marginally in the state and Forest during the 1990 decade (Table 3 - 96).

The significance of these population changes is that the FAI population declined less than one percent during 1980-1990 while the state population increased by less than a percent, while the SAA increased over seven percent during the period. The FAI populations increased by a little over 8.5 percent while the state grew a full percentage point more, 9.5 percent, during the 1990-2000 decade. Thus, while the rate of growth has picked up in the Forest area, it still trails the growth rate of the state. Minority population also lags behind that of the SAA and Kentucky. This is to be expected because of the larger urban populations found in the latter two areas. The county population changes are in Table E - 7 of Appendix E.

The rural nature of the area is contrasted with the state and SAA below. For a breakout of all counties within the forest boundaries, see E - 11 of Appendix E.

Table 3 - 97. Percent of population living in rural areas of the DBNF analysis area, 1980-1990.*

Area	Percent Rural Population 1980	Percent Rural Population 1990
DBNF Counties	84.8	83.8
Kentucky	49.1	48.2
SAA Findings	NA	53.0

*Data obtained from U.S. Census Bureau.

The FAI has become less rural since 1980. The percentage of persons living in rural areas for the aggregated counties making up this area has decreased from 84.8 percent in 1980 to 83.8 percent in 1990. This is a one-percentage point decrease but remains over 30 percent more rural than the SAA was in 1990. However, Kentucky is less rural than either the SAA or the FAI in 1990. The state lost its rural area by about the same percent as the FAI from 1980-1990. With a net decrease in population within the Forest counties during the 1980s, there was still an expansion of the urban areas within the area.

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 SAA the per capita income average was \$10,950 in 1990; for the FAI it averaged \$6,912 and for Kentucky it was \$9,546.

Table 3 - 98. Per Capita Incomes 1980 – 1990.

	1980 Per Capita Income	1990 Per Capita Income	Real Avg. Annual % Change '80-'90 per Capita Inc.
Forest Counties	\$3,919	\$6,912	1.0%
Kentucky	\$5,973	\$9,546	0.1%
SAA	\$6,377	\$10,950	0.8%

Source: U.S. Bureau of Census

Income for the Forest area grew faster on a real basis (inflation adjusted) than the SAA and Kentucky's income during the 1980s. The DBNF area grew at a one percent rate; Kentucky grew at a 0.1 percent rate, while the SAA grew only by 0.8 percent (Tables E - 12, through E- 14 of Appendix E for a forest breakdown and other income measures). Thus, an individual's financial well being increased at a greater rate in the DBNF analysis area than that of the SAA and Kentucky for the 1980s decade. Even though the growth was greater, the Forest area is still well behind earnings in Kentucky and the SAA area.

Table E - 18 of Appendix E has income data for the Forest and state based on Bureau of Economic Analysis (BEA) measurements. This data is per capita personal income, which is not directly comparable with the Bureau of the Census per capita income data shown above and in Table E - 12 of Appendix E. The two data sets are not the same because census data is obtained directly from households, whereas the BEA income series is estimated largely on the basis of data from administrative records of business and governmental sources. Also the definitions on income are different. Caution also must be used in comparing growth rates of Table E - 18 with Table E - 12 because growth in Table E - 18 is based on real or inflation adjusted dollars while growth in Table E - 12 is based on nominal dollars (unadjusted for inflation). Thus from the table above, it is evident that the FAI is still relatively poorer than either the state or the SAA, but its per capita income did grow a little faster than the state's during the 1980s.

Table E - 8 in the appendix has information on the percent of children below poverty in 1989 with Owsley at 64 percent in contrast with Oldham County outside the FAI at only seven percent. Table E - 8 has other social characteristics of the counties in the FAI compared to the counties within Kentucky with the lowest or highest percent of the characteristics listed.

Another indicator of relative economic prosperity is the percent of the workforce unemployed. Unemployment rates change dramatically over time, depending in large part on the national economy. Unemployment problems persist in some areas because of low educational attainment, lack of skills, and in some cases physical isolation.

In 1990, the Forest had a higher unemployment rate (9.1%) than either the state (7.0%) or the SAA (6.5%).

Table 3 - 99. Unemployment Rates 1990 and 1997.

	1990 Unemployment	1997 Unemployment
Forest Counties	9.1%	7.4%
Kentucky	7.0%	5.4%
SAA	6.5%	NA

Source: U.S. Bureau of Census & U.S. Bureau of Labor Statistics.

During the 1990s the unemployment rate has decreased by more than a percentage point for the Forest analysis area and the rate has decreased by close to the same amount, 1.6 percent for Kentucky. However, the unemployment rate within the Daniel Boone analysis area is still two percentage points higher than that of the state. More resolution in unemployment rates for the Forest (by county) can be found in Table E - 19 of Appendix E.

The percentage of people in poverty is represented in Table 3 - 100. (More specific Forest information can be found in Table E - 13 and Table E - 14 of Appendix E.)

Table 3 - 100. Poverty Rates 1989 and 1995.

	1989 – Percent of People of all ages in Poverty	1995 – Percent of People of all ages in Poverty
Forest Counties	34.8%	32.1%
Kentucky	19.0%	17.9
SAA	11.0%	NA

U.S. Bureau of Census, Small Area Income and Poverty Estimates Program.

Many of the counties in the Daniel Boone analysis area had very high rates of poverty in 1989. The average was much higher for the Forest area than either Kentucky or the SAA. In 1995 it is estimated that the State of Kentucky had a little over one percent lower poverty rate, and the Forest had almost a four percent lower rate than that found in 1989. The SAA was based on data through 1990; therefore, more recent data are not shown for this area. The poverty rate for the Forest area remains almost double that of the State's.

The U.S. Department of Agriculture, Economic Research Service rates all of the 21 analysis area counties as in persistent poverty. They define a county in this category if persons with poverty-level income were 20 percent or more of total population in each of four years: 1960, 1970, 1980, and 1990. Table E - 13 of Appendix E further supports the depressed economic status of residents in these counties.

Table 3 - 101. Housing Units 1970-2000.

	Housing Units % Change 1970-1980	Housing Units % Change 1980-1990	Housing Units % Change 1990-2000
Forest Counties	38.2%	10.2%	15.9%
Kentucky	28.6%	10.1%	13.9%

Source: U.S. Bureau of Census.

Median housing value is contrasted in the table below with information by county in Table E - 15 in Appendix E. Housing values within the Daniel Boone analysis area tend to be substantially below that of Kentucky and the SAA where more urban areas are found. Housing values are determined principally by the extent of demand. The greater the demand, the higher prices are bid up. Population changes, the movement of people, and job changes play a factor in housing demand. Population has only begun to increase at a significant rate in the 1990s. Housing stock increased at a significant rate in the decade of the 1970s and 1980s. However, value is still low compared with the state, which has the influence of urban areas and economic growth that support higher priced housing. In regard to new home additions, however, the Daniel Boone analysis area is still fairly dynamic as shown in Table E - 15 in Appendix E. Population and wage growth will have to increase significantly to warrant significant increases in housing values.

Table 3 - 102. Housing Values 1980 and 1990.

	Housing Units Median Value 1980	Housing Units Median Value 1990
Forest Counties	\$23,068	\$32,582
Kentucky	\$34,200	\$50,500
SAA	NA	\$59,700

Source: U.S. Bureau of Census.

Table E - 15 of Appendix E shows more specific data for the Daniel Boone analysis area for both housing units and median value of housing units.

TRENDS IN THE ECONOMY

Analyzing the major sectors of an economy allows insight into how diverse and what industries may be driving its growth. Table E - 18 of Appendix E shows the entire economy broken out by major Standard Industrial Code (SIC) and by important industry sub-sectors for wood products and for an estimate of the contribution of certain industries to tourism.

The table below shows the manufacturing sector, the sub-sectors for wood based industries, and an estimate of the tourism industry for percentage of industry output and employment for 1985 and 1996. Tourism is not a single economic sector. It is part of several service and retail industries. The percentage of each of these industries attributed to tourism was taken from the work of Gordon McClung at West Virginia University.

Table 3 - 103. Economic Diversity 1985 – 1996.

Sector	Industry Output % Total 1985	Industry Output % Total 1996	Employment % Total 1985	Employment % Total 1996
Manufacturing	24.2%	30.7%	16.3%	15.9%
Mfg. Lumber and Wood products	1.6%	3.8%	1.8%	2.6%
Wood Furniture and Fixtures	0.4%	0.7%	0.6%	0.5%
Paper and Pulp Products	0.1%	0.3%	0.1%	0.1%
Tourism	1.2%	1.2%	1.9%	2.2%
Total Economy	\$8,581.50*	\$12,609.9*	130,683	191,132

*In Millions of dollars. Source: 1985 and 1996 IMPLAN Data.

From the table above it is evident that the DBNF area economy is growing more reliant on manufacturing. Although output increased by over six percent from 1985 to 1996, jobs did not keep pace, employment in manufacturing decreased by 0.4 percent. Still, manufacturing accounted for less than a third of the economy in 1996.

Meanwhile, the SAA's economy in 1991 showed a 42 percent share of the economy for manufacturing; almost double that of Daniel Boone local economy in 1985. Even at these levels, the SAA and the Daniel Boone analysis area show a concentration in manufacturing that is much higher than that of the U.S. economy, which is less than 20 percent.

Of the manufacturing sector, wood products maintain a 4.8 percent share of the local economy's total output in 1996, which is more than over double the 2.1 percent share it had in 1985. Employment grew from a 2.5 percent share in 1985 to a 3.2 percent share in 1996. Employment in

the wood products industries resulted in a 3.4 percent share of the SAA economy in 1991. Industrial production had a 5.2 percent share. The wood products industries have about the same importance in the Daniel Boone's economy as that of the SAA.

Tourism is defined as any non-business related travel of 100 miles or more from home. Recreation would be a subset of the tourism estimate; therefore its share of the economy would be something less than the tourism numbers.

The estimate of tourism's share of the economy was about the same for output between 1985 and 1996. Employment, on the other hand, increased slightly from a 1.9 percent to a 2.2 percent share of the local economy's total.

Table E - 18 of Appendix E compares the DBNF analysis area's economy for 1985 and 1996 for all nine major sectors of the economy.

Besides the manufacturing change mentioned above between these two years, other significant changes include construction's increase from 4.8 percent of output in 1985 to 6.9 percent in 1996; the mining sector's decrease from 17.7 percent to 7.9 percent in 1996; and the service sector's non-tourism related increase from 8.7 percent to 14.1 percent in 1996. Thus, the local economy is becoming more diverse, but it is still heavily reliant upon manufacturing for the majority of its activity compared to the national economy.

The comparison on an average annual rate of change does allow a degree of comparison. The following table compares the rate of change between the SAA's economy and that of the DBNF analysis area:

Table 3 - 104. Economy dynamics.

	Employment Avg. Annual Change	Industrial Output Avg. Annual Change
Forest Counties*	4.2%	4.3%
SAA**	1.9%	2.6%

* Change from 1985 to 1996. Source: 1985 and 1996 IMPLAN Data.

** Change from 1977 to 1991. Source: 1977 and 1991 IMPLAN Data.

Clearly, output has grown much faster for the Daniel Boone NF local economy (4.3 percent) than the SAA (2.6 percent per year). Meanwhile growth in employment has been about the same with only 0.1 percent difference in growth of Industrial Output and Employment.

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 a large number of visitors come from outside in travel related activities to bring in new dollars. Tourism is classified as an export driven activity. A manufacturing industry can be a net importer if it imports more of a commodity that it exports.

Table E - 20 of Appendix E shows all the major sectors and industries contributing to the export activity within the DBNF analysis area.

The chart below compares the exporting characteristics of the DBNF's analysis area for 1985 and 1996.

Table 3 - 105. Exporting Industries 1985 and 1996.

Commodity	Net Exports (Exports Less Imports)		Net Exporting Industries as a Percentage of Total Positive Exporting industries	
	1985*	1996*	1985	1996
Agriculture	\$223.2	\$70.8	13.3%	6.8%
Mining	\$1,055.6	\$573.2	63.1%	54.7%
Mfg. Lumber & Wood Products	\$55.0	\$250.7	3.3%	23.9%
Mfg. Wood Furniture & Fixtures	\$0.4	\$18.6	0.0%	1.8%
Mfg. Paper & Pulp Products	-\$70.3	-\$90.7	0.0%	0.0%
Total Mfg.	-\$672.0	-\$466.9	0.0%	0.0%
Transportation & Utilities	\$9.9	\$135.5	0.6%	12.9%
Estimate of Tourist Trade	-\$19.9	-\$36.6	0.0%	0.0%
Government	\$329.2	-\$73.3	19.7%	0.0%
Total Net Trade (Exports)	-\$1,005.6	-\$2,780.3	100.0%	100.0%
Total Positive Export Industries	\$1,673.3	\$1,048.7		

* In Millions of dollars. Negative numbers are net importers and positive numbers are net exporters.

Source: 1985 and 1996 IMPLAN Data.

The local economy was a net importer of just over \$1 billion in 1985. In 1996, imports totaled approximately \$2.78 billion, more than twice the 1985 level. Large changes occurred in the wood products industries. Two sectors (Mfg. Lumber and Wood Products and Mfg. Wood Furniture and Fixtures) increased their exports significantly. The paper and pulp products industries increased their net imports, but at a much slower rate than the other two increased their exports. Total manufacturing continued to be a net importer but cut the import dollars by a third. Total export changes from 1985 to 1996 decreased from approximately \$1.67 billion to \$1.05 billion. The loss of exporting volume is important because the regional economy has had less opportunity from 1985 to 1996 to bring new money into the economy from outside its region for the purposes of internal growth. To the extent that a region imports more than it exports, money “leaks” outside the economy reducing the ability of the multiplier effect of new purchases by its residents.

“Total positive export industries” dollars provide the basis for expressing the percentage of an industry, which is a net exporter, to determine its share of total exports. Thus, manufactured lumber and wood products in 1985 had exports totaling \$55.0 million, which was 3.3 percent of \$1,673.3 million for all net exporting industries in the area.

All of the net exporters for the DBNF analysis area are shown in the above table. Government is the only industry that changed from a net exporter to a net importer between 1985 and 1996. Government went from exporting \$329.2 million in 1985 to importing \$73.3 million in 1996. Agriculture decreased its export from \$223.2 million to \$70.8 million, while mining cut its exports in half from \$1,055.6 million to \$573.2 million. Three sectors (Transportation and Utilities, Lumber and Wood Products and Wood Furniture and Fixtures) significantly increased their net imports. The Transportation and Utilities sector increased exports from \$9.9 million to \$135.5 million. Although this is a significant increase in exports it is only a 12 percent increase in the percentage of total positive exporting industries. Tourism almost doubled its imports from -\$19.9 million to -\$36.6 million. Thus, there are still more travelers from within the area than from outside the analysis area;

or those traveling from outside the area are not spending as much money in the local economy as the local travelers.

The SAA area was a net exporter in 1991 of goods and services of \$15.8 billion. Manufacturing was the largest net exporting sector, representing \$24.6 billion. Manufacturing represented 156 percent of the net exporting sectors. Construction (\$6.7 billion) and services (\$4.3 billion) were the largest net importers and contributed to a drain of money from the economy.

Thus, the Daniel Boone analysis area economy doubled its net imports from -\$1,005.6 million in 1985 to -\$2,780.3 million in 1996, further draining the resources of the area. The increase in imports adds to the overall decline of the areas economy. Although more industries have become a part of the economy, they have not improved the balance of trade.

The overall earnings of counties in the analysis area are low. Total earnings for Fayette County, which is within 50 miles of the analysis area, was \$4,981,847,000 in 1997. The total earnings of all of the analysis area counties combined were \$3,378,665,000 for 1997. Table E - 19 of Appendix E lists the earnings of each county by economic sector. The USDA Economic Research Service identifies the resource dependency of each rural county in the country. The Dependency of the Forest counties is shown in Table E - 21 of Appendix E. Manufacturing contributed a weighted annual average of 30 percent or more of total labor and proprietor income over the past three years in one county (Wayne). Service activities (private and personal services, agricultural services, wholesale and retail trade, finance and insurance, transportation and public utilities) contributed a weighted annual average of 50 percent or more of total labor and proprietor income over the past three years in three counties (Lee, Pulaski, Whitley). Mining contributed a weighted annual average of 15 percent or more of total labor and proprietor income over the past three years in four counties (Clay, Harlan, Leslie, Perry). Government contributed a weighted annual average of 25 percent or more of total labor and proprietor income over the past three years in five counties (McCreary, Menifee, Owsley, Rowan, Wolfe). And eight counties were not classified as a specialized economic type over the past three years (Bath, Estill, Jackson, Knox, Laurel, Morgan, Powell, Rockcastle). Income from transfer payments (federal, state, and local) contributed a weighted annual average of 25 percent or more of total personal income over the past three years in all but six of the 21 analysis area counties.

No one economic sector dominates the Analysis Area. The Shannon Weaver county-level diversity index ranges from 0.45 for Leslie County to 0.66 for Pulaski County. Twelve counties are in the 0.50 to 0.59 ranges and eight of the counties are in the 0.60 to the 0.66 ranges. Fayette County with the urban area of Lexington has an index of 0.65 (see Appendix B Diversity Analysis).

Although no one sector dominates the economy, the 21 county areas have only 232 industries out of the 528 that are tracked. This compares to 214 for Fayette County alone and 446 out of 528 for Kentucky. Fayette County's 214 industries employ 192,086 people and have a total income of \$8,261,950,000. The 21 counties Analysis Area employs 179,117 people and has a total income of \$6,100,225,000.

Payments in Lieu of Taxes (PILT) are funds that the federal government transfers to counties to help offset the non-tax status of federal lands within their boundaries. PILT is a payment from the Bureau of Land Management that covers shortfalls from natural resource consumption on the national forest. That is, if the Forest Service's Twenty Five Percent Funds (25 % 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. Table E - 22 and Table E - 23 of Appendix E break out revenues for each of the 21 Forest counties. The chart below shows Forest counties in the aggregate changes from various years for data that was common between the two sources.

Table 3 - 106. PILT Funds for Forest Counties 1990 and 1999.

	1990	1999	% Change 1990-1999
PILT	\$343,684	\$476,518	38.7%
25% Funds	\$458,599	\$68,621	-85.0%
Total	\$804,273.00	\$547,138.00	-32.0%

Source: U.S. Bureau of Land Management.

County revenues from the federal government have been variable since 1936, the first year of available data for 25 Percent funds. The 25 Percent funds have declined dramatically since 1997 from \$294,031 in 1996 to \$68,621 in 1999, due to reduced timber harvesting. At the same time PILT funds have trended up as a replacement of lost revenues from timber harvesting. Taking the two payments together, there was a 32.0 percent decrease for the DBNF analysis area from 1990 to 1999.

Land use and its change over time is an indicator of the dynamism of an area. Areas converting from rural uses to urban uses have implications of change that affect residents. The chart below shows the land use of weighted average acres of the counties, which comprise the DBNF analysis area for 1982-1992, for all uses except urban. Urban comprises a small share and can be found along with characteristics of all counties in the analysis area in Table E - 24 of Appendix E.

Table 3 - 107. Land Uses 1982 and 1992.

	Forest '82 % Share	Forest '92 % Share	Farm '82 % Share	Farm '92 % Share	Residual '82 % Share	Residual '92 % Share
Weighted Average Acres for Forest Counties	20.4%	21.9%	57.3%	53.2%	20.5%	22.0%

Source: Natural Resource Information System.

This data set from the Natural Resource Conservation Service includes federal land within their residual category. Residual also includes highways and power line access rights of ways. The Forest category contains lands of private timber owners.

Over three-fourths of this private area was either in farm or forest cover in 1982 (77.7%). By 1992 this percentage had decreased over two percent to 75.1. Twenty percent (20.4%) was forested in 1982, and 21.9 percent was forested in 1992. This is over a one percent increase in forested land over the period. So as farmland decrease, both forest land and urban areas increased. The urban share of the land increased from 1.8 percent in 1982 to 2.9 percent in 1992 (Table E - 24 of Appendix E). This land use has increased its acreage by one percent in the last 10 years.

The SAA found that little forest land was lost between 1970 and 1990 in that region. However, urban, road, and housing development growth caused by increased population in the area took farmland, pastures, and open space. Retirees and commuters from nearby urban centers were responsible for part of that demand for development.

The DBNF, meanwhile, experienced small declines in the rural character of the landscape from 1982 to 1992 (about a 2.6 percent decline in share over this period). Urban areas gained about 1.1 percent of the total share of land use during this time.

SUMMARY OF DEMOGRAPHIC AND ECONOMY CHANGES

Population and economic dynamics are changing at a moderate rate within the DBNF analysis area. While population declined slightly from 1980 to 1990 (-0.6%), growth began to increase during the 1990 to 2000 period (8.59%). This is still a third as fast as it grew from 1970 to 1980 (24.5%). It is one percent less growth from 1990 to 2000 for the analysis area than for Kentucky. Increased population suggests the area may have new residents from outside the area, which will present non-traditional ideas from those of long-standing residents, possibly those that are non-commodity based.

Minority population has changed slightly within the analysis area from 1990 to 2000. Minority share increased about one percent from 2.16 percent to 2.69 percent over this time, indicating some growth. While these numbers are still less than the share found across Kentucky in 2000 (9.92 percent) and the nation (approximately 13 percent), there is indication that minority population is not leaving the area, and there are increased opportunities for minority participation in local recreation endeavors.

The analysis area became slightly less rural from 1980 to 1990. The rural character is still in place in Daniel Boone analysis area with over three-quarters of the land in a rural character. Urban encroachment does not yet appear to be a problem.

The area's economic health as measured by per capita income grew 0.1 percent per year during the 1980s, greater than that for all of Kentucky. Still, per capita income in 1990 was about \$2,600 less than that of the state's. The area's unemployment rate decreased by over one percent from 1990 to 1997; however, it was still two percent greater than Kentucky's, which was at 5.4 percent in 1997. Income growth in this area has progressed steadily, indicating that the area is improving economically. People with strong incomes and jobs are more likely to have free time and need an outlet for recreation. The DBNF is a prime outlet for these people.

The area's poverty rate declined by three percent from 1989 to 1995, a rate faster than Kentucky's. Percentage of female head of households was low and holding steady; persons per household were lower than the state's average. The area is showing signs of economic improvement but there are still segments of the economy that are not growing as fast as the rest of the state. The income level for the area remains low compared to the state, and the poverty level is much greater than that of the state's.

Housing unit growth was about the same as the state for the decade of the 1980s. Median housing value, however, is still over \$17,000 less than the state average of \$50,500, a condition that can be expected with a larger urban component.

The DBNF analysis area's economy has become less diverse and more concentrated in the manufacturing sector. As measured by total output, manufacturing is about 31 percent of the economy, becoming a dominant share. The services sector has almost doubled its share while retail activity has remained constant. Wood products manufacturing in 1996 held about a 4.8 percent share of the total regional economy, an increase of 2.7 percent share from 1985. Tourism, meanwhile, maintained a 1.2 percent share in both measurement periods.

Since 1985, the area has doubled its net exports. Wood products have significantly increased its net exports from \$55 million to \$250.7 million, indicating that money is coming into the economy from these industries. Economies that export more than they import are able to grow faster than those that are net importers.

Land use has changed very little since 1982. The analysis area has gained over one percent of its forest cover on private lands. Forest cover on public lands has remained constant with a slight increase due to acquired lands reverting from pasture and openings to forest cover.

Thus, the economy and demography of this area appears to be typical for a rural area. Population began to increase in the 1990s, poverty declined slightly, and housing construction grew. The economy continues to restructure itself a little but relies more on the economically sensitive manufacturing sector. Finally, the economy remains a major importer.

EFFECT OF DEMOGRAPHIC CHANGES ON NATURAL RESOURCES

Little forest land has been lost since 1970 in the Southern Appalachian region, urban, road and housing development growth, caused by increased population, has taken farmland, pastures, and open space. Retirees and commuters from nearby urban centers are responsible for part of this demand for development.

In the Daniel Boone area there was an overall increase in forest land, with nine of the 21 counties showing a decrease in forest. Population in the area also decreased from 1980 to 1990 with only seven counties increasing in population. This trend turned around during the 1990s with all but four counties increasing in population.

Newcomers to the region feel differently than long-time residents about natural resources. Often, the latter's livelihood is dependent upon manufacturing from natural resources. Managers of natural resources have had to respond to new sets of values and preferences, particularly increased demand for land, water resources, scenery, recreation, and tourism.

Population in the region is projected to grow by 12.3 percent by 2010, slightly less than the growth rate expected for the nation (13.1 percent). Most of the growth is expected to be in northern Georgia, western North Carolina, and portions of eastern Tennessee and northwestern Virginia.

The increase in population density across all counties in the region has impacted farms, forests, and pastures and has removed habitat for most species of wildlife and fish. More people entering the area has resulted in greater amounts of land conversion and impacts to water quantities, quality, and use. At higher elevations, development has impacted visual qualities.

As certain areas of the region have been developed, more urban pressures have impacted the land. Private lands have become posted as "off limits", causing public lands to become more crowded. This greater private land restriction has put more pressures on public land to accommodate increased demand for tourism and recreation.

The movement of people into the DBNF's region has been primarily along the fringe of the area. Even with parkways bisecting the Forest, public services such as hospitals, retail centers, public water, sewage treatment, and garbage disposal are just becoming common within the core of the area. New arrivals to the area expect basic services experienced elsewhere. They also arrive from a

suburban or urban culture where needs are derived from institutions rather than from the land, extended family, and community.

Long time residents of the area have watched major changes in farming, plants, animals, and forest land as it has occurred. They expect changes to some degree and anticipate the changes that commonly occur in rural farm and forest land. New arrivals expect change in suburban or urban settings but have little experience with rural changes.

Interaction with local residents is needed now more than ever. Early involvement of the public is essential to the understanding of the forest management activities that occur on the DBNF.

National Forest planners needed to understand the people who live in the southern Appalachian region, how they relate to the National Forests in the area, and what they want or expect from the National Forests through natural resource management. During the planning process, numerous public meetings were held to allow attending interested people an opportunity to express their wants, needs, and demands for access to and use of DBNF resources. These public meetings, however, typically represent only a portion of the public's interests and seldom represent the so-called "silent majority" who do not or cannot attend these meetings. Region 8 commissioned the Southern Research Station to undertake a telephone survey to randomly survey the public. Such a survey provides input from this broader public concerning what they would like to see emphasized in National Forest management.

Region 8 and the Southern Research Station compiled a number of survey questions to learn how people perceive natural resource management. Answers to these survey questions, it is believed, can help National Forest planners with knowledge of the public's:

- Values, attitudes, and beliefs at a forest level
- Activities on National Forest System lands
- Feelings toward natural resource management in general
- Expectations of how National Forests should be managed
- Opinions on environmental issues in the southern Appalachian area.

The random survey for the Daniel Boone included residents within 75 miles of the Forest. The random survey included more than 60 percent of the Daniel Boone market respondents living in Tennessee, with just under 20 percent of the sample living in Kentucky. This area includes Lexington and Covington, Kentucky; Cincinnati, Ohio; and Knoxville, Tennessee.

The following summary of information was excerpted from the "Public Survey Report, Southern Appalachian National Forests, and Daniel Boone National Forest" (Note: the SA region for this survey included the DBNF and areas within 75 miles of five other National Forests. It is not the same as the SAA.)

Some noticeable differences exist in the personal and household characteristics of the DBNF market area compared to those of the full SA region. Year-round residents comprise about 97 percent of respondents in each, however, higher proportions of Daniel Boone area residents have lived in the SA region their entire lives (44% vs. 38%), lived there longer (62% vs. 52%), own rural land (18% vs. 13%), and remain in the SA region for either a job (9% vs. 7%) or the attractiveness of the area (19% vs. 15%). The percentage of shorter-term residents is larger in the full SA region, for both

residents of 10 years or less (29% SA vs. 22% DBNF) and residents of 10-19 years (19% vs. 16%). More SA region respondents came to or remain in the SA region for family reasons than did DBNF market residents (55% vs. 50%).”

Almost 94 percent of DBNF market area residents are non-Hispanic white compared to 75 percent in the SA region. Just three percent of the Daniel Boone market area is black in contrast to nearly 20 percent in the SA region. The proportion of Hispanic residents is also larger in the SA region, although both comprise less than five percent of the market. Foreign-born persons are also less common in the Daniel Boone market area. The Daniel Boone market has a larger proportion of people over age 55 and lesser-educated individuals. It has a lower proportion of people under age 30 and persons with advanced degrees. In addition, fewer people work at a job and relatively more are retired in the Daniel Boone area compared to the entire SA region.

Among the 20 activities included in the survey of SA residents, the most popular in the Daniel Boone market area are driving for pleasure (over 3 in 4 participate), picnicking (63%), viewing and photographing wildlife, fish, or scenery (just over 3 in 5 participate), day hiking (41%), and visiting a wilderness or other primitive area (about 2 in 5 participate).

In the Daniel Boone market area swimming (38% participating), fishing (37%), and motor boating/water skiing (27%) are popular water-based recreation activities. Gathering natural forest products (32%), camping at developed sites (28%), and off-road driving (27%) are other popular land-based activities. Every activity, with the exception of backpacking, mountain biking, and canoeing/kayaking, exceed the participation rates of both the full SA region and the nation.

Residents value the Daniel Boone National Forest in many different ways. At the top, they are viewed as important for passing along natural forests for future generations, protecting sources of clean water, providing protection for wildlife and habitat, emphasizing forest health, providing places that are natural in appearance, and protection of rare or endangered species.¹³

IMPACT OF NATURAL RESOURCES MANAGEMENT ON LOCAL COMMUNITIES

Residents of communities near public land are sensitive to land management choices. The region's communities are still in a lower economic status than surrounding state populations. Likewise, their economy is more dependent on natural resources. Of particular concern to residents of the area is the need to balance local interests to those interests of retirees, logging, and tourism.

The DBNF provides a core set of resources that can provide a variety of economic stimuli to the local communities. The significance of this potential is limited by the local community infrastructure. Roads, drinking water, sewage treatment, garbage disposal, health services, and retail outlets all have an impact on the ability of local communities to fully utilize the resources available on the Forest. As local area infrastructure improves (particularly the roads) the amount of growth increases. The utilization of the forest should correspondingly increase.

¹³ Cordell, Ken; et al, 2002, Public Survey Report, Southern Appalachian National Forests, Daniel Boone National Forest, USDA Forest Service Southern Research Station, p. 9-10

VALUES AND ATTITUDES OF SOUTHERN APPALACHIAN RESIDENTS

Natural resource management attitudes and values that residents of the region hold are extremely important for land managers to realize. Research during the SAA analysis showed that most people believe environmental protection and economic growth can be compatible. However, when people had to choose between the two, their first choice was the environment. Most people think that environment protection has not gone far enough.

Furthermore, the SAA found that as retirees, urban transfers, and other new residents move into the SAA region, concerns for the health and aesthetic appearance of the region's ecosystems were likely to strengthen.

Residents living within and adjacent to the DBNF hold values similar to the SAA. The economy within the Forest area does not provide the expendable income available to those outside the area. The option to pay more for environmental protection is limited and therefore less acceptable. At the same time many in the local economy understand environmental functions and change. Most local residents work the land for a garden or pasture. The use of horses or mules can still be found throughout the region. Most counties still have at least one horseback riding club and one or more hunting clubs. They can also be fiercely protective of the land and its resources. Their perception of natural resilience and land abuse is based upon local experience.

The value, attitude, and beliefs survey of people with 75 miles of the DBNF found that people who reside in areas near the Forest put a high value on the protection of the Forest for the future. The management emphasis should be (in order of importance by survey respondents) passing along the Natural Forest for future generations, protecting sources of clean water, providing protection for wildlife and habitat, emphasizing the planting and management of trees for healthy forests, providing places that are natural in appearance, and protection of rare or endangered species.

The most popular recreation activities on the DBNF, according to the telephone respondents, were driving for pleasure (about 78 percent), picnicking (63 percent), viewing and photographing, wildlife, fish or scenery (60 percent), day hiking (41 percent).¹⁴

Environmental Effects

The DBNF activities have an effect on the local economy of 21 counties. An economic model called IMPLAN is used to examine how the Forest influences employment and labor income in the area. Due to substitution effects from competing non-government sources, these jobs are characterized as being associated with local economic activity initiated by Forest Service programs and activities, rather than caused by these activities.

Recreation and Forest Service expenditures are the programs most associated with jobs in the affected area; this relationship holds for all alternatives. Alternatives with a timber production emphasis contribute the third most to jobs of all Forest Service programs.

¹⁴ *Ibid.*, p. 14, 17, 66.

RESOURCE TABLE

The alternatives are a continuum ranging from more commodity production and provision for multiple-use to that of less commodity production and fewer resource uses, from continuing forest management to an emphasis on less forest management of forest resources as follows:

More Commodity Production			Less Commodity Production		
A	E-1	D	C-1	C	B-1

The Following two tables will be referred to in the economic effects analysis for each alternative.

Table 3 - 108. Forest Service Revenues and Payments to Counties (in millions of 2000 \$'s).

Forest Service Program	ALT. A	Alt. B-1	Alt. C	Alt. C-1	Alt. D	Alt. E-1
Recreation	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1
Wildlife and Fish	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Grazing	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Timber	\$2.9	\$0.4	\$1.5	\$1.5	\$1.5	\$3.2
Minerals	\$1.4	\$1.4	\$4.4	\$4.4	\$4.4	\$4.4
Soil, Water & Air	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Protection	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Total Revenues	\$4.4	\$1.9	\$6.0	\$6.0	\$6.0	\$7.7
Payment to States/Counties	\$1.1	\$0.5	\$1.5	\$1.5	\$1.5	\$1.9

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

Table 3 - 109. Cumulative 50 year Present Values Costs and Benefits (thousands of 2000 \$'s).

	Alt. A	Alt. B-1	Alt. C	Alt. C-1	Alt. D	Alt. E-1
Cumulative Total						
Present Net Value	\$2,778,559	\$2,673,644	\$2,822,831	\$2,975,428	\$3,145,513	\$2,834,109
Present Value Benefits by Program						
Range	\$0	\$0	\$0	\$0	\$0	\$0
Timber	\$68,682	\$8,564	\$37,888	\$39,596	\$37,531	\$53,008
Minerals	\$130,571	\$106,787	\$130,608	\$136,741	\$139,042	\$145,892
Recreation	\$1,170,165	\$1,111,656	\$1,170,165	\$1,228,673	\$1,287,181	\$1,170,165
Wildlife	\$1,993,241	\$1,893,579	\$1,993,241	\$2,092,903	\$2,192,565	\$1,993,241
PV of Benefits	\$3,362,658	\$3,120,585	\$3,331,902	\$3,497,912	\$3,656,319	\$3,362,305
Present Value Costs by Program*						
Range	\$0	\$0	\$0	\$0	\$0	\$0
Timber	\$60,359	\$11,813	\$42,811	\$43,888	\$41,790	\$43,654
Roads/Engineering	\$67,407	\$85,770	\$67,407	\$67,407	\$73,509	\$73,509
Minerals	\$21,037	\$12,261	\$18,362	\$18,362	\$12,863	\$36,784
Recreation	\$217,626	\$202,222	\$202,222	\$214,425	\$222,403	\$208,323
Wildlife	\$56,188	\$12,261	\$36,784	\$36,784	\$30,624	\$30,624
Soil, Water, Air	\$21,037	\$24,522	\$24,522	\$24,522	\$24,522	\$18,362
Protection/Forest Health	\$35,084	\$12,261	\$24,522	\$24,522	\$12,863	\$18,362
Lands	\$28,094	\$18,362	\$24,522	\$24,522	\$24,522	\$30,624
Planning, Inv., Monitoring	\$77,224	\$67,407	\$67,407	\$67,407	\$67,407	\$67,407
PV Costs	\$584,056	\$446,881	\$508,561	\$521,841	\$510,504	\$527,649

*Costs are direct costs and Values are direct monetary returns from the program. All programs provide services that do not generate a monetary return e.g. timber program is modified to provide benefits for wildlife and plants that do not generate a direct monetary return. Recreation fees cover only a portion of the total recreational opportunities provided.

EFFECTS COMMON TO ALL ALTERNATIVES

DIRECT AND INDIRECT EFFECTS

Economic assistance is available to eligible local communities, including federally recognized Native American tribes, through the Rural Community Assistance Grants program. Typically, the funding varies each year according to congressional allocation, but they are not dependent on factors specific to any alternative. Under all alternatives, the Forest would continue to fund, as available, natural resource-based projects to diversify, stabilize, and enhance local economies.

CUMULATIVE EFFECTS

Economic Impacts:

Cumulative effects analysis is designed to reveal the context of each alternative's impact within the planning area. This is done by comparing total changes in the planning area that would result from each alternative to total changes that would result from no action. Such a comparison is done by estimating employment and income at the expected end of the forest planning horizon (15 years) and calculating each alternative's share of the total economy. Estimates for employment and income growth were derived by calculating the average annual increase in employment and the real average

annual income growth for counties in the analysis area from 1969 to 2000. The analysis is made with employment and income estimates for each alternative remaining at 2000 levels.

Our analysis assumes that the same rate of growth will continue over the 15-year life of the Forest Plan. The source of the data for these estimates is the U.S. Bureau of Economic Analysis.

Table 3 - 110 shows employment and labor income for the planning area. The first two columns present the 2000 base year and that portion of the base year attributable to use and management of the DBNF. The next column shows state and local government projections for 2015. Outputs for the various Forest Plan alternatives are assumed to be constant over the planning horizon. Included in the projections are employment and income effects attributed to the current direction (or no action), represented by Alternative A. The remaining columns show the separate effects of each alternative at the end 2015.

Table 3 - 110. Cumulative Economic Impacts in 2015

Economic Indicator	2000		2015						
	Area Totals	Forest Portion	Area Totals	Forest Portion					
				Alt. A - NA	Alt. B1	Alt. C	Alt. C1	Alt. D	Alt. E1
Employment									
Total (jobs)	164,873	2,132	245,870	2,132	1,875	2,047	2,129	2,207	2,147
% of Area Totals	100%	1.3%	100%	0.86%	0.76%	0.83%	0.86%	0.89%	0.87%
% Change from No Action	---	---	---	0.0%	-12.1%	-4.0%	-0.2%	3.5%	0.7%
Labor Income									
Total (\$ million)	\$54,349.0	\$45.3	\$81,770.0	\$45.3	\$38.4	\$43.4	\$44.9	\$46.2	\$45.5
% of Base	100%	0.1%	100%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%
% Change from No Action	---	---	---	0.0%	-15.1%	-4.2%	-0.8%	2.1%	0.4%

What in 2000 accounted for 1.3 percent of all employment will in 2015 account for about 0.9 percent for the no action alternative. For the alternatives in the EIS, expected shares of the economy will range from 0.8 percent of the economy for alternative B-1 and C to 0.9 percent for alternative C-1, D and E-1. The selected alternative C-1 shows a .09 percent share of the local economy in 2015.

Employment changes in 2015 from the no action alternative range from -12.1 percent for alternative B-1 to 3.5 percent for alternative D. The selected alternative C-1 shows a -0.2 percent change.

What in 2000 accounted for 0.1 percent of all income will in 2015 account for about 0.1 percent for the no action alternative. For the alternatives in the EIS, expected shares of the economy will range from 0.0 percent of the economy for alternative B-1 to 0.1 percent for the remaining alternatives. The selected alternative C-1 shows a 0.1 percent share of the local economy in 2015.

Income changes in 2015 from the no action alternative range from -15.1 percent for alternative B-1 to 2.1 percent for alternative D. The preferred alternative C-1 shows a -0.8 percent change.

The cumulative effects analysis shows that over time employment and income proportionate share of the economy will decline for all alternatives except E-1. The Alternative E-1 would be the largest contributor to the economy.

Only 0.8 to 0.9 percent of the jobs, and 0.0 to 0.1 percent of the labor income is generated by DBNF activities. The Differences in total jobs between Alternative A (no action) and the other alternatives range from a decrease of 12.1% for Alternative B-1 to an increase of 3.5% change for Alternative D. The Differences in Labor Income between Alternative A (no action) and the other alternatives range

from a decrease of 15.1% for Alternative B-1 to an increase of 2.1% change for Alternative D. Differences between alternatives may have noticeable effects within specific sectors of the local economy but will have little or no effect to the overall economy of the area or economy immediately outside the area. Differences in the alternatives are not likely to influence economic stimuli to the area from outside the area.

ALTERNATIVE A

DIRECT AND INDIRECT EFFECTS

Social Impacts: Alternative A would emphasize recreation and timber production. Recreation is important but timber production is not as important to the survey respondents. According to the survey, the management emphasis of the DBNF should be (in order of importance by survey respondents) passing along Forest resources for future generations, protecting sources of clean water, providing protection for wildlife and habitat, emphasizing the planting and management of trees for healthy forests, providing places that are natural in appearance, and protection of rare or endangered species. This alternative would address all of these needs but place a greater emphasis on products from the Forest, which was not as important to respondents.

Economic Impacts: The jobs and labor income in the local economy resulting from Forest Service programs and activities are displayed in Table 3 - 111. The DBNF recreation program along with general Forest Service expenditures support the most jobs in the economy. There are 2,132 current jobs and \$45.3 million in labor income associated with current Forest Service programs.

Table 3 - 111 Alternative A - Employment and Labor Income by Program.

Resource	Employment*	Labor Income **
Recreation	1,439	\$25.9
Wildlife and Fish	175	\$3.5
Grazing	0	\$0.0
Timber	166	\$3.7
Minerals	48	\$2.1
Payments to States/Counties	15	\$0.4
Forest Service Expenditures	289	\$9.7
Total Forest Management	2,132	\$45.3
Percent Change from Current	---	---%

* Employment by program by alternative (Average Annual, Decade 1).

** Labor income by program by alternative (Average Annual, Decade 1; \$1,000,000); in millions of 2000 dollars

Employment and income associated with National Forest activities are shown by major economic sectors of the local economy in the table below. The DBNF is associated with one percent of the local economy's total jobs and 0.9 percent of its labor income. Retail trade, services, and government are the economic sectors showing the most benefit from the Forest Service activities. After retail trade, services, and government, manufacturing is economic sector most affected by present DBNF management activity.

Table 3 - 112 Current roles of Forest Service-related contributions to the area economy (Alternative A).

Industry	Employment (jobs)		Labor Income (million 2000 \$'s)	
	Area Totals	FS-Related	Area Totals	FS-Related
Agriculture	15,721	60	\$138.8	\$0.9
Mining	4,965	44	\$274.7	\$1.8
Construction	12,843	26	\$330.1	\$0.8
Manufacturing	32,140	174	\$1,013.7	\$4.4
Transportation, Communication, & Utilities	9,456	55	\$346.8	\$2.2
Wholesale trade	6,925	77	\$212.7	\$2.7
Retail trade	37,085	751	\$561.4	\$11.5
Finance, Insurance, & Real Estate	7,140	37	\$166.8	\$1.0
Services	44,393	658	\$1,077.3	\$10.9
Government (Federal, State, & Local)	30,329	240	\$892.2	\$9.0
Miscellaneous	2,115	9	\$15.0	\$0.1
Total	203,112	2,132	\$5,029.5	\$45.3
Percent of Total	100.0%	1.0%	100.0%	0.9%

The current revenue payment to the state and counties is \$1.1 million Table 3 - 108.

Present value benefits, present value cost, and cumulative decadal present net values are shown in Table 3 - 109. The cumulative total present net value of Alternative A is \$2,779 million. Wildlife (\$1,993 million), recreation (\$1,170 million), and minerals (\$130 million) provide the greatest present value benefits. Recreation (\$218 million), roads/engineering (\$67 million), and planning, inventory, monitoring (\$77 million) have the greatest present value costs.

CUMULATIVE EFFECTS

No cumulative effects beyond those already described above.

ALTERNATIVE B-1

DIRECT AND INDIRECT EFFECTS

Social Impacts: Alternative B-1 would emphasize protection of the Forest while retaining the existing amount of recreation. Passing along natural forests for future generations, protecting sources of clean water, providing protection for wildlife and habitat, and providing places that are natural in appearance are addressed but emphasizing the planting and management of trees for healthy forests is not addressed. Recreation would remain at the existing level.

Economic Impacts: The jobs and labor income associated with local economic activity initiated by Forest Service programs and activities are displayed in the table below. This alternative would decrease in employment from activity generated by the DBNF by about 12.1 percent. Forest Service programs under Alternative B-1 would support 1,875 jobs, contrasted with 2,132 jobs estimated for the current plan. Recreation and Forest Service expenditures are the programs most associated with jobs in the economy.

Labor income of \$45.3 million is associated with the current Forest service programs. Alternative B-1 should generate \$38.6 million of labor income, a 15.1 percent decrease from the current level.

Table 3 - 113 Alternative B-1 employment, labor income by program.

Resource	Employment*	Labor Income **
Recreation	1,367	\$24.6
Wildlife and Fish	164	\$3.3
Grazing	0	\$0.0
Timber	20	\$0.5
Minerals	48	\$2.1
Payments to States/Counties	2	\$0.1
Forest Service Expenditures	273	\$8.0
Total Forest Management	1,875	\$38.6
Percent Change from Current	-12.1%	-15.1%

* Employment by program by alternative (Average Annual, Decade 1).

** Labor income by program by alternative (Average Annual, Decade 1; \$1,000,000); in millions of 2000 dollars

Employment and Income associated with National Forest activities are shown by major economic sectors of the local economy in the table below. Of the jobs associated with Alternative B-1, Manufacturing, services and retail trade jobs would be most affected.

Table 3 - 114. Alternative B-1 – employment, labor income by major industry.

Industry	Employment*		Labor Income**	
	Current	Alt. B-1	Current	Alt. B-1
Agriculture	60	56	\$0.9	\$0.9
Mining	44	43	\$1.8	\$1.8
Construction	26	21	\$0.8	\$0.6
Manufacturing	174	77	\$4.4	\$2.4
Transportation, Communication, & Utilities	55	46	\$2.2	\$1.8
Wholesale trade	77	66	\$2.7	\$2.3
Retail trade	751	696	\$11.5	\$10.6
Finance, Insurance, & Real Estate	37	32	\$1.0	\$0.9
Services	658	600	\$10.9	\$9.7
Government (Federal, State, & Local)	240	229	\$9.0	\$7.3
Miscellaneous	9	8	\$0.1	\$0.1
Total Forest Management	2,132	1,875	\$45.3	\$38.4
Percent Change from Current	---	-12.1%	---	-15.1%

* Employment by program by alternative (Average Annual, Decade 1).

** Labor income by program by alternative (Average Annual, Decade 1; \$1,000,000); in millions of 2000 dollars

Alternative B-1 would provide for \$0.5 million revenue payments to the state and counties (Table 3 - 108). Current direction (Alternative A) provides \$1.1 million in revenue payments to the State and counties.

Recreation plays a significant part in the DBNF's contribution to the local economy. Under Alternative B-1, the alternative with the lowest level of commodity production, recreation would produce 72 percent of the expected jobs contributed by this alternative and 64 percent of labor income.

Present value benefits, present value cost, and cumulative decadal present net values are found on Table 3 - 109. The cumulative total present net value of Alternative B-1 is \$2,674 million. Wildlife (\$1,894 million), recreation (\$1,112 million), and minerals (\$107 million) provide the greatest present value benefits. Recreation (\$202 million), roads/engineering (\$86 million), and planning, inventory, monitoring (\$67 million) have the greatest present value costs.

CUMULATIVE EFFECTS

No cumulative effects beyond those already described above.

ALTERNATIVE C

DIRECT AND INDIRECT EFFECTS

Social Impacts: Alternative C would nurture natural forests for the benefit of future generations. Sources of clean water would be protected along with wildlife and its habitat. The emphasis on planting and cultivating trees would contribute to healthy forests, providing places of natural appearance while protecting rare or endangered species. It would maintain recreational opportunities at the existing level with no expansion.

Economic Impacts: The jobs and labor income associated with local economic activity initiated by Forest Service programs and activities are displayed in Table 3 - 115. This alternative would see a 4 percent decrease in employment from the present level of DBNF associated economic activity. Forest Service programs under Alternative C would create 2,047 jobs, contrasted with 2,132 jobs estimated for the current plan. Recreation and Forest Service expenditures are the programs associated with the most jobs in the economy.

Labor income of \$45.3 million is associated with current Forest Service programs. \$43.4 million of labor income would be associated with Alternative C, a 4.2 percent decrease from the current level.

Table 3 - 115 Alternative C – employment, labor income by program.

Resource	Employment*	Labor Income **
Recreation	1,439	\$25.9
Wildlife and Fish	175	\$3.5
Grazing	0	\$0.0
Timber	87	\$1.9
Minerals	48	\$2.1
Payments to States/Counties	8	\$0.2
Forest Service Expenditures	290	\$9.7
Total Forest Management	2,047	\$43.4
Percent Change from Current	-4.0%	-4.2%

* Employment by program by alternative (Average Annual, Decade 1).

** Labor income by program by alternative (Average Annual, Decade 1; \$1,000,000); in millions of 2000 dollars

Employment and income associated with National Forest activities are shown by major economic sectors of the local economy in Table 3 - 116. In addition to government, services, and retail trade, Alternative C impacts manufacturing more than other major sectors.

Table 3 - 116. Alternative C – employment, labor income by major industry.

Industry	Employment*		Labor Income**	
	Current	Alt. C	Current	Alt. C
Agriculture	60	59	\$0.9	\$0.9
Mining	44	44	\$1.8	\$1.8
Construction	26	24	\$0.8	\$0.7
Manufacturing	174	124	\$4.4	\$3.4
Transportation, Communication, & Utilities	55	52	\$2.2	\$2.0
Wholesale trade	77	73	\$2.7	\$2.5
Retail trade	751	744	\$11.5	\$11.4
Finance, Insurance, and Real Estate	37	36	\$1.0	\$1.0
Services	658	647	\$10.9	\$10.6
Government (Federal, State, & Local)	240	236	\$9.0	\$8.8
Miscellaneous	9	9	\$0.1	\$0.1
Total Forest Management	2,132	2,047	\$45.3	\$43.4
Percent Change from Current	---	-4.0%	---	-4.2%

* Employment by program by alternative (Average Annual, Decade 1).

** Labor income by program by alternative (Average Annual, Decade 1; \$1,000,000); in millions of 2000 dollars

Alternative C would provide for \$1.5 million revenue payments to the state and counties as shown in Table 3 - 108. Current direction (Alternative A) provides \$1.1 million in revenue payments to the State and counties.

Present value benefits, present value cost and cumulative decadal present net values are found on Table 3 - 109. The cumulative total present net value of Alternative C is \$2,823 million. Wildlife (\$1,993 million), recreation (\$1,170 million), and minerals (\$131 million), provide the greatest present value benefits. Recreation (\$202 million), roads/engineering (\$67 million), and planning, inventory, monitoring (\$67 million) have the greatest present value costs.

CUMULATIVE EFFECTS

No cumulative effects beyond those already described above.

ALTERNATIVE C-1

DIRECT AND INDIRECT EFFECTS

Social Impacts: Alternative C-1 with its Goal of providing for ecosystem diversity with an added emphasis on recreation would serve to meet the most desired recreation activities of driving for pleasure and wildlife viewing as well as other recreation activities of importance to survey participants. According to the survey, the management emphasis of National Forests should be (in order of importance by survey respondents) passing along natural forests for future generations, protecting sources of clean water, providing protection for wildlife and habitat, emphasizing the planting and management of trees for healthy forests, providing places that are natural in appearance, and protection of rare or endangered species. This alternative would place the most emphasis on these interests.

Economic Impacts: The jobs and labor income associated with local economic activity initiated by Forest Service programs and activities are displayed in the table below. This alternative would have a 0.2 percent decrease in employment from the present level of DBNF associated economic activity. Forest Service programs under Alternative C-1 would create 2,129 jobs, contrasted with 2,132 jobs estimated for the current plan. Recreation and Forest Service expenditures are the programs most associated with jobs in the economy.

Labor income of \$45.3 million is associated with current Forest Service programs. \$44.9 million of labor income would be associated with Alternative C-1, a 0.8 percent decrease from the current level.

Table 3 - 117 Alternative C-1 - employment and labor income by program.

Resource	Employment*		Labor Income **	
	Current	Alt. C	Industry	Current
Recreation	1,511		\$27.2	
Wildlife and Fish	182		\$3.6	
Grazing	0		\$0.0	
Timber	88		\$2.0	
Minerals	48		\$2.1	
Payments to States/Counties	8		\$0.2	
Forest Service Expenditures	292		\$9.9	
Total Forest Management	2,129		\$44.9	
Percent Change from Current	-0.2%		-0.8%	

* Employment by program by alternative (Average Annual, Decade 1).

** Labor income by program by alternative (Average Annual, Decade 1; \$1,000,000); in millions of 2000 dollars

Employment and income associated with DBNF activities are shown by major economic sectors of the local economy in the table below. In addition to services and retail trade, Alternative C-1 impacts manufacturing more than other major sectors.

Table 3 - 118 Alternative C-1 - employment, labor income by major industry.

Industry	Employment*		Labor Income**	
	Current	Alt. C	Industry	Current
Agriculture	60	62	\$0.9	\$1.0
Mining	44	45	\$1.8	\$1.9
Construction	26	25	\$0.8	\$0.7
Manufacturing	174	127	\$4.4	\$3.5
Transportation, Communication, & Utilities	55	54	\$2.2	\$2.1
Wholesale trade	77	76	\$2.7	\$2.7
Retail trade	751	778	\$11.5	\$11.9
Finance, Insurance, & Real Estate	37	37	\$1.0	\$1.0
Services	658	676	\$10.9	\$11.1
Government (Federal, State, & Local)	240	238	\$9.0	\$9.0
Miscellaneous	9	9	\$0.1	\$0.1
Total Forest Management	2,132	2,129	\$45.3	\$44.9
Percent Change from Current	---	-0.2%	---	-0.8%

* Employment by program by alternative (Average Annual, Decade 1).

** Labor income by program by alternative (Average Annual, Decade 1; \$1,000,000); in millions of 2000 dollars

Alternative C-1 would \$1.5 million in revenue payments to the state and counties (Table 3 - 108). Alternative A would provide \$1.1 million in revenue payments to the state and counties.

Present value benefits, present value cost and cumulative decadal present net values are shown in Table 3 - 109. The cumulative total present net value of Alternative C-1 is \$2,975 million. Wildlife (\$2,093 million), recreation (\$1,229 million), and minerals (\$137 million), would provide the greatest present value benefits. Recreation (\$214 million), roads/engineering (\$67 million), and planning, inventory, monitoring (\$67 million) would have the greatest present value costs.

CUMULATIVE EFFECTS

No cumulative effects beyond those already described above.

ALTERNATIVE D

DIRECT AND INDIRECT EFFECTS

Social Impacts: Alternative D with its primary emphasis on recreational opportunities, would provide for the anticipated increase in demand for recreation with less emphasis on providing forest habitat diversity. Passing along natural forests for future generations, protecting sources of clean water, providing protection for wildlife and habitat, emphasizing the planting and management of trees for healthy forests, providing places that are natural in appearance, and protection of rare or endangered species are all addressed as important concerns in this alternative but the primary emphasis is recreation.

Economic Impacts: The jobs and labor income associated with local economic activity initiated by Forest Service programs and activities are displayed in the table below. This alternative would have a 3.5 percent increase in employment from the present level of DBNF associated economic activity. Forest Service programs under Alternative D would create 2,207 jobs, contrasted with 2,132 jobs estimated for the current plan. Recreation and Forest Service expenditures are the programs most associated with jobs in the economy.

Labor income of \$45.3 million is associated with current Forest Service programs. \$46.2 million of labor income would be associated with Alternative D, 2.1 percent above the current level.

Table 3 - 119 Alternative D - employment, labor income by program.

Resource	Employment*	Labor Income **
Recreation	1,583	\$28.5
Wildlife and Fish	190	\$3.8
Grazing	0	\$0.0
Timber	86	\$1.9
Minerals	48	\$2.1
Payments to States/Counties	8	\$0.2
Forest Service Expenditures	291	\$9.7
Total Forest Management	2,207	\$46.2
Percent Change from Current	3.5%	2.1%

* Employment by program by alternative (Average Annual, Decade 1).

** Labor income by program by alternative (Average Annual, Decade 1; \$1,000,000); in millions of 2000 dollars

Employment and income associated with National Forest activities are shown by major economic sectors of the local economy in Table 3 - 120. In addition to services, and retail trade, Alternative D impacts manufacturing more than other major sectors.

Table 3 - 120 Alternative D - employment, labor income by major industry.

Industry	Employment*		Labor Income**	
	Current	Alt. D	Current	Alt. D
Agriculture	60	65	\$0.9	\$1.0
Mining	44	46	\$1.8	\$1.9
Construction	26	26	\$0.8	\$0.8
Manufacturing	174	129	\$4.4	\$3.6
Transportation, Communication, & Utilities	55	56	\$2.2	\$2.2
Wholesale trade	77	80	\$2.7	\$2.8
Retail trade	751	812	\$11.5	\$12.4
Finance, Insurance, & Real Estate	37	38	\$1.0	\$1.0
Services	658	704	\$10.9	\$11.5
Government (Federal, State, & Local)	240	240	\$9.0	\$9.0
Miscellaneous	9	10	\$0.1	\$0.1
Total Forest Management	2,132	2,207	\$45.3	\$46.2
Percent Change from Current	---	3.5%	---	2.1%

* Employment by program by alternative (Average Annual, Decade 1).

** Labor income by program by alternative (Average Annual, Decade 1; \$1,000,000); in millions of 2000 dollars

Alternative D would provide for \$1.5 million revenue payments to the state and counties (Table 3 - 108). Current direction (Alternative A) provides \$1.1 million in revenue payments to the State and counties.

Present value benefits, present value cost, and cumulative decadal present net values are shown in Table 3 - 109. The cumulative total present net value of Alternative D is \$3,145 million. Wildlife (\$2,193 million) recreation (\$1,287 million), and minerals (\$139 million) would provide the greatest present value benefits. Recreation (\$222 million), roads/engineering (\$73 million), and planning, inventory, monitoring (\$67 million) would have the greatest present value costs.

CUMULATIVE EFFECTS

No cumulative effects beyond those already described above.

ALTERNATIVE E-1

DIRECT AND INDIRECT EFFECTS

Social Impacts: Alternative E-1 would emphasize recreation and timber production. Recreation is important but timber production is not as important to the survey respondents. According to the survey, the management emphasis of National Forests should be (in order of importance by survey respondents) passing along natural forests for future generations, protecting sources of clean water, providing protection for wildlife and habitat, emphasizing the planting and management of trees for healthy forests, providing places that are natural in appearance, and protection of rare or endangered

species. This alternative would address all of these needs while placing a greater emphasis on products from the Forest, which was not as important to respondents.

Economic Impacts: The jobs and labor income associated with local economic activity initiated by Forest Service programs and activities are displayed in Table 3 - 121. This alternative would have a 0.7 percent increase in employment from DBNF associated economic activity. Forest Service programs under Alternative E-1 would create 2,147 jobs, contrasted with 2,132 jobs estimated for the current plan. Recreation and Forest Service expenditures are the programs most associated with jobs in the economy.

Labor income of \$45.3 million is associated with current Forest Service programs. \$45.5 million of labor income would be associated with Alternative E-1, 0.4 percent increase above the current level.

Table 3 - 121 Alternative E-1 - employment and labor income by program.

Resource	Employment*	Labor Income **
Recreation	1,439	\$25.9
Wildlife and Fish	175	\$3.5
Grazing	0	\$0.0
Timber	180	\$4.0
Minerals	48	\$2.1
Payments to States/Counties	16	\$0.5
Forest Service Expenditures	289	\$9.5
Total Forest Management	2,147	\$45.5
Percent Change from Current	0.7%	0.4%

* Employment by program by alternative (Average Annual, Decade 1).

** Labor income by program by alternative (Average Annual, Decade 1; \$1,000,000); in millions of 2000 dollars

Employment and income associated with DBNF activities are shown by major economic sectors of the local economy in Table 3 - 122. Alternative E-1 would impact manufacturing more than other major sectors.

Table 3 - 122. Alternative E-1- employment, labor income by major industry.

Industry	Employment*		Labor Income**	
	Current	Alt. E-1	Current	Alt. E-1
Agriculture	60	60	\$0.9	\$0.9
Mining	44	44	\$1.8	\$1.8
Construction	26	27	\$0.8	\$0.8
Manufacturing	174	183	\$4.4	\$4.6
Transportation, Communication, & Utilities	55	55	\$2.2	\$2.2
Wholesale trade	77	77	\$2.7	\$2.7
Retail trade	751	752	\$11.5	\$11.5
Finance, Insurance, & Real Estate	37	38	\$1.0	\$1.0
Services	658	660	\$10.9	\$11.0
Government (Federal, State, & Local)	240	241	\$9.0	\$8.8
Miscellaneous	9	10	\$0.1	\$0.1
Total Forest Management	2,132	2,147	\$45.3	\$45.5
Percent Change from Current	---	0.7%	---	0.4%

* Employment by program by alternative (Average Annual, Decade 1).

** Labor income by program by alternative (Average Annual, Decade 1; \$1,000,000); in millions of 2000 dollars

Alternative E-1 would provide \$1.9 million in revenue payments to the state and counties (Table 3 - 108). Alternative A would provide \$1.1 million in revenue payments to the state and counties.

Under Alternative E-1, jobs and income from recreation would represent 67 percent of total jobs and 57 percent of total income that the DBNF contributes to the local economy.

Present value benefits, present value cost and cumulative decadal present net values are found on Table 3 - 109. The cumulative total present net value of Alternative E-1 is \$2,834 million. Wildlife (\$1,993 million), recreation (\$1,170 million), and minerals (\$146 million) would provide the greatest present value benefits. Recreation (\$208 million), roads/engineering (\$73 million), and planning, inventory, monitoring (\$67 million) would have the greatest present value costs.

CUMULATIVE EFFECTS

No cumulative effects beyond those already described above.

CIVIL RIGHTS AND ENVIRONMENTAL JUSTICE

The following analysis discloses the relationship of significant and adverse environmental effects to minority population, low-income populations, and Indian tribes. Management direction in each of the alternatives would not commit resources to site-specific activities. Consideration of the significance of environmental effects is more appropriate during site-specific consideration of proposals to implement the 2004 Plan.

The National Forest System lands are intermixed with private and other public lands and occurs within portions of 21 counties. McCreary County has highest percentage of NFS land, 51.5 percent, and Knox County has the fewest at 0.03 percent. The DBNF comprises 14.6 percent of the 21 counties with NFS lands within their boundaries.

Table 3 - 123. Counties containing National Forest System lands.

County	County Acres	DBNF Acres	%
Bath	181,945	19,300	10.6%
Clay	301,798	77,594	25.7%
Estill	163,686	5,598	3.4%
Harlan	300,125	803	0.3%
Jackson	221,931	58,375	26.3%
Knox	248,373	74	0.03%
Laurel	284,373	62,478	22.0%
Lee	135,460	8,587	6.3%
Leslie	259,160	52,194	20.1%
McCreary	275,901	142,122	51.5%
Menifee	131,991	46,622	35.3%
Morgan	245,965	12,948	5.3%
Owsley	126,997	16,280	12.8%
Perry	219,649	2,191	1.0%
Powell	115,375	15,528	13.5%
Pulaski	433,385	37,441	8.6%
Rockcastle	203,653	14,793	7.3%
Rowan	183,419	62,509	34.1%
Wayne	309,824	642	0.2%
Whitley	284,902	45,365	15.9%
Wolfe	142,766	16,458	11.5%
Forestwide	4,770,447	697,902	14.6%
Kentucky	25,861,846	697,902	2.7%

MINORITY POPULATIONS

The 21 DBNF counties comprise approximately 11 percent of the state's total population. Less than one percent of the population within the 21 counties is made up of the minority populations listed in Table 3 - 124, with the exception of African Americans, which is slightly more than one percent.

Table 3 - 124. Minority Populations for Counties containing a portion of DBNF, (2000 Census).

Counties	Total Population (2000)	African American	Asian	Hispanic or Latino	American Indian/ Alaska Native	Native Hawaiian/ Other Pacific Islander	Other
Bath	11,085	205	2	89	23	0	44
Clay	24,5656	1,178	29	333	51	4	56
Estill	15,307	17	5	81	36	0	9
Harlan	33,202	869	96	216	159	5	28
Jackson	13,495	7	2	72	26	1	6
Knox	31,795	262	53	180	80	6	25
Laurel	52,715	331	182	291	193	5	44
Lee	7,916	300	8	29	22	1	5
Leslie	12,401	9	15	77	11	2	6
McCreary	17,080	108	3	106	72	1	34
Menifee	6,556	90	2	73	8	1	9
Morgan	13,948	611	23	85	21	2	8
Owsley	4,858	5	2	35	3	1	1
Perry	29,390	482	143	154	15	4	12
Powell	13,237	82	7	88	16	0	9
Pulaski	56,217	604	208	454	123	9	97
Rockcastle	16,582	23	21	102	40	1	7
Rowan	22,094	345	197	235	46	3	83
Wayne	19,923	297	22	291	35	0	93
Whitley	7,065	17	2	36	6	2	4
Wolfe	35,865	123	71	249	81	5	31
Forestwide	445,287	5,965	1,093	3,276	1,067	53	611
Kentucky	4,041,769	295,994	29,744	59,939	8,616	1,460	22,623

Data obtained from the U.S. Census Bureau.

Table 3 - 125. Percentage Comparison of Minority Populations, Daniel Boone National Forest.

Area	Total Population (2000)	African American	Asian	Hispanic or Latino	American Indian/ Alaska Native	Native Hawaiian/ Other Pacific Islander	Other
% of Forestwide Population	NA	1.3%	0.2%	0.7%	0.2%	0.01%	0.1%
% of Kentucky Population	NA	7.3%	0.7%	1.5%	0.2%	0.04%	0.6%
Forestwide Totals / Kentucky Population	11.0%	2.0%	3.7%	5.5%	12.4%	3.6%	2.7%

Data obtained from the U.S. Census Bureau.

LOW-INCOME POPULATIONS

The area's median household income is approximately 35.7 percent below the state average. Rowan, Pulaski, Powell, Laurel, and Bath Counties, come closest to the state median income, but remains approximately 23 percent below the state median. These counties either have a solid industry base or are within a reasonable commuting distance to industry.

Table 3 - 126. Low-income populations for counties containing a portion of DBNF (1999 dollars).

Counties	Median Household income (\$)	Median Family Income (\$)	Median Earning Male Full-Time Year-Round (\$)	Median Earning Female Full-Time Year-Round (\$)
Bath	26,018	31,758	27,786	20,986
Clay	16,271	18,925	24,164	17,816
Estill	23,318	27,284	29,254	18,849
Harlan	18,665	23,536	29,148	19,288
Jackson	20,177	23,638	25,087	16,065
Knox	18,294	23,136	24,833	18,390
Laurel	27,015	31,318	27,965	19,757
Lee	18,544	24,918	25,930	19,038
Leslie	18,546	22,225	28,708	18,080
McCreary	19,348	22,261	20,823	15,575
Menifee	22,064	26,325	25,670	17,014
Morgan	21,869	26,135	23,966	18,463
Owsley	15,805	18,034	25,100	18,203
Perry	22,089	26,718	31,702	20,502
Powell	25,515	30,483	26,962	18,810
Pulaski	27,370	32,350	27,398	19,236
Rockcastle	23,475	30,278	26,770	18,388
Rowan	28,055	34,338	26,777	20,104
Wayne	20,863	24,869	24,021	18,102
Whitley	22,075	27,871	26,518	17,001
Wolfe	19,310	23,333	23,859	18,952
Forestwide	21,652	26,178	26,307	18,506
Kentucky	33,672	40,939	32,357	23,285

Source: Profiles from the 2000 Census of Population and Housing, U.S. Census Bureau.

Table produced by the Kentucky State Data Center 5/02

INDIAN TRIBES

There are no federally recognized tribes or tribal lands within the proclamation boundary of the Daniel Boone National Forest or in Kentucky. There are, however, historic tribal lands of the Cherokee, Shawnee, and Chickasaw Tribes in Kentucky.