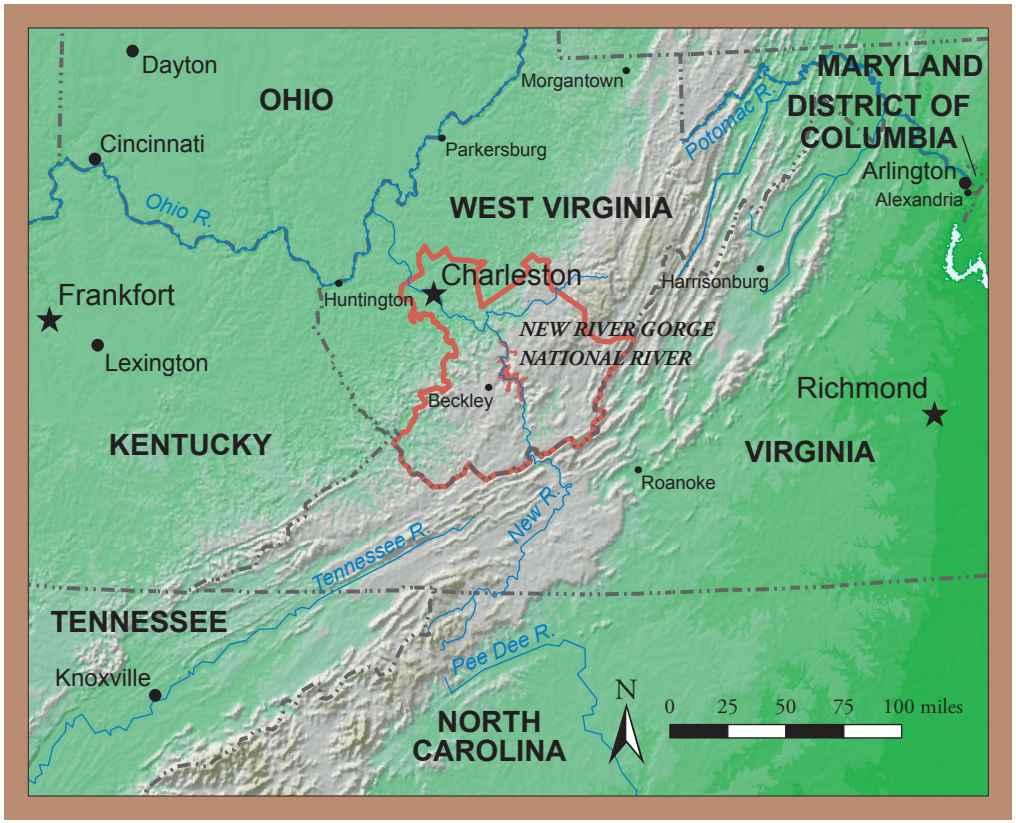
A Socioeconomic Atlas for



New River Gorge National River and its Region

2004

A Socioeconomic Atlas for New River Gorge National River and its Region

by

Jean E. McKendry

Cynthia A. Brewer

Joel M. Staub

2004

Acknowledgments

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About this Atlas

This atlas is one in a developing National Park Service atlas series. The purpose of the atlas series is to show socioeconomic trends for regions around individual national park units. Pilot atlases were completed for Harpers Ferry National Historical Park, Joshua Tree National Park, Mount Rainier National Park, and Wilson's Creek National Battlefield. The potential to link these atlases to park planning, e.g., updating the General Management Plan, is being explored with a second series of atlases that began with the Blue Ridge Parkway.

After NPS produced the Blue Ridge Parkway atlas, atlases in the second series have been created in collaboration with the Department of Geography at the Pennsylvania State University. New River Gorge National River is one of the atlases in the second series. For more information about the atlas series, contact Jean McKendry, National Park Service, 1849 C Street NW (3130), Washington, DC 20240 (jean_mckendry@partner.nps.gov).

About the Authors

Jean McKendry is Principal Scientist with the University of Idaho, College of Natural Resources. She is assigned to work with the National Park Service under a cooperative agreement. She serves as Principal Investigator/Project Manager for this atlas series.

Cynthia Brewer is an Associate Professor of Geography at the Pennsylvania State University. Her specializations are cartographic design and visualization. She manages production of the atlas series at Penn State.

Joel Staub is a Masters student in the Department of Geography at the Pennsylvania State University. He specializes in cartography and historical geography. He prepares data, maps, and graphs and edits text for the atlas series.

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Preface

Protection of the National Park System requires active and scientifically informed management. If park resources – both natural and cultural – are to be protected for future generations, the NPS must develop efficient ways to monitor the condition and trends of natural and human systems. Such monitoring must provide usable knowledge that managers can apply to the preservation of resources. And the NPS must share this information with surrounding communities, stakeholders, and partners to help them make important choices about their future.

Because of these reasons and more, the NPS has embarked on a significant initiative – the Natural Resource Challenge, an action plan for preserving natural resources and our country's natural heritage within the complexities of modern landscapes (http://www1.nature.nps.gov/challenge/index.htm).

This atlas is one component in that effort. It is a tool for park managers, planners, community leaders, and others to use in addressing the challenge of preserving the natural and cultural resources of New River Gorge National River. Part of that challenge involves understanding conditions outside park boundaries – conditions which can have significant impacts on park resources. Systematic study and monitoring of regional conditions involves, to a large degree, investigation of human activities. This atlas focuses on such human activities, characterizing them in terms of standardized measures known as socioeconomic indicators.

The atlas can currently serve as an aid to management and planning, as a training tool, and as a means to facilitate public participation. It can be of long-term benefit by establishing baseline data for monitoring changing conditions and trends in the region. Through these and other potential uses, the atlas supports the critical goal of improving park management through a greater reliance on usable scientific knowledge, and contributes to meeting the Natural Resource Challenge.

Gary E. Machlis
Visiting Senior Scientist
National Park Service

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Introduction

The purpose of this atlas is to provide park managers, planners, community leaders, and others with a better understanding of changing human activities and socioeconomic conditions in the region surrounding New River Gorge National River. These changes outside a park's boundaries can create complex park management challenges. Information about regional trends and conditions is needed in order to manage and conserve park resources – both natural and cultural – more effectively. This atlas provides such information in a series of maps, complemented by tables, other graphics, and explanatory text.

Maps are effective ways of conveying information. A map can highlight geographical patterns in data by showing the relationship between what is happening and where it is happening. For example, a map that shows a park's road network and also shows the locations of traffic accidents may indicate that certain sections of park roadway are particularly hazardous. Or a map that plots where park visitors come from might show that the park is popular with residents from a particular part of the region or the nation.

The maps in this atlas combine *contextual* information (such as boundary lines, roads, and key towns) with *thematic* information (such as demographic or economic statistics). This combination of contextual and thematic information helps the reader observe general trends inherent in the distribution of data. For example, a map that shows the population growth rate for each county in the park region may reveal that all of the highest growth rates are concentrated in counties south of the park.

Each map is designed to allow for easy comparison, so readers can see how conditions and trends in their own counties compare with those in other counties and relate to larger regional patterns. The consistent map design allows readers to make useful comparisons among two or more maps. For example, comparing maps of federal expenditures per person and poverty rates might reveal that federal expenditures tend to be higher in a region's poorer counties.

There are many potential uses for this atlas. For example, park managers can share the atlas with new park staff, regional staff, the media, or policy makers as a way of orienting them to the basic facts about the region. Planners can use the atlas to examine emerging trends outside the park and to prioritize actions to mitigate any anticipated adverse impacts on park resources. Local and regional leaders can consult the atlas to develop environmental policies that support park management goals while remaining responsive to local needs. Researchers can use the atlas to design studies that have practical benefit to park and ecosystem management. Additional uses are discussed in the atlas' concluding section, pages 76 - 77. Regardless of how it is used, the atlas can serve as a useful reference tool that adds to the body of usable scientific knowledge about New River Gorge National River and its surrounding region.

Socioeconomic Indicators: Valuable Management Tools

The Relevance of Human Activities to Park Resource Management

The management of park resources always requires attention to human behavior and activities. Protection of a threatened archaeological site can mean educating visitors about the Antiquities Act. Controlling non-native plant species can require close collaboration with park neighbors and volunteers. Preservation of scenic values can depend upon the monitoring of emissions from electrical generation plants several states away.

While there is an on-going and healthy debate about how to address this "human factor" in park management, a consensus has emerged about three basic principles:

- people are part of park ecosystems, and their needs and activities must be considered in management plans;
- park managers should be concerned with short and long-term trends, as well as the local, regional, and national consequences of actions; and
- where appropriate, decisions about park resources should be made collaboratively, including federal agencies, local governments, and citizens in the process.

Managing parks in accordance with these principles requires careful planning, for people have many competing needs.

Careful planning requires an accurate and objective assessment of current conditions as well as on-going trends. Hence, understanding the social, cultural, and economic characteristics of the park region is crucial for successful park management.

The Value of Socioeconomic Indicators

One approach to understanding social, cultural, and economic conditions and trends is to use *socioeconomic indicators*. Socioeconomic indicators are regularly collected economic or social statistics that describe or predict changes and trends in the general state of society. For example, the consumer price index (CPI) keeps track of changes in the price of a typical group of consumer goods. The CPI is used to monitor inflation, to compare the cost-of-living in one region of the country to another, and to support economic policy-making. Socioeconomic indicators can address historical trends, present conditions, or future projections.

An integrated set of socioeconomic indicators can be effective in presenting the "basic facts" about the people of a region. Such basic facts are important to park management, and can be used in many ways: assessing the potential impact of government policies, developing sound resource management strategies, designing effective interpretive programs, increasing public involvement in the planning process, and so forth. Like measures of water quality or wildlife populations, socioeconomic indicators enable managers and citizens to make scientifically informed decisions concerning public resources.

The Integrated Set of Indicators

The indicators in this atlas are not simply a collection of various statistics displayed in maps, but an integrated set of indicators organized around broad areas of human activity that are of particular relevance to park management. The selection of a broad range of relevant indicators is important because the dynamics of human interaction on a regional scale are complex. For example, the growth of a new industry can influence a rise in immigration, which in turn can influence other human activities such as housing development. While industry, immigration, and housing are categorically different indicators, each one could be important for a park manager trying to anticipate growth issues that might impact park visitation or ecological systems.

The integrated set of indicators displayed in this atlas encompasses six general categories:

- *General population* indicators measure how many people live in a given area, where those people are concentrated, their ages, patterns of migration, and so forth. General population indicators provide a profile of the people who are neighbors to the park and potential partners in park management.

- *Economy and commerce* indicators measure the flow and distribution of money, materials, and labor. Economy and commerce indicators provide an overview of the interdependent economic relationships among people, businesses, industries, and government within the park region.

- *Social and cultural* indicators measure aspects of personal and group identity such as cultural origin, political and religious beliefs, health, and language. Social and cultural indicators provide insights into the varying perceptions and expectations that people bring with them when they go to their place of work, participate in a public meeting, or visit a park interpretive site.

- *Recreation and tourism* indicators measure activities specifically related to the provision of accommodations, entertainment, and personal services. Recreation and tourism indicators provide a way to analyze the economic role that travelers, vacationers, and other recreationists play in the region surrounding the park, which is itself closely linked to the recreation/tourism sector.

- *Administration and government* indicators measure the structure, resources, and actions of government organizations. Administration and government indicators provide an orientation to the role of government – local, state, and federal – in the park region.

- *Land use* indicators measure the interactions between people and terrestrial resources such as land, water supply, and vegetation. Land use indicators provide a way to gauge the impact of human activities such as farming, forestry, and urban development upon ecosystems within the park region.

Selecting Specific Indicators

Drawing from the six general categories of socioeconomic indicators described above, a menu of 67 socioeconomic indicators was developed. Each indicator was determined to be readily available and mappable at the county level. From this menu, 17 *core indicators* were selected that would be common to all atlases published in this series. The core indicators provide information useful to all park managers. Incorporating these core indicators throughout the series of atlases enables park managers to make comparisons among parks in different regions of the country. New River Gorge National River staff chose additional indicators from the menu described above. Park staff selected these indicators to customize the atlas so that it would target information relevant to their particular management needs. Figure 1 shows the six general categories and the specific indicators included in this atlas; for each category, indicators are listed in the order they appear in the atlas.

The maps in this atlas are based on county-level data wherever possible. County-level data have several advantages. Good quality data are available at this scale, consistently collected at regular intervals, and comparable across all U.S. counties. Also, counties are stable geographic units for monitoring trends, as little change in county boundaries occurs over time. Finally, as administrative and political units, counties significantly influence environmental change and can be important partners in park management.

Technical Notes

Appendix 1 provides the data sources for the indicators presented in this atlas. Appendix 2 provides technical information on the design of the maps. Appendix 3 includes endnotes and text that provide additional information on the measurement of selected indicators.

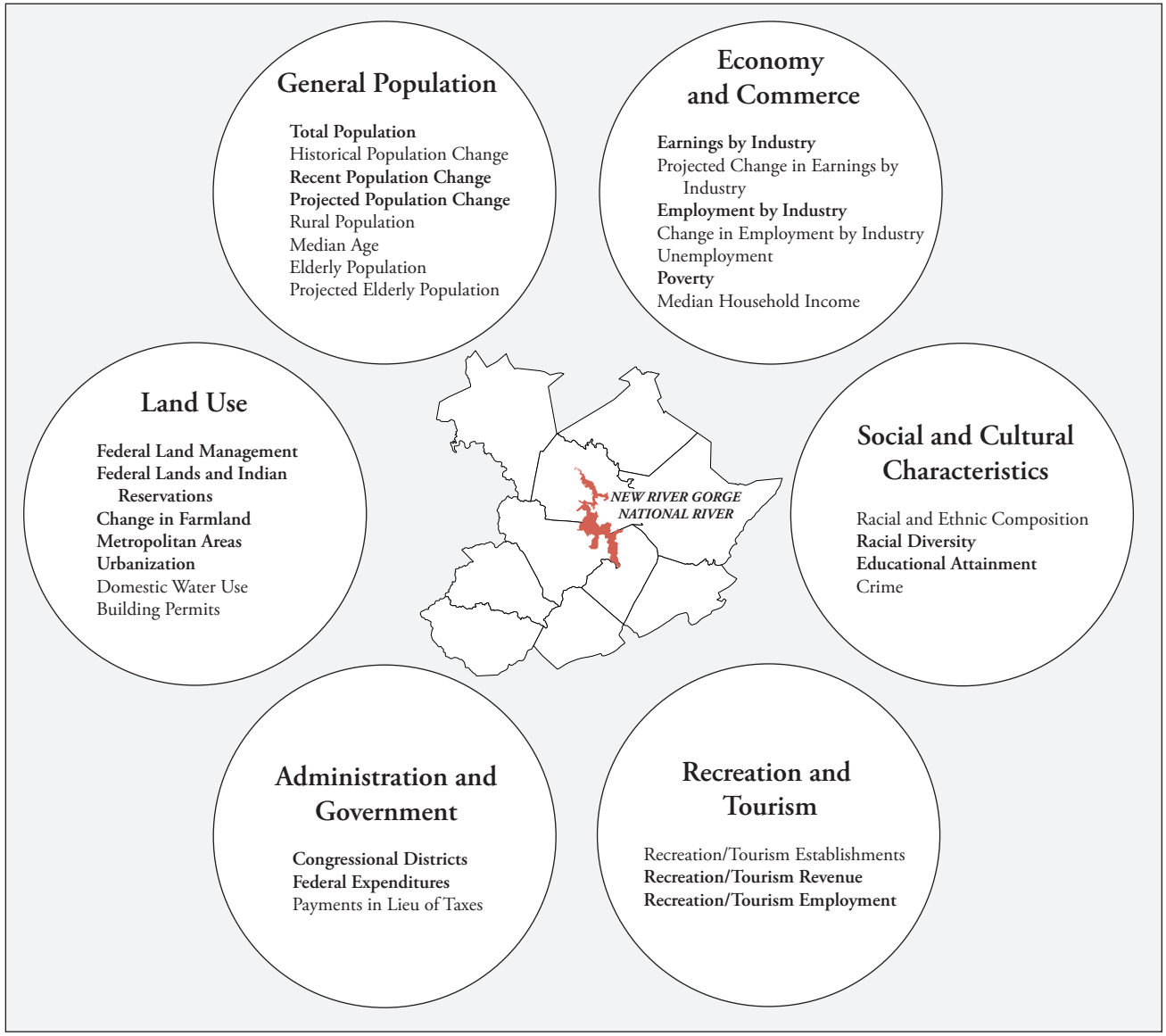


Figure 1. Indicators Included in this Atlas **core indicator** additional indicator

The Region

In selecting the boundaries of the region of interest covered by this atlas, New River Gorge National River (NR) staff were asked to define the geographic area that has the most significant impact on the park's management. Because the atlas relies on county-level socioeconomic data, the region of interest was restricted to entire counties, rather than parts of counties. The region selected includes ten counties in southern West Virginia. The map on the facing page depicts the region in its larger context.

New River Gorge National River is located in southern West Virginia, and protects 53 miles of the New River and over 70,000 acres along its shores. The area designated as a National River is located between Fayetteville and Hinton, approximately 70 miles southeast of Charleston, West Virginia.

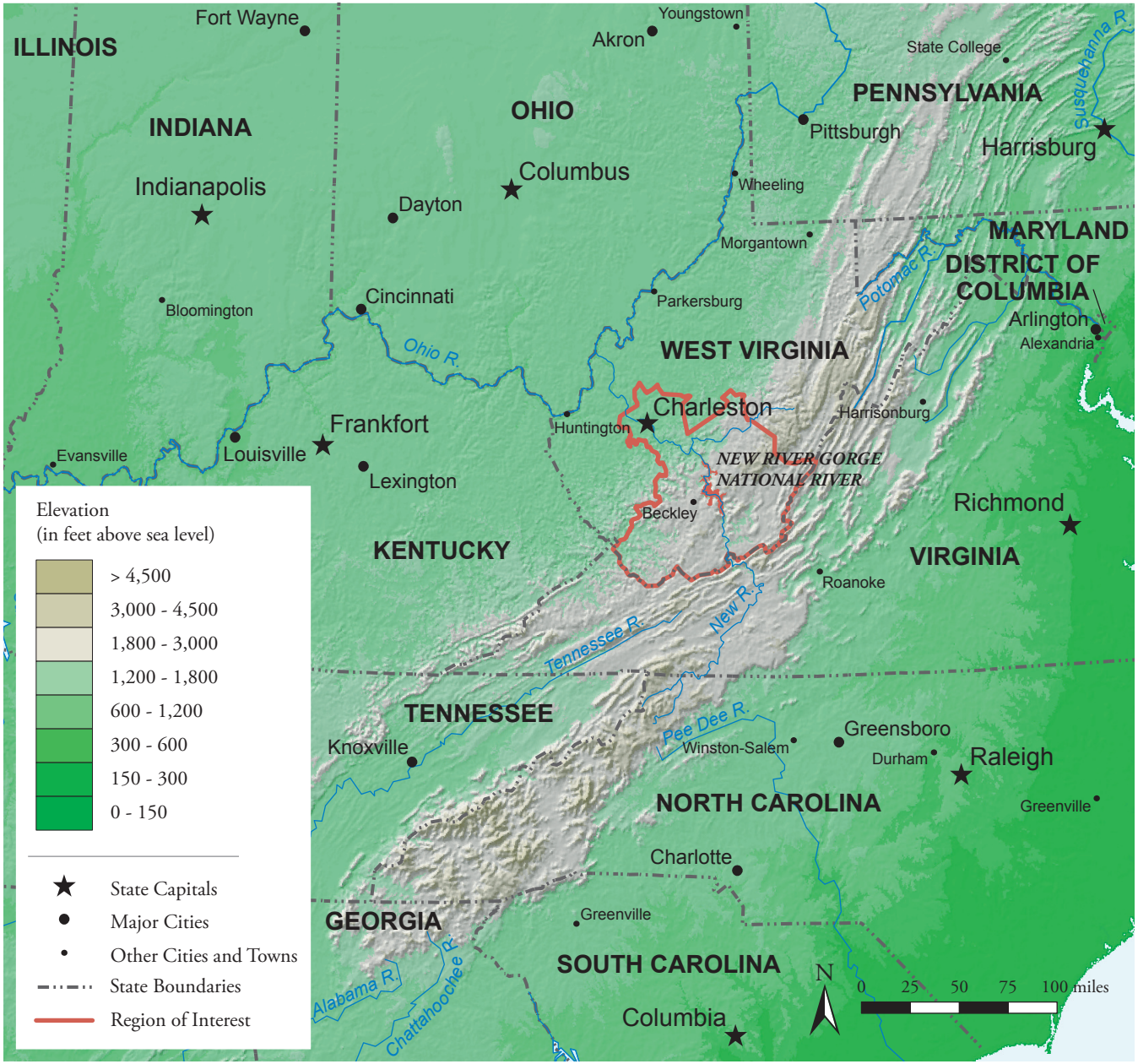
The region is one of scenic beauty with tree-covered mountains and deep cut rivers. Areas of geologic interest have been exposed due to the cutting action of the New River, its tributaries, and other rivers in the region. Recreational opportunities in the rivers, mountains, and caves of the region include boating, hiking, camping, hunting, and fishing. Numerous state, county, and local parks, wildlife management areas, and recreation areas provide opportunities for people to spend their leisure time enjoying the outdoors. The New River Gorge Bridge near Fayetteville is the longest steel arch bridge in the western hemisphere, and the site of an annual festival that attracts tens of thousands of visitors.

Coal is vital to the economy of West Virginia. Both surface mining and deep mining are used. McDowell County has produced more coal than any other county in the state. Other important industries in the region include lumber, livestock, and agriculture (hay and grains). In Raleigh County, health services and tourism are significant industries.

The racial composition of the region is predominantly white. The region is home to an aging population. The median age of the county populations is from four to eight years higher than the national median age of 35.3 years, and the percentage of the population over 65 years old is also higher than the national average in each of the counties in the region.

In addition to New River Gorge NR, the region contains all or parts of other national park units, including, Bluestone National Scenic River, Gauley River National Recreation Area, and Appalachian National Scenic Trail.

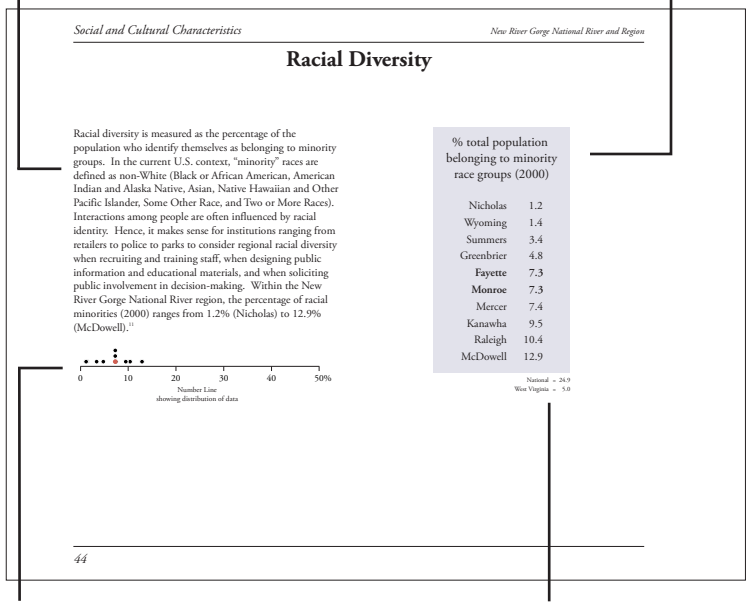
New River Gorge National River and its Region



Using the Socioeconomic Indicators and Maps

The socioeconomic indicators for the New River Gorge National River region of interest are presented in a series of maps. The best available county-level data are presented for each indicator. The following information is provided for each indicator:

- a brief description of the socioeconomic indicator and an observation about the spatial variation in the data as displayed on the map.
- a table that shows the data and relative rank for each county. The median value is highlighted in bold. The table allows the reader to look up and compare specific indicator values for each county.
- a map legend describing how the indicator is measured, the year that the data were gathered, and the range of values for each quartile grouping.
- the name of the general category to which this particular indicator belongs (such as general population or land use). Maps in the same general category share similar sets of color symbols.



Social and Cultural Characteristics *New River Gorge National River and Region*

Racial Diversity

Racial diversity is measured as the percentage of the population who identify themselves as belonging to minority groups. In the current U.S. context, "minority" races are defined as non-White (Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Races). Interactions among people are often influenced by racial identity. Hence, it makes sense for institutions ranging from retailers to police to parks to consider regional racial diversity when recruiting and training staff, when designing public information and educational materials, and when soliciting public involvement in decision-making. Within the New River Gorge National River region, the percentage of racial minorities (2000) ranges from 1.2% (Nicholas) to 12.9% (McDowell).[11]

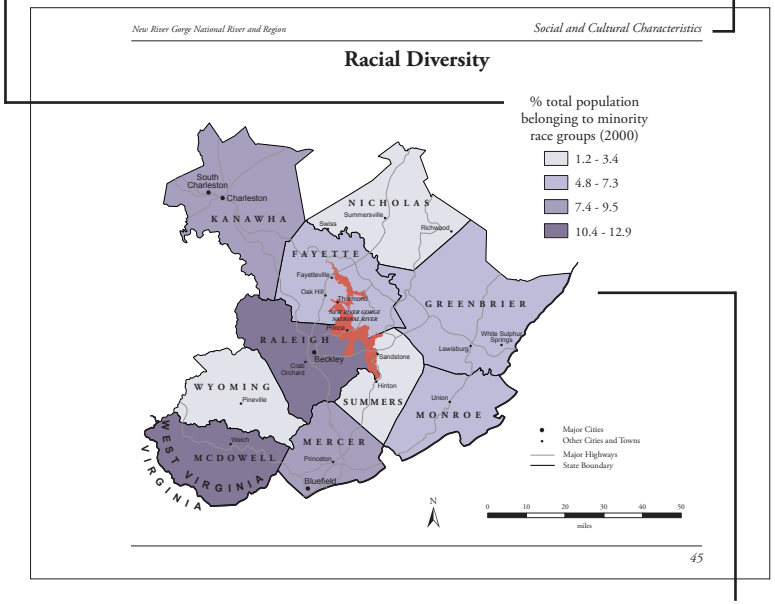
0 10 20 30 40 50%

Number Line showing distribution of data

% total population belonging to minority race groups (2000)	
Nicholas	1.2
Wyoming	1.4
Summers	3.4
Greenbrier	4.8
Fayette	**7.3**
Monroe	**7.3**
Mercer	7.4
Kanawha	9.5
Raleigh	10.4
McDowell	12.9

National = 24.9
West Virginia = 5.0

44



New River Gorge National River and Region *Social and Cultural Characteristics*

Racial Diversity

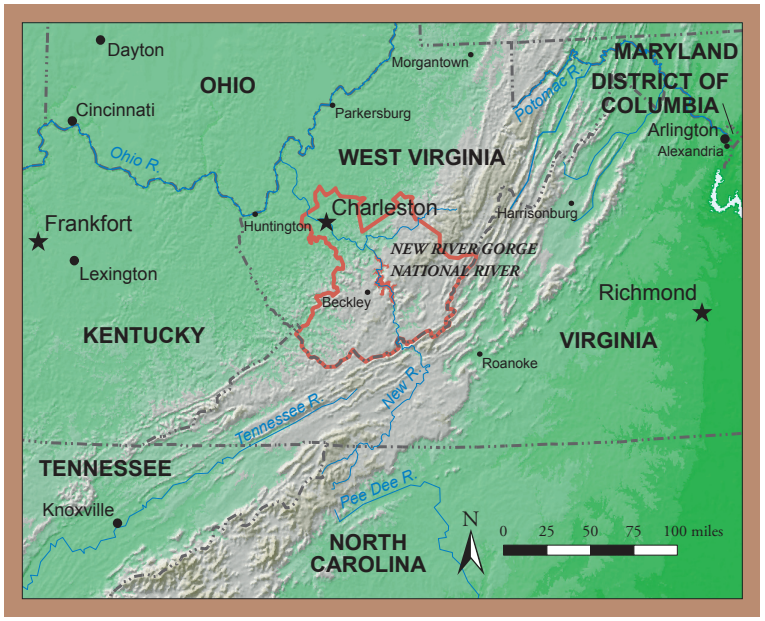
% total population belonging to minority race groups (2000)

1.2 - 3.4
4.8 - 7.3
7.4 - 9.5
10.4 - 12.9

45

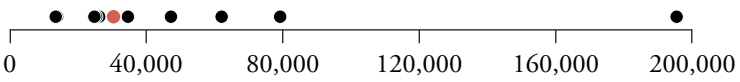
- a number line that shows the distribution of values for the indicator, useful in understanding patterns in the data. The median value is represented by a **red** dot.
- a section displaying national and state data that can be compared with regional county data.
- a map that displays general patterns inherent in the data. For most indicators, counties are grouped into four classes that correspond to four sub-ranges of data values. These groups are called quartiles. The highest-ranked quartile receives the darkest shading. For more information on quartile classification, see Appendix 2, page 83.

The Socioeconomic Indicators



Total Population

Population size is one of the most important influences on the character of human activities in a place and a key influence on resource use. People bring labor, knowledge, and economic activity to a place. At the same time, they generate demand for natural resources, goods, and services ranging from food to recreational opportunities. Within the New River Gorge National River region, county population (2003) ranges from 13,503 (Monroe) to 195,413 (Kanawha).[1]



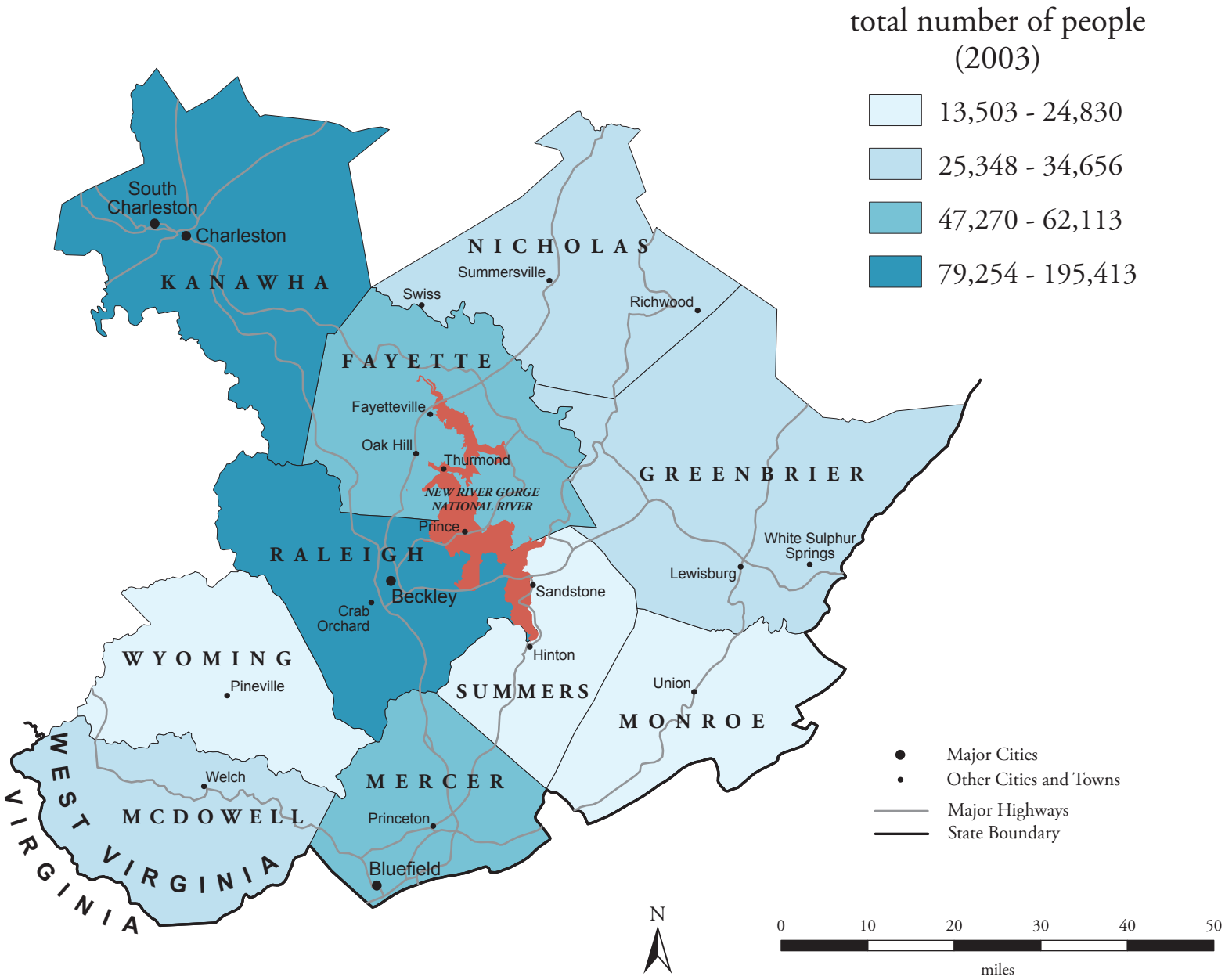
Number Line
showing distribution of data

total number of people (2003)	
Monroe	13,503
Summers	13,917
Wyoming	24,830
McDowell	25,348
Nicholas	26,243
Greenbrier	34,656
Fayette	47,270
Mercer	62,113
Raleigh	79,254
Kanawha	195,413

30,450

National = 290,809,777
West Virginia = 1,810,354

Total Population



Historical Population Change

Population change is due to births, deaths, and migration. Trends in historical population change (1970 - 1990) provide a context from which to view recent population change (1990 - 2000). The direction and rate of population change are important socioeconomic trends. For example, population growth increases the size of the economy and can generate changes in land use that affect natural ecosystems. Within the New River Gorge National River region, county growth rates (1970 - 1990) ranged from a decrease of 31.0% (McDowell) to an increase of 18.0% (Nicholas).

Number Line
showing distribution of data

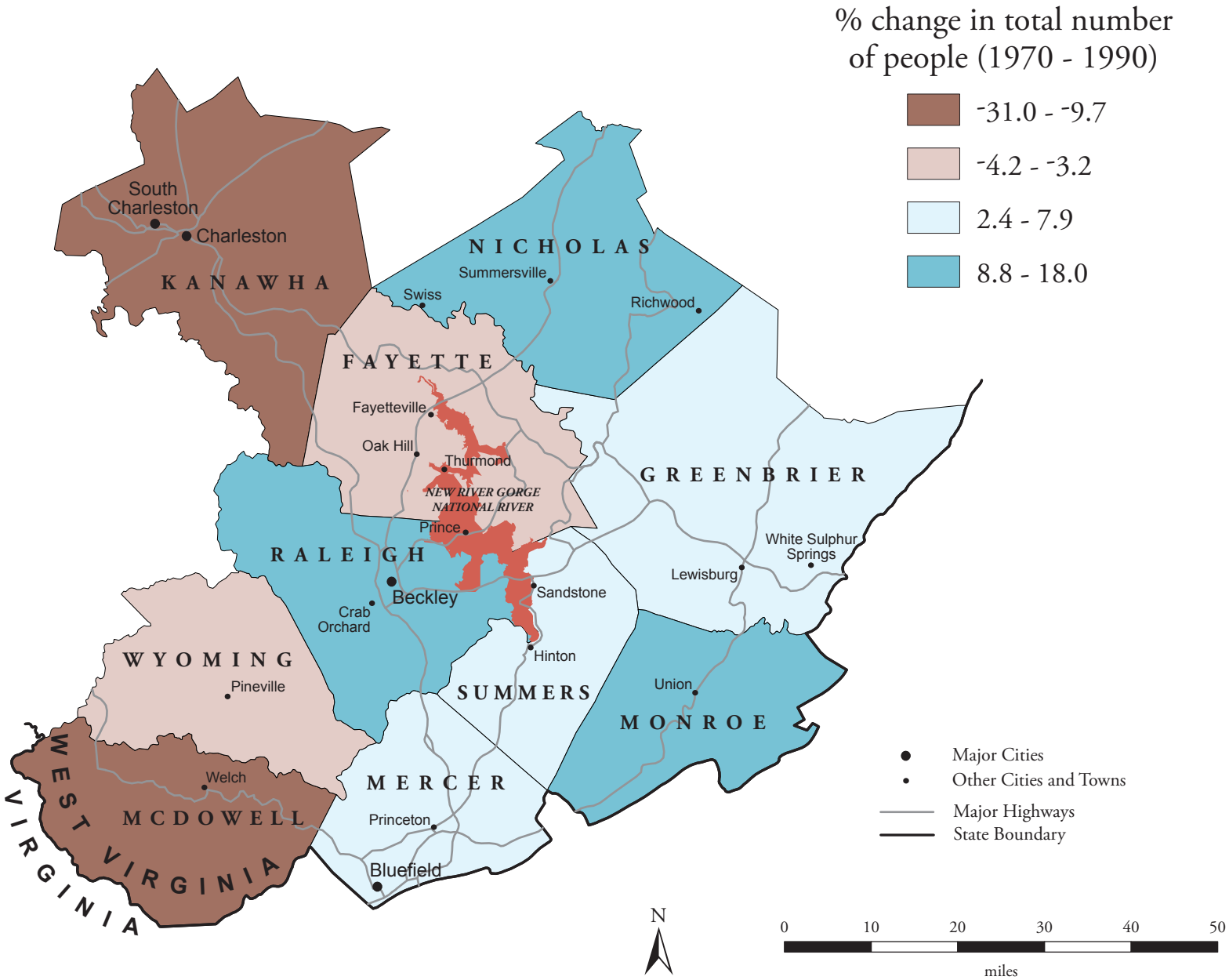
% change in total number of people (1970 - 1990)

McDowell	-31.0
Kanawha	-9.7
Wyoming	-4.2
Fayette	-3.2
Mercer	2.4
Summers	5.6
Greenbrier	7.9
Raleigh	8.8
Monroe	9.5
Nicholas	18.0

4.0

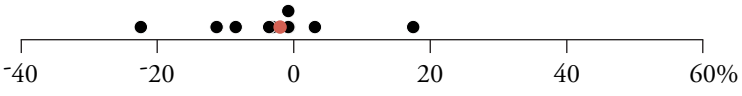
National = 22.3
West Virginia = 2.5

Historical Population Change



Recent Population Change

Measuring recent population change provides an indication of the extent to which population change is influencing current local or regional priorities. For example, population growth changes the tax base, adds new voters, and can increase demand for services ranging from schools to transportation to outdoor recreation. Within the New River Gorge National River region, the recent change in county population (1990 - 2000) ranges from a decrease of 22.4% (McDowell) to an increase of 17.5% (Monroe).



Number Line
showing distribution of data

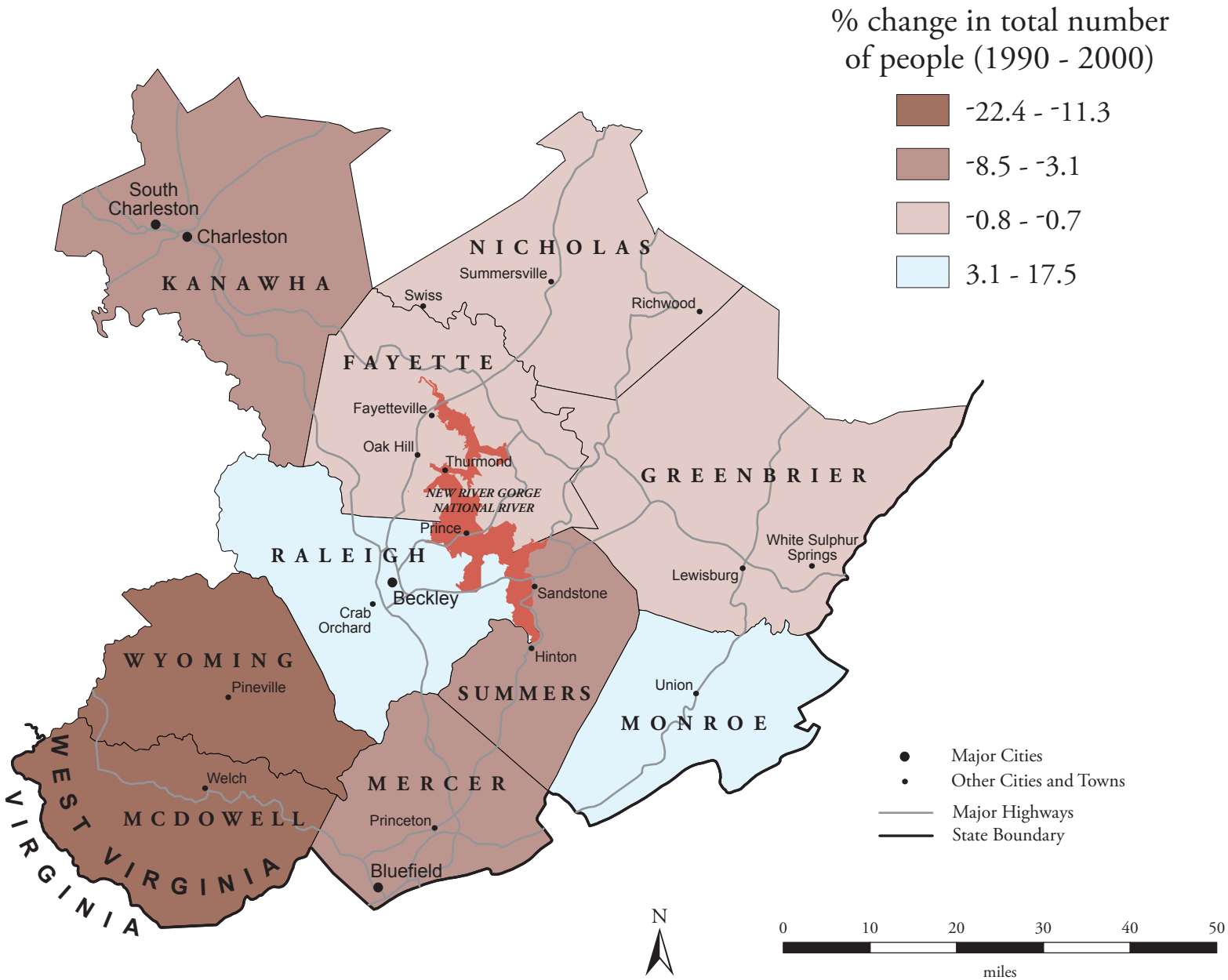
% change in total number of people (1990 - 2000)

McDowell	-22.4
Wyoming	-11.3
Summers	-8.5
Kanawha	-3.6
Mercer	-3.1
Fayette	-0.8
Nicholas	-0.8
Greenbrier	-0.7
Raleigh	3.1
Monroe	17.5

-2.0

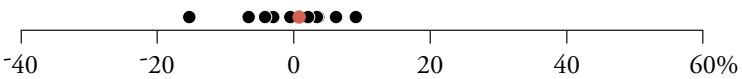
National = 13.2
West Virginia = 0.8

Recent Population Change



Projected Population Change

Population projections can be made with some accuracy for short and mid-range time spans. Projections can help planners anticipate potential impacts on park resources. For example, population growth can generate changes in land use and transportation, growth of new and existing communities, and increases in the demand for park experiences. Within the New River Gorge National River region, the projected change in county population by the year 2020 ranges from a decrease of 15.3% (McDowell) to an increase of 9.1% (Monroe).[2]



Number Line
showing distribution of data

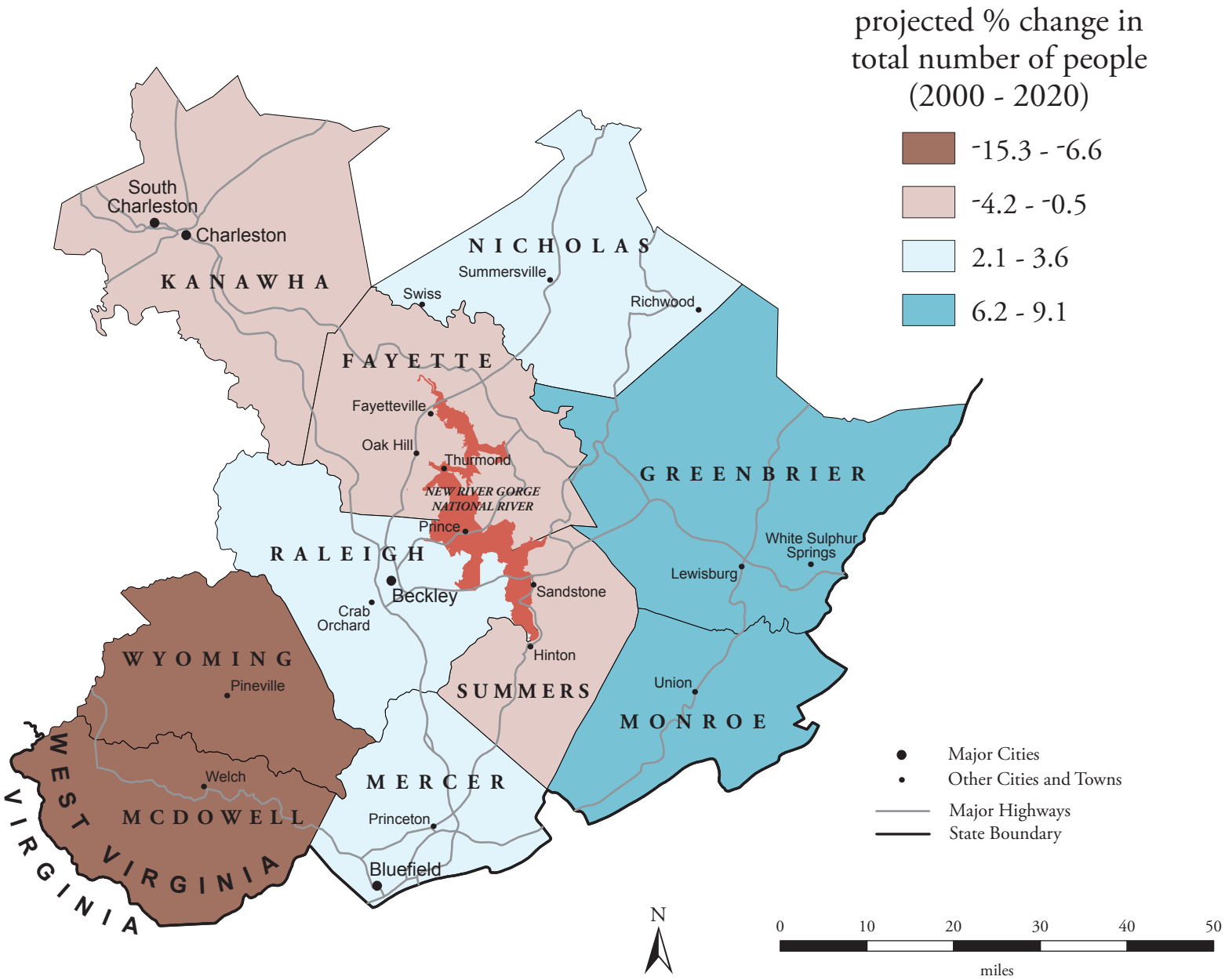
projected % change in total number of people (2000 - 2020)

McDowell	-15.3
Wyoming	-6.6
Kanawha	-4.2
Fayette	-3.0
Summers	-0.5
Nicholas	2.1
Raleigh	3.4
Mercer	3.6
Greenbrier	6.2
Monroe	9.1

0.8

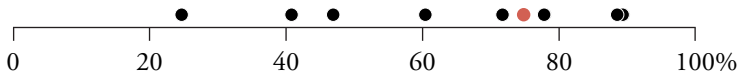
National = 21.1
West Virginia = 5.3

Projected Population Change



Rural Population

The rural population of a county consists of people who live outside urban areas. Rural dwellers may be less dependent on government for services, such as water supply and police protection. Local networks of neighbors and community groups are likely to be very important in civic life and for rural identity. Rural dwellers may also be accustomed to significant autonomy regarding decisions about land use. Differences in attitudes toward taxation, government, development, and environmental protection between urban and rural dwellers may produce competing visions for a region's future. Within the New River Gorge National River region, the percent of the county population living in rural areas (2000) ranges from 24.7% (Kanawha) to 89.4% (Monroe).[3]



Number Line
showing distribution of data

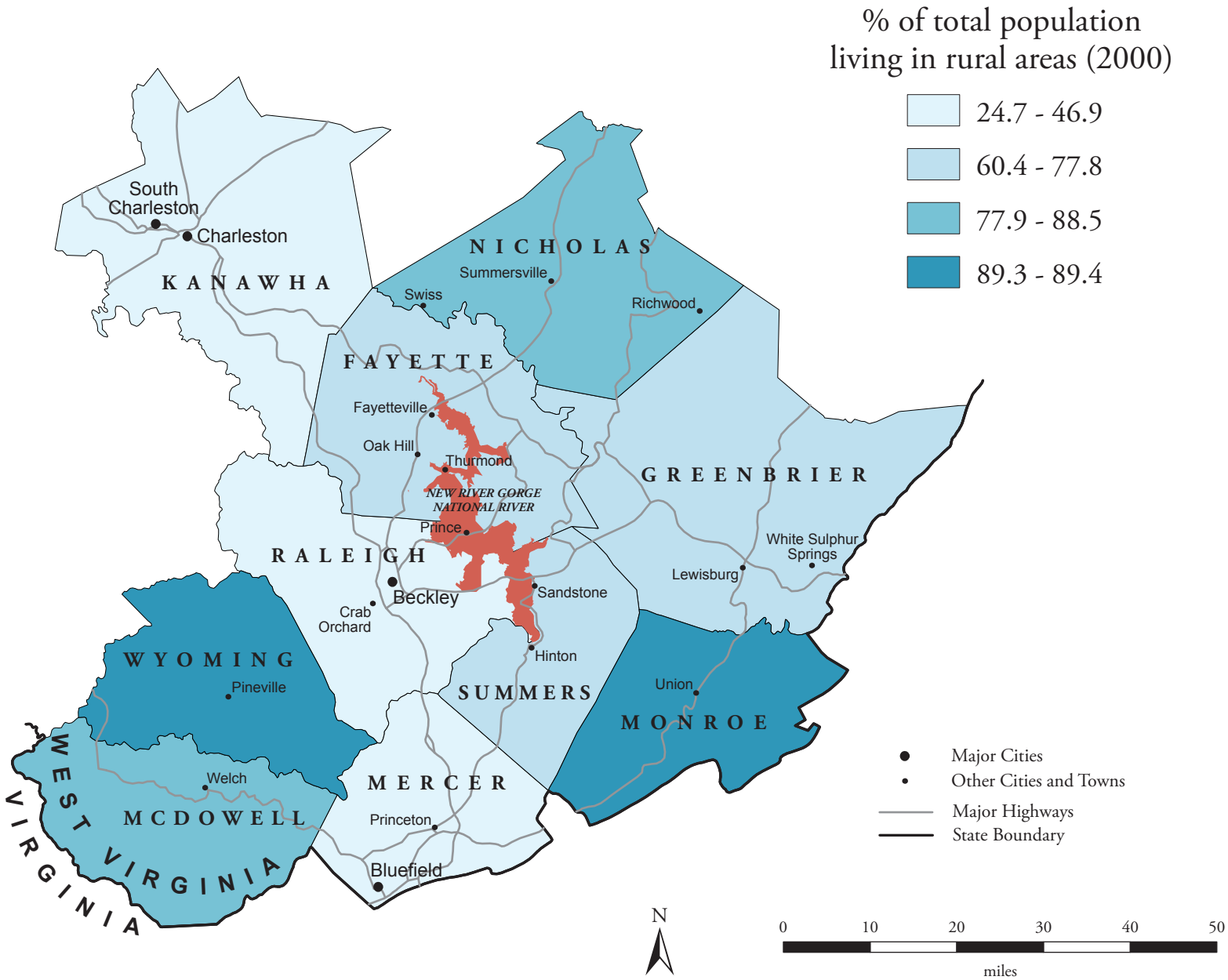
% of total population living in rural areas (2000)

Kanawha	24.7
Raleigh	40.8
Mercer	46.9
Fayette	60.4
Greenbrier	71.7
Summers	77.8
Nicholas	77.9
McDowell	88.5
Wyoming	89.3
Monroe	89.4

74.8

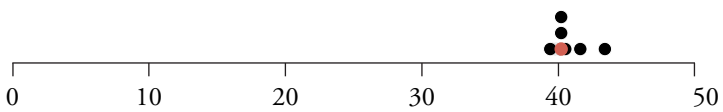
National = 21.0
West Virginia = 53.9

Rural Population



Median Age

Median age expresses the age of a "typical" county resident for whom half the population is older and half is younger. Just as age is an important influence on individual behavior, the median age of a county's population can influence its character in many ways. For example, a relatively young county population might place a higher priority on schools, while a relatively old county population might place a higher priority on health care. Within the New River Gorge National River region, the median age of the total population (2000) ranges from 39.4 (Nicholas) to 43.4 (Summers).

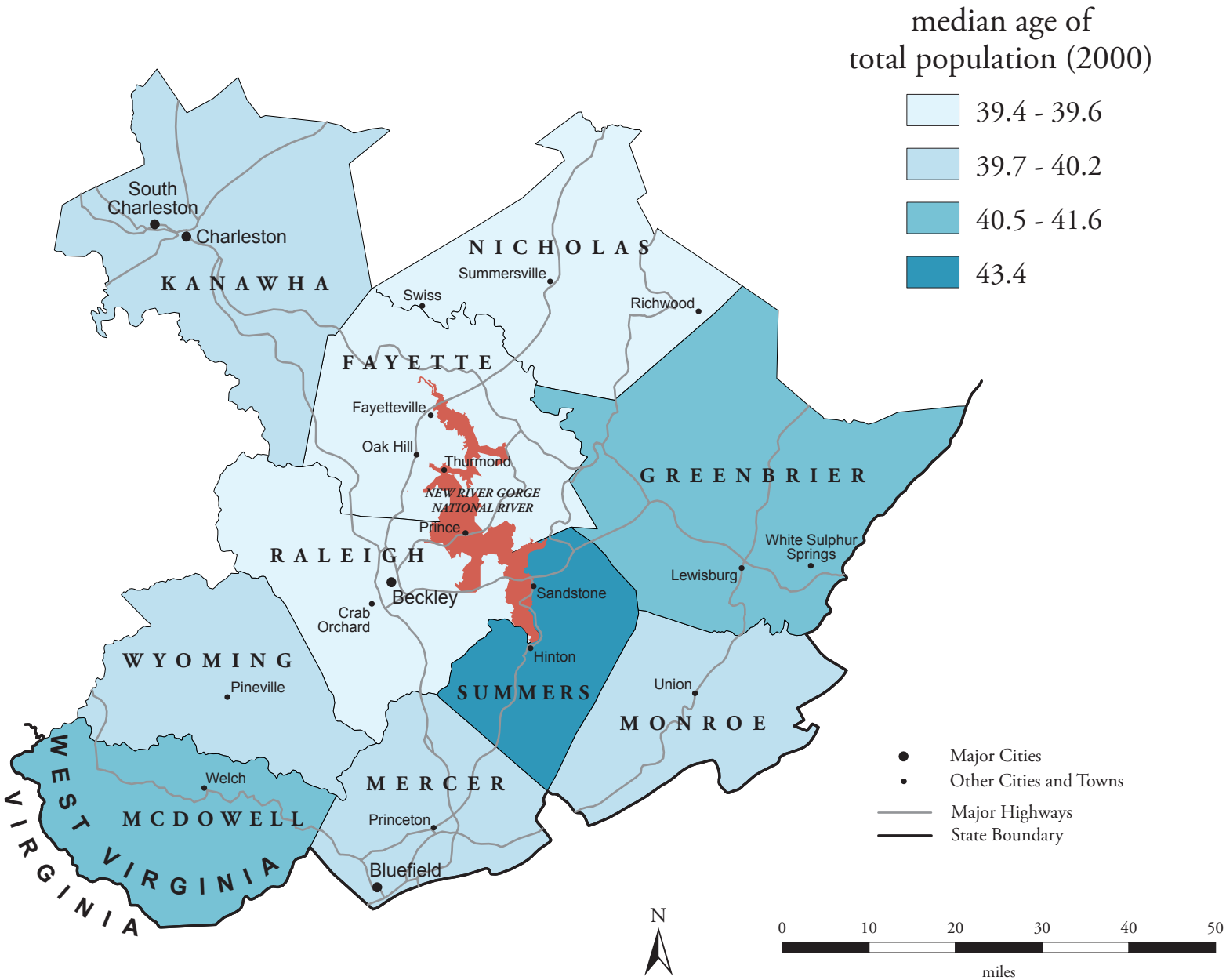


Number Line
showing distribution of data

median age of total population (2000)	
Nicholas	39.4
Raleigh	39.5
Fayette	39.6
Monroe	39.7
Wyoming	40.1
Kanawha	**40.2**
Mercer	**40.2**
McDowell	40.5
Greenbrier	41.6
Summers	43.4

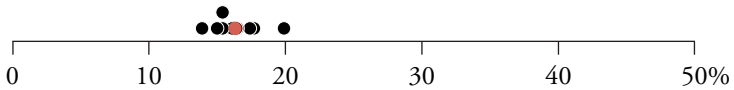
National = 35.3
West Virginia = 38.9

Median Age


median age of
total population (2000)
39.4 - 39.6
39.7 - 40.2
40.5 - 41.6
43.4
South Charleston
Charleston
KANAWHA
NICHOLAS
Summersville
Swiss
Richwood
FAYETTE
Fayetteville
Oak Hill
Thurmond
NEW RIVER GORGE NATIONAL RIVER
Prince
GREENBRIER
White Sulphur Springs
Lewisburg
RALEIGH
Beckley
Crab Orchard
Sandstone
Hinton
SUMMERS
WYOMING
Pineville
Union
MONROE
WEST VIRGINIA
Welch
MCDOWELL
MERCER
Princeton
Bluefield
VIRGINIA
Major Cities
Other Cities and Towns
Major Highways
State Boundary
N
0 10 20 30 40 50
miles

Elderly Population

The size of a county's elderly population is measured as the percentage of its residents who are 65 years old and over. In counties with a higher percentage of older people, there may be a higher demand for health care and recreational activities more suited to the elderly. There may also be a net inflow of dollars into the local economy in the form of medical, retirement, and disability payments. Aspects of civic life ranging from volunteerism to political participation may also be influenced by the size of the elderly population. The needs and interests of the regional elderly population can influence park management in many ways, including design of facilities, development of interpretive programs, recruitment of volunteers, and visitor use schedules and preferences. Within the New River Gorge National River region, the percentage of county residents 65 years old and over (2000) ranges from 13.9% (Wyoming) to 19.9% (Summers).



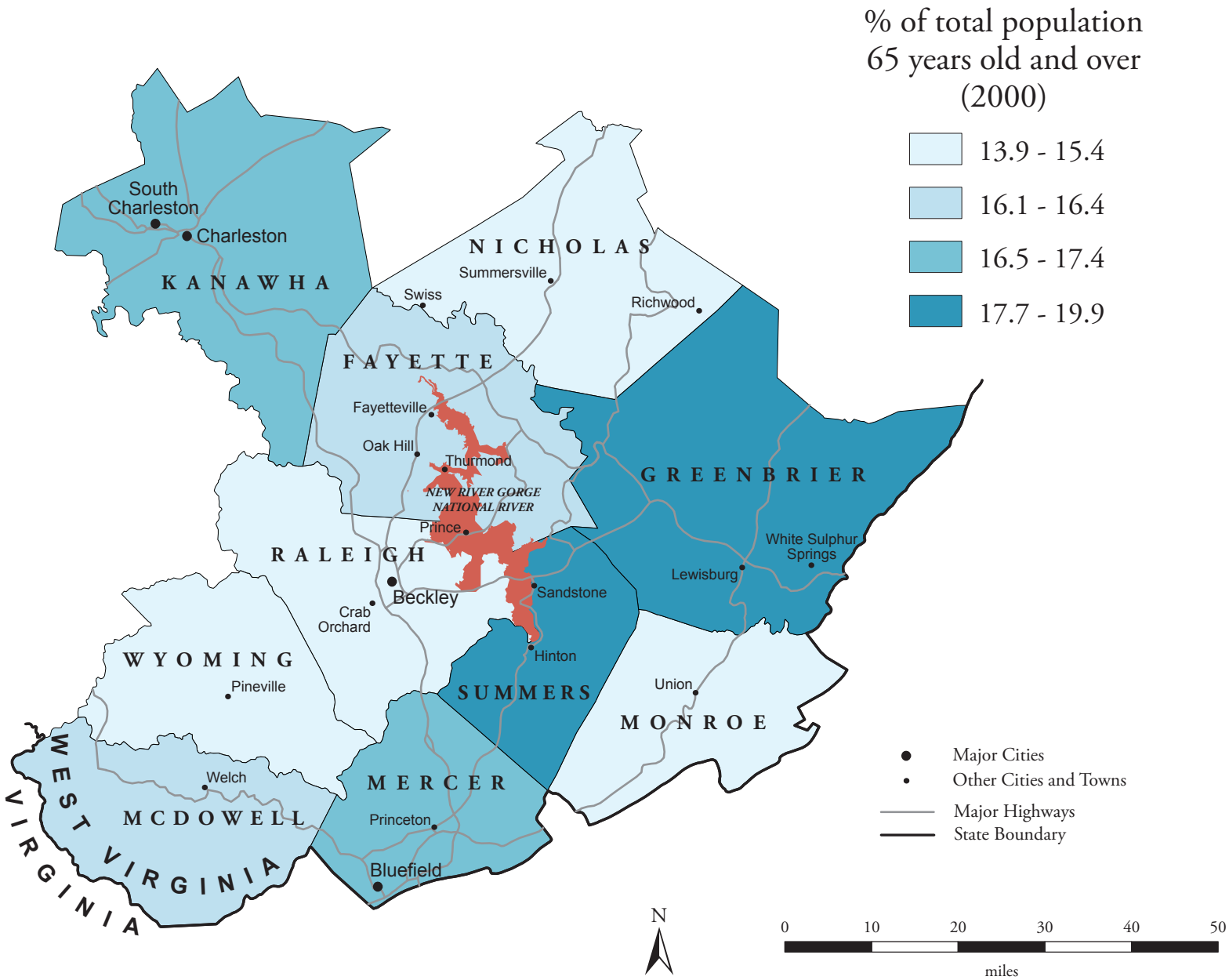
Number Line
showing distribution of data

% of total population 65 years old and over (2000)	
Wyoming	13.9
Nicholas	15.0
Raleigh	15.4
Monroe	15.4
McDowell	16.1
Fayette	16.4
Kanawha	16.5
Mercer	17.4
Greenbrier	17.7
Summers	19.9

16.3

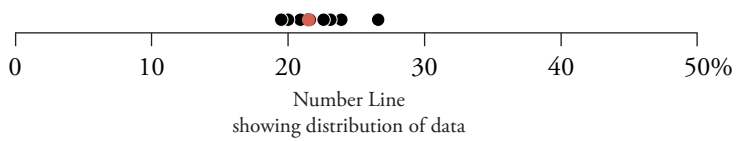
National = 12.4
West Virginia = 15.3

Elderly Population



Projected Elderly Population

Changes in the percent of the population who are 65 years old and over are projected from recent population data. A variety of factors can lead to increases in the population of elderly residents, including increased longevity due to changes in health care, out-migration by younger people for employment or education, or in-migration by retirees. Planning for increases in an elderly population may include changes in facility design and an expansion of programs that suit the needs and interests of elderly visitors and volunteers. Within the New River Gorge National River region, the projected percentage of county residents 65 years old and over (2020) ranges from 19.5% (Raleigh) to 26.6% (Summers).



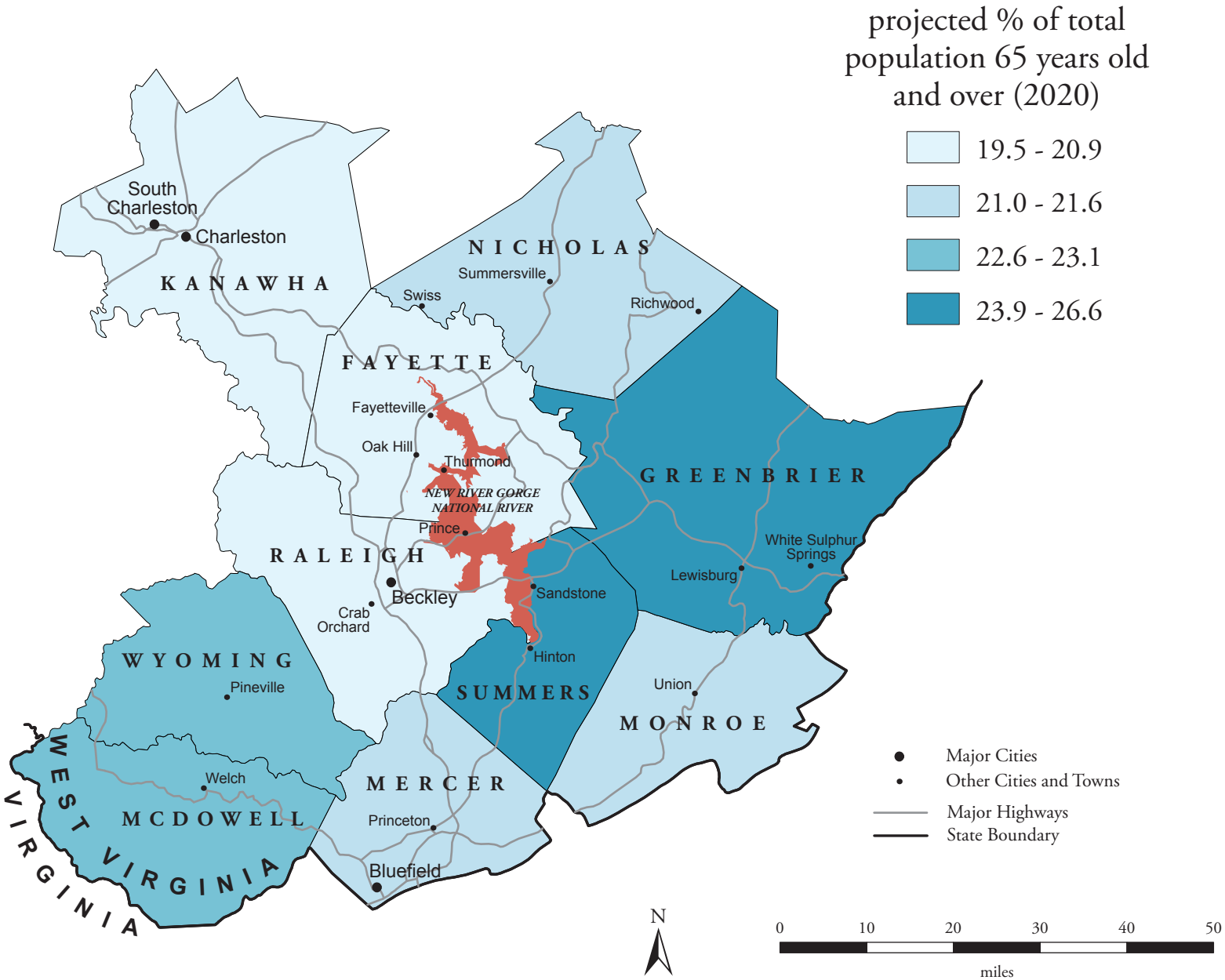
projected % of total population 65 years old and over (2020)

Raleigh	19.5
Kanawha	20.0
Fayette	20.9
Nicholas	21.0
Monroe	21.4
Mercer	21.6
McDowell	22.6
Wyoming	23.1
Greenbrier	23.9
Summers	26.6

21.5

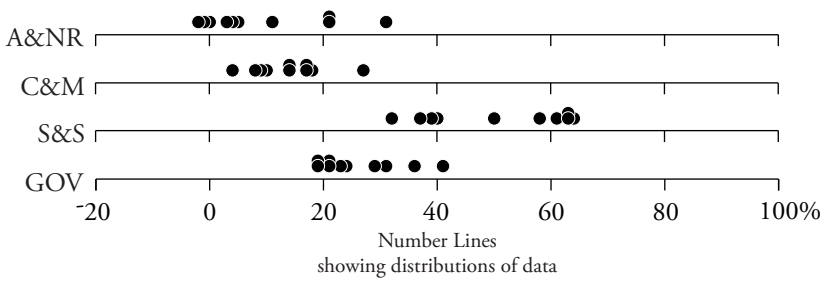
National = 16.0
West Virginia = 21.1

Projected Elderly Population



Earnings by Industry

Earnings by industry are indicative of the overall size of a local economy as well as the relative importance of each major industrial sector within that economy. The diversity of economic activities in the region presents an array of challenges to park management. For example, relatively mobile industries such as light manufacturing or financial services may be concerned with land costs and tax rates, whereas natural resource dependent industries such as farming or mining may be concerned with land use regulations and other environmental policies. Within the New River Gorge National River region (1999), the leading sector of earnings in 9 of the 10 counties is Sales and Services. The second-ranking sector is Government.[4]



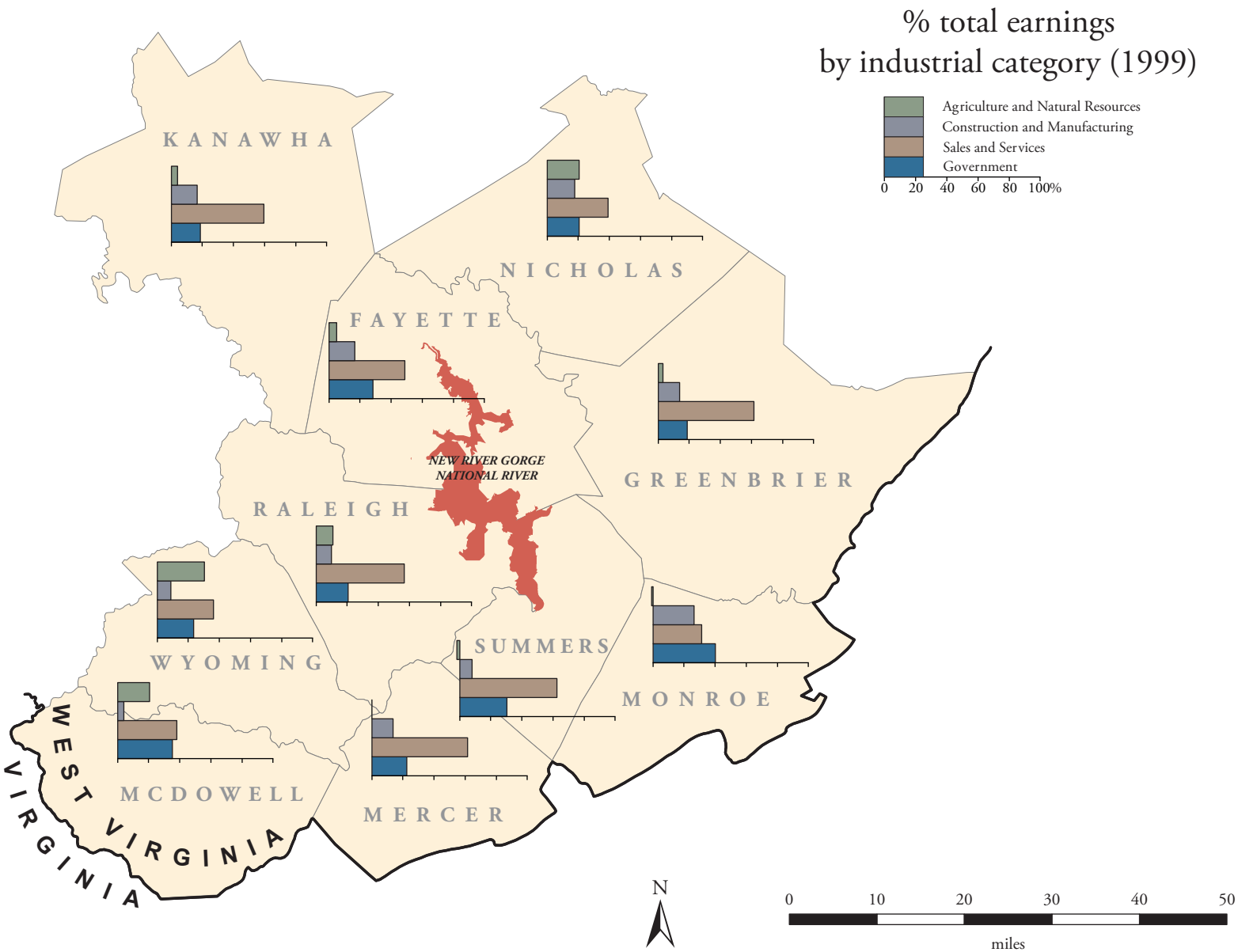
% total earnings
by industrial category (1999)

	A&NR	C&M	S&S	GOV
Fayette	5	17	50	29
Greenbrier	3	14	63	19
Kanawha	4	17	61	19
McDowell	21	4	39	36
Mercer	0	14	63	23
Monroe	-1	27	32	41
Nicholas	21	18	40	21
Raleigh	11	10	58	21
Summers	-2	8	64	31
Wyoming	31	9	37	24
National	2	22	60	16
West Virginia	6	20	52	22

A&NR = Agriculture and Natural Resources
C&M = Construction and Manufacturing
S&S = Sales and Services
GOV = Government

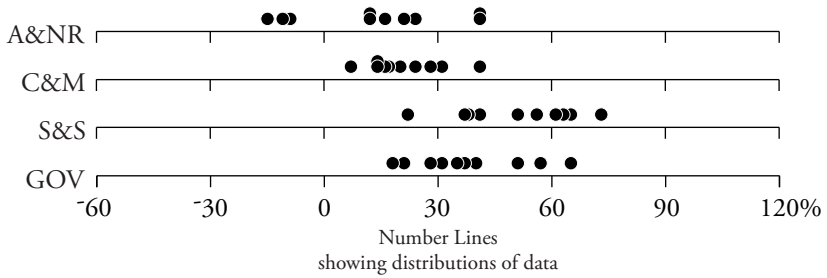
Percentages may not add to one hundred due to rounding.

Earnings by Industry



Projected Change in Earnings by Industry

Projected change in earnings by industry may be indicative of growth, stability, or decline in specific sectors of the local economy in each county. Such projections may serve as an early predictor of localized economic restructuring. Different economic activities within the region present an array of challenges to park management. Monitoring trends in the relative stability of these economic activities can assist park managers in being responsive to change. Within the New River Gorge National River region (2000-2020), the sectors that show the largest projected increases are Construction and Manufacturing and Sales and Services.[5]

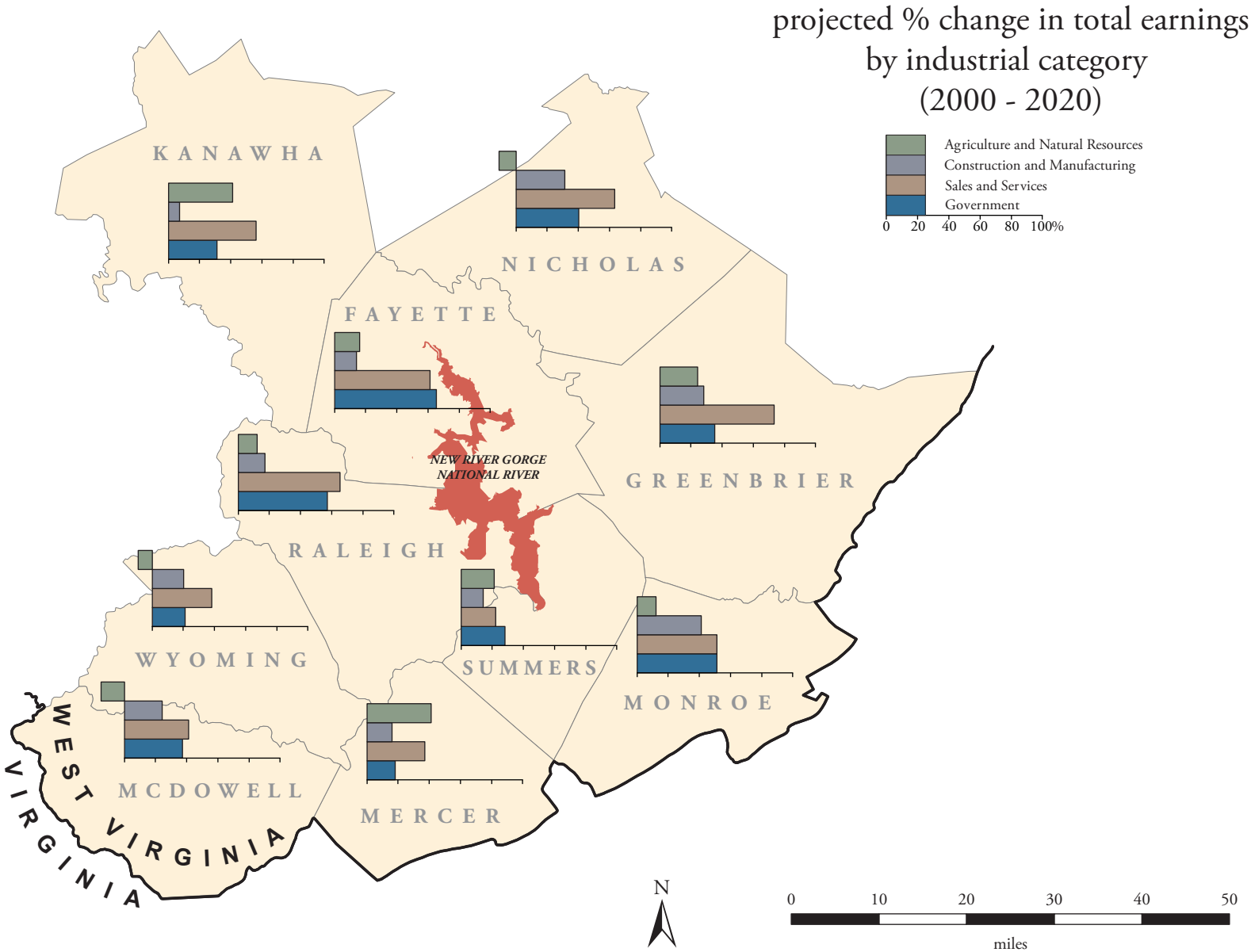


projected % change in total earnings by industrial category (2000 - 2020)

	A&NR	C&M	S&S	GOV
Fayette	16	14	61	65
Greenbrier	24	28	73	35
Kanawha	41	7	56	31
McDowell	-15	24	41	37
Mercer	41	16	37	18
Monroe	12	41	51	51
Nicholas	-11	31	63	40
Raleigh	12	17	65	57
Summers	21	14	22	28
Wyoming	-9	20	38	21
National	38	29	63	39
West Virginia	22	18	60	42

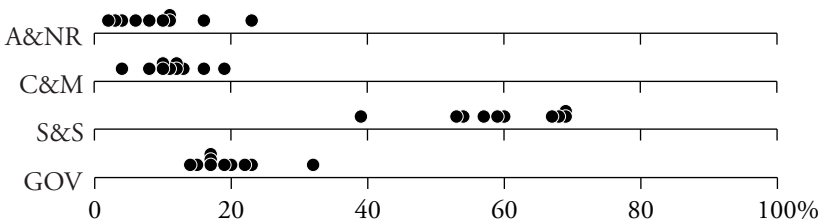
A&NR = Agriculture and Natural Resources
C&M = Construction and Manufacturing
S&S = Sales and Services
GOV = Government

Projected Change in Earnings by Industry



Employment by Industry

One indicator of the way a particular county's job market is structured is the percentage of workers employed in each of the four major industrial sectors. This employment distribution is indicative of the kinds of skills, knowledge, and concerns that are most prevalent among workers. Occupational patterns can influence people's priorities and actions with regard to parks and resource protection. For example, construction workers might welcome the prospect of rapid growth, whereas government workers such as teachers and police might worry that rapid growth would stress existing government resources. Within the New River Gorge National River region (1999), the leading sector of employment in all 10 counties is Sales and Services. The second-ranking sector is Government.[6]



Number Lines
showing distributions of data

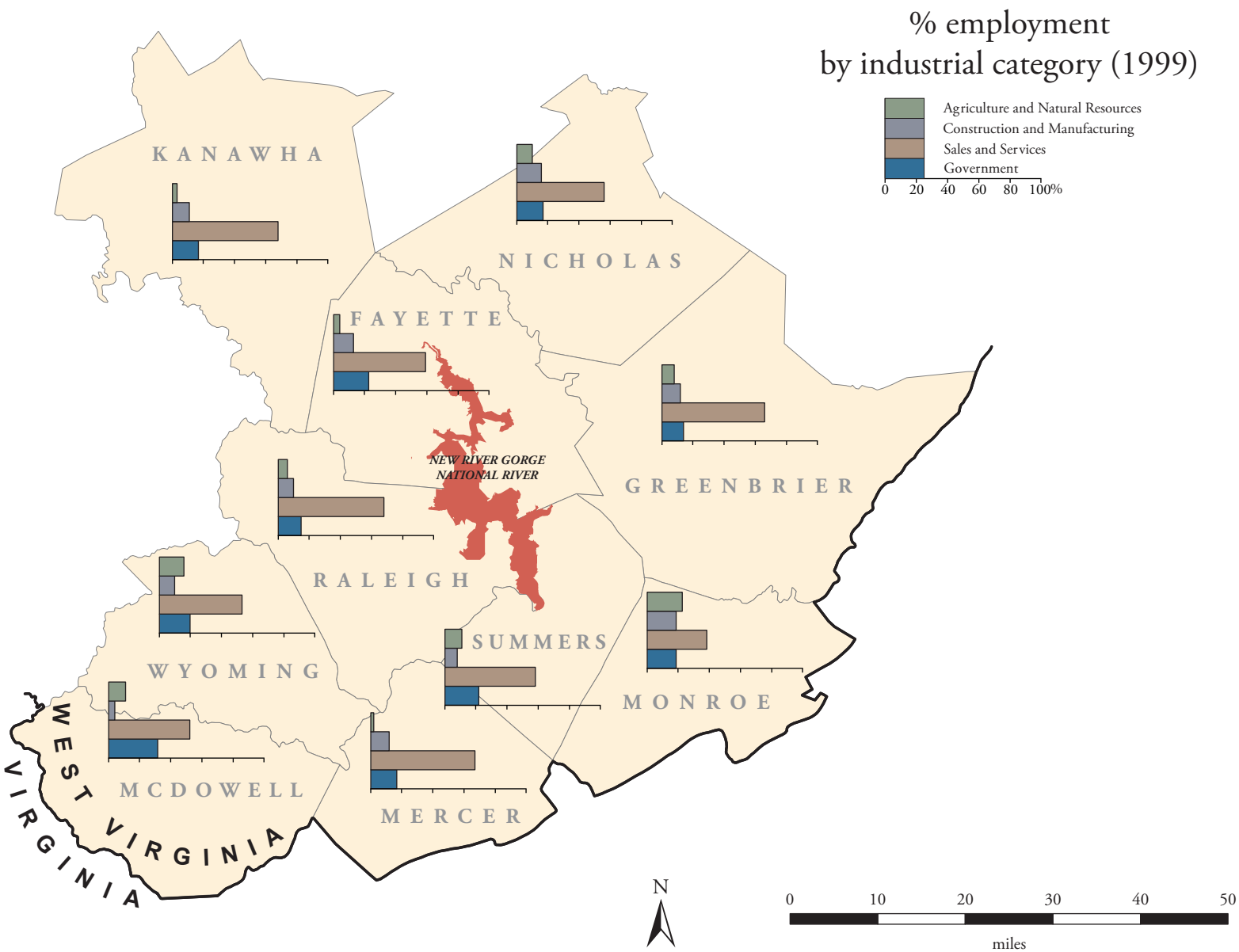
% employment
by industrial category (1999)

	A&NR	C&M	S&S	GOV
Fayette	4	13	60	23
Greenbrier	8	12	67	14
Kanawha	3	11	69	17
McDowell	11	4	53	32
Mercer	2	12	68	17
Monroe	23	19	39	19
Nicholas	10	16	57	17
Raleigh	6	10	69	15
Summers	11	8	59	22
Wyoming	16	10	54	20
National	4	17	65	14
West Virginia	6	15	61	17

A&NR = Agriculture and Natural Resources
C&M = Construction and Manufacturing
S&S = Sales and Services
GOV = Government

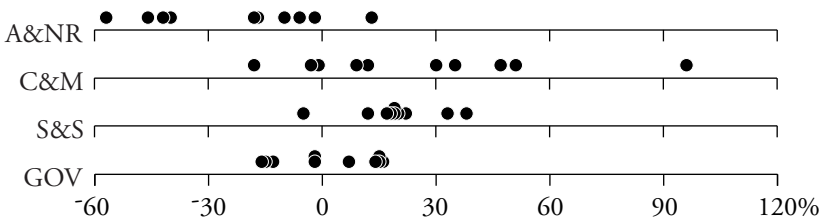
Percentages may not add to one hundred due to rounding.

Employment by Industry



Change in Employment by Industry

Jobs are of critical importance to individuals, families, and communities. Change in the proportion of people employed by various industries within an economy can create a cascading set of impacts. A declining industry's displacement of workers whose skills are in less demand can generate stress within households and communities. A growing industry's demand for new sets of skills can influence migration patterns and educational priorities. Local and regional political decisions, including those that impact park management goals, often place priority on protecting existing jobs or attracting new employment opportunities. Within the New River Gorge National River region (1990 - 1999), high employment decreases in Agriculture and Natural Resources occur in 7 counties while Construction and Manufacturing and Sales and Services had the greatest increases in employment.[7]



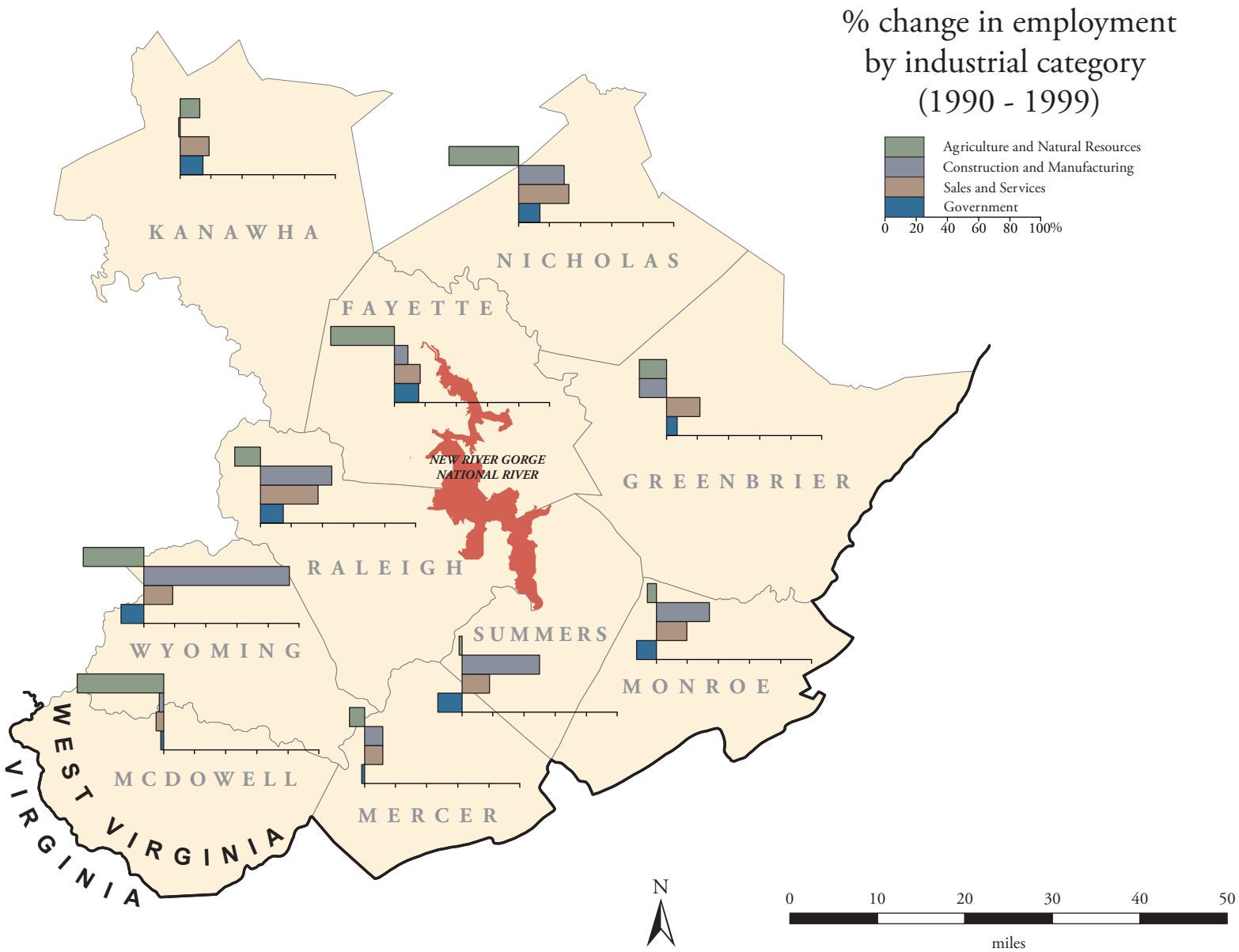
Number Lines
showing distributions of data

A&NR = Agriculture and Natural Resources
C&M = Construction and Manufacturing
S&S = Sales and Services
GOV = Government

% change in employment
by industrial category
(1990 - 1999)

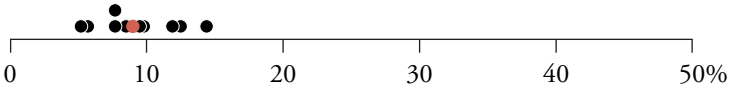
	A&NR	C&M	S&S	GOV
Fayette	-42	9	17	16
Greenbrier	-18	-18	22	7
Kanawha	13	-1	19	15
McDowell	-57	-3	-5	-2
Mercer	-10	12	12	-2
Monroe	-6	35	20	-13
Nicholas	-46	30	33	14
Raleigh	-17	47	38	15
Summers	-2	51	18	-16
Wyoming	-40	96	19	-15
National	6	6	25	5
West Virginia	-20	1	22	9

Change in Employment by Industry



Unemployment

The unemployment rate is one measure of participation in the civilian labor force. Jobs are of critical importance to individuals, families, and communities. Low unemployment rates indicate that the supply of jobs is sufficient to meet demand. Higher employment rates suggest that local economies may be too weak to support demand, or that the skills required for available jobs do not match those of the labor force, and local economies may be undergoing some transformation. A situation of high unemployment may generate stress within households and communities. Local and regional political decisions, including those that impact park management goals, often place priority on protecting existing jobs or attracting new employment opportunities. Within the New River Gorge National River region, unemployment (1999) ranges from 5.2% (Monroe) to 14.4% (McDowell).[8]



Number Line
showing distribution of data

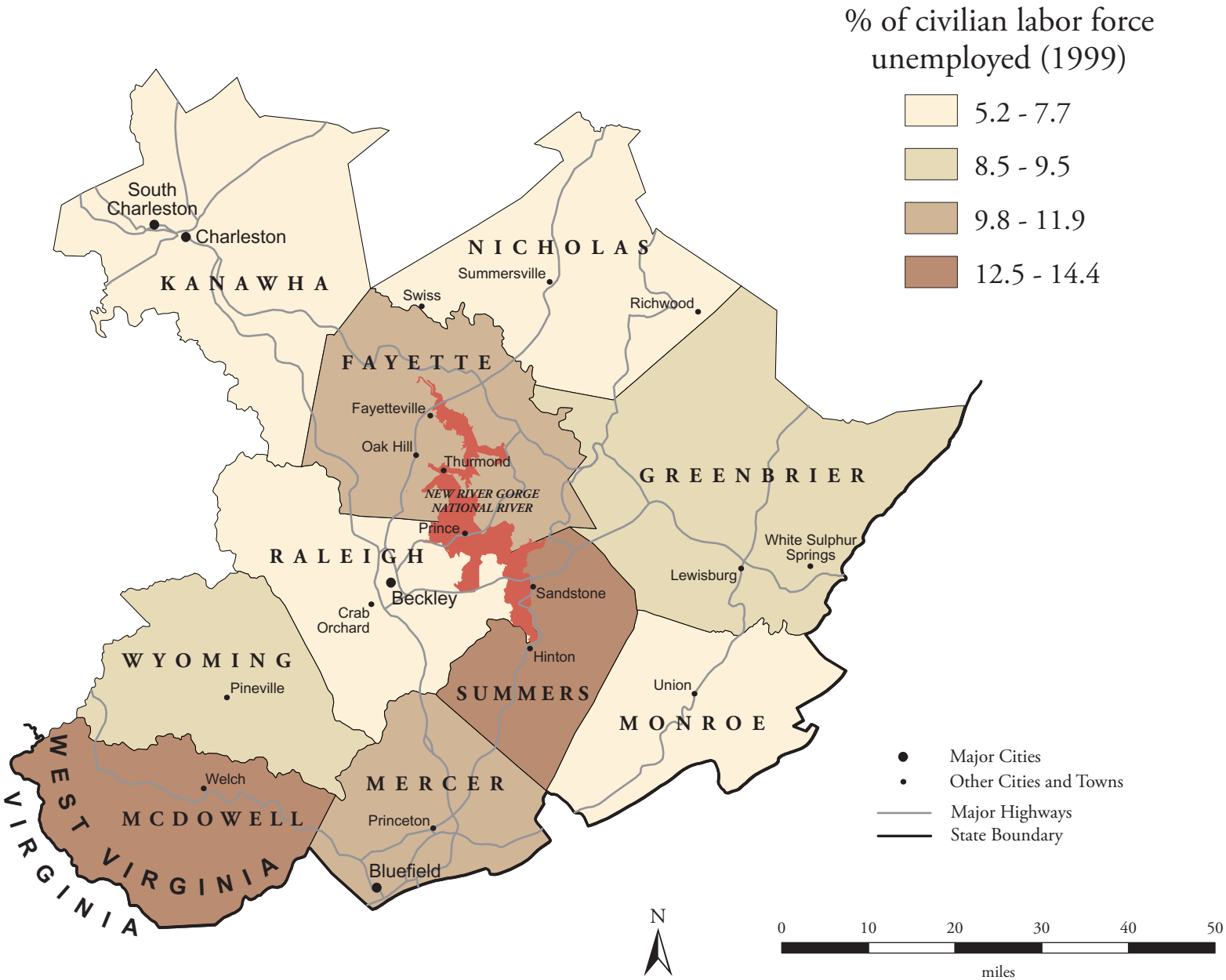
% of civilian labor force unemployed (1999)

Monroe	5.2
Kanawha	5.7
Raleigh	7.7
Nicholas	7.7
Greenbrier	8.5
Wyoming	9.5
Mercer	9.8
Fayette	11.9
Summers	12.5
McDowell	14.4

9.0

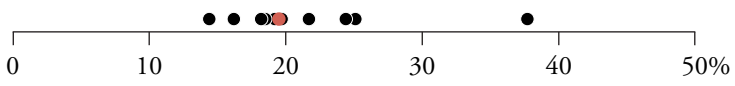
National = 5.8
West Virginia = 7.3

Unemployment



Poverty

Poverty is officially defined as the condition of living in a household with income below the federally-determined poverty threshold ($17,029 in 1999 for a family of four people). The extent of poverty can be measured as the percentage of the total population living below that threshold. Those living in poverty can face such difficulties as finding adequate housing and health care, getting enough food, and reaching job sites and government services, including parks. The level of poverty in the park region necessarily becomes significant to park management decisions and priorities. Within the New River Gorge National River region, the incidence of poverty (1999) ranges from 14.4% (Kanawha) to 37.7% (McDowell).[9]



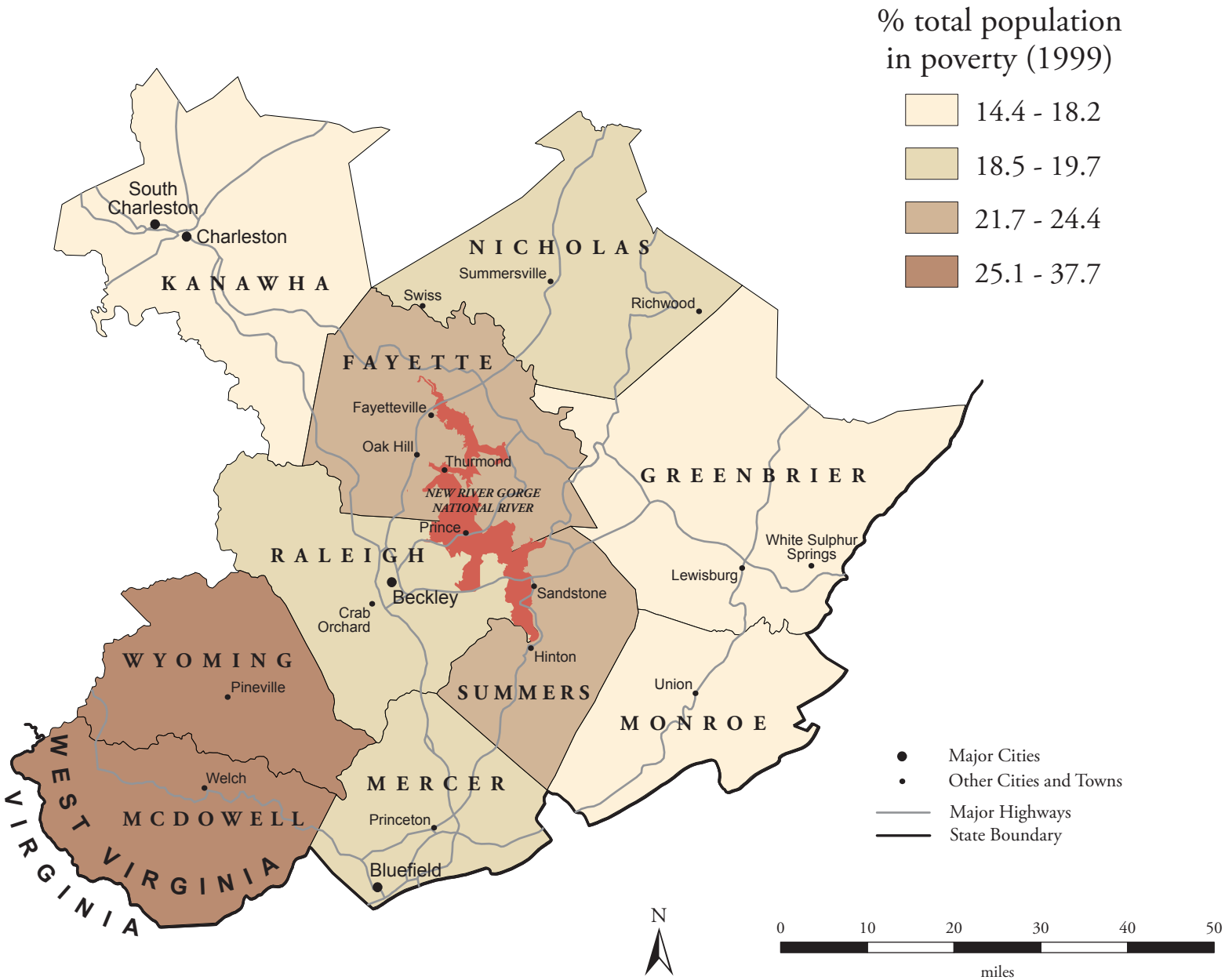
Number Line
showing distribution of data

% total population in poverty (1999)	
Kanawha	14.4
Monroe	16.2
Greenbrier	18.2
Raleigh	18.5
Nicholas	19.2
Mercer	19.7
Fayette	21.7
Summers	24.4
Wyoming	25.1
McDowell	37.7

19.5

National = 12.4
West Virginia = 17.9

Poverty


% total population in poverty (1999)
14.4 - 18.2
18.5 - 19.7
21.7 - 24.4
25.1 - 37.7
South Charleston
Charleston
KANAWHA
NICHOLAS
Summersville
Swiss
Richwood
FAYETTE
Fayetteville
Oak Hill
Thurmond
NEW RIVER GORGE NATIONAL RIVER
Prince
GREENBRIER
White Sulphur Springs
Lewisburg
RALEIGH
Beckley
Crab Orchard
Sandstone
Hinton
WYOMING
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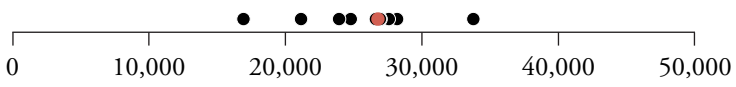
MONROE
WEST VIRGINIA
Welch
MCDOWELL
MERCER
Princeton
Bluefield
VIRGINIA
Major Cities
Other Cities and Towns
Major Highways
State Boundary
N
0
10
20
30
40
50
miles

Median Household Income

Median household income is indicative of the general level of income among households in a county. The median value is the central value in a ranked dataset, with an equal number of observations both above and below the median. General income measures can provide insights into the opportunities and time available for recreation in the park region. Within the New River Gorge National River region, median household income (1999) ranges from $16,931 (McDowell) to $33,766 (Kanawha).



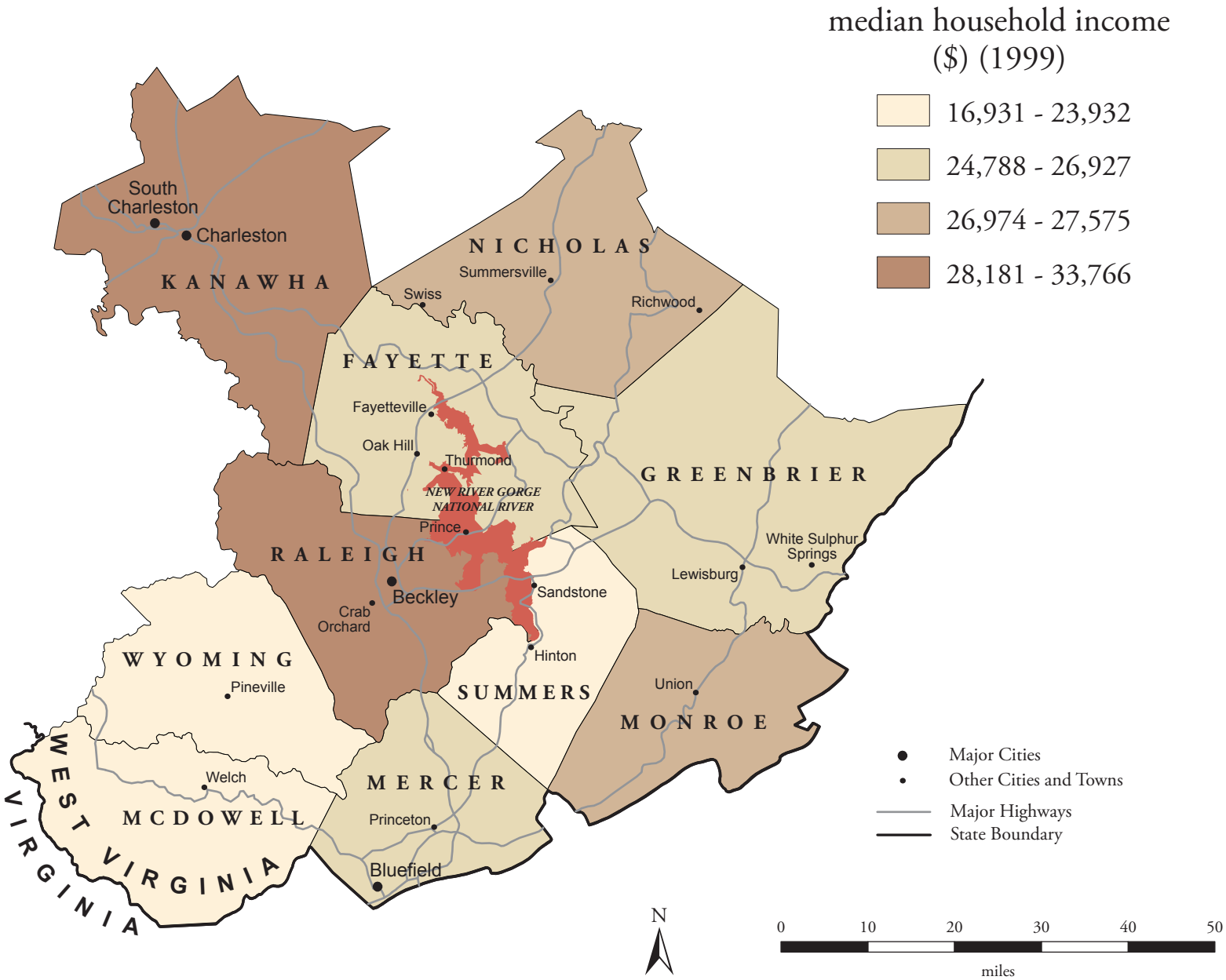
Number Line
showing distribution of data

median household income ($) (1999)	
McDowell	16,931
Summers	21,147
Wyoming	23,932
Fayette	24,788
Mercer	26,628
Greenbrier	26,927
Nicholas	26,974
Monroe	27,575
Raleigh	28,181
Kanawha	33,766

26,778

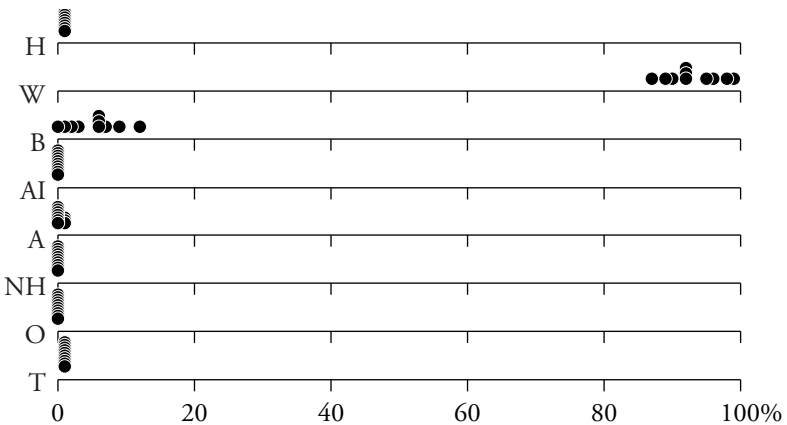
National = 41,994
West Virginia = 29,696

Median Household Income



Racial and Ethnic Composition

Racial and ethnic composition is indicated by the relative size of each of the major race groups and the separate Hispanic ethnic category as classified by the U.S. Census Bureau. These characteristics of the region's population reveal its diversity, which informs park activities such as interpretation and outreach. Within the New River Gorge National River region (2000), Whites constitute the largest racial group in all 10 counties. McDowell County has the largest percentage of Black persons.[10]



Number Lines
showing distributions of data

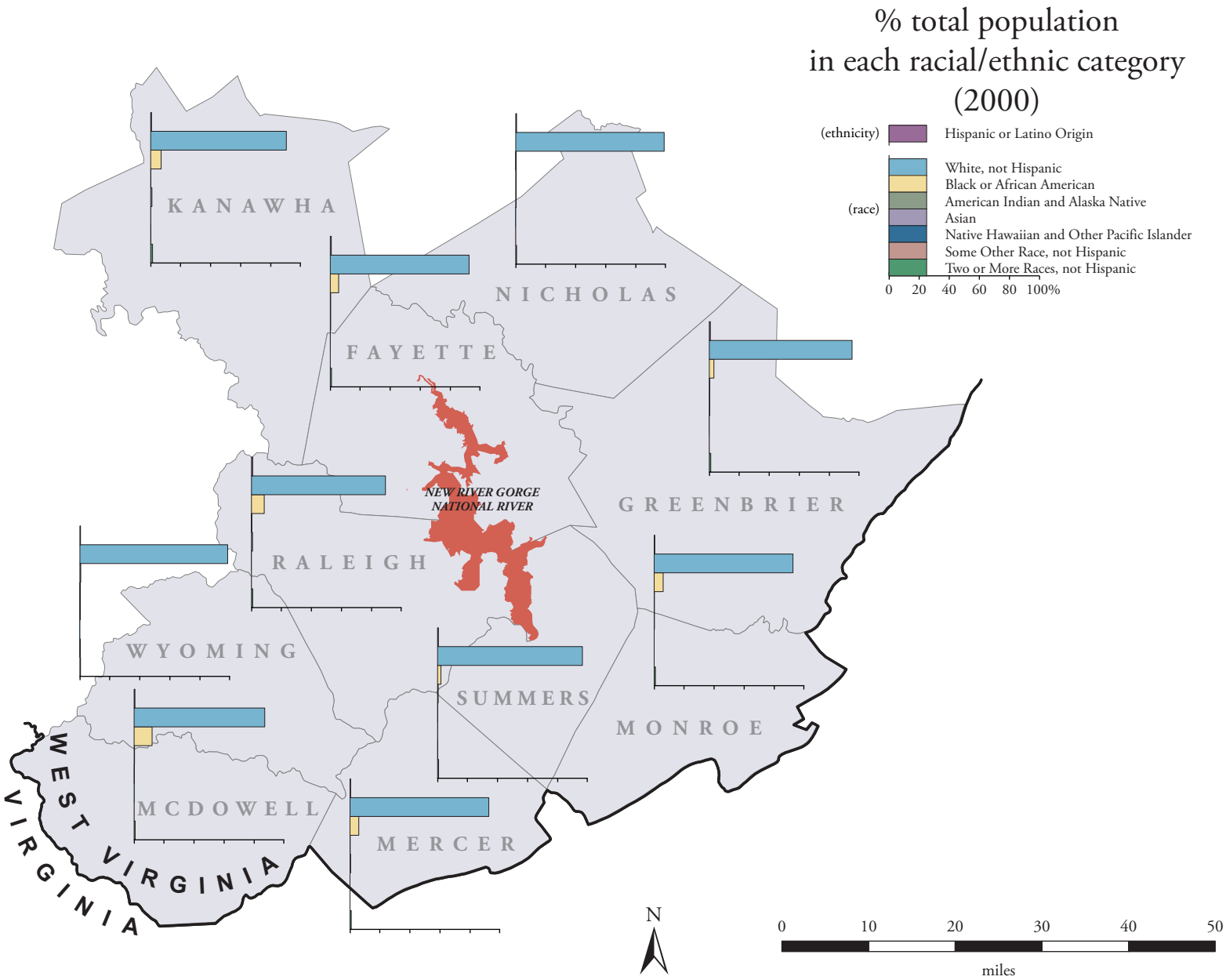
H = Hispanic or Latino Origin
W = White, not Hispanic
B = Black or African American
AI = American Indian and Alaska Native
A = Asian
NH = Native Hawaiian and Other Pacific Islander
O = Some Other Race, not Hispanic
T = Two or More Races, not Hispanic

Percentages for race may not add to one hundred due to rounding

% total population
in each racial/ethnic category
(2000)

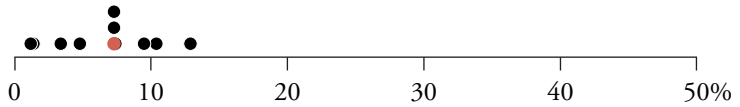
	H	W	B	AI	A	NH	O	T
Fayette	1	92	6	0	0	0	0	1
Greenbrier	1	95	3	0	0	0	0	1
Kanawha	1	90	7	0	1	0	0	1
McDowell	1	87	12	0	0	0	0	1
Mercer	1	92	6	0	1	0	0	1
Monroe	1	92	6	0	0	0	0	1
Nicholas	1	99	0	0	0	0	0	1
Raleigh	1	89	9	0	1	0	0	1
Summers	1	96	2	0	0	0	0	1
Wyoming	1	98	1	0	0	0	0	1
National	13	69	12	1	4	0	0	2
West Virginia	1	95	3	0	1	0	0	1

Racial and Ethnic Composition



Racial Diversity

Racial diversity is measured as the percentage of the population belonging to minority groups. In the current U.S. context, "minority" races are defined as non-White (Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Races). Interactions among people are often influenced by racial identity. Hence, it makes sense for institutions ranging from retailers to police to parks to consider regional racial diversity when recruiting and training staff, when designing public information and educational materials, and when soliciting public involvement in decision-making. Within the New River Gorge National River region, the percentage of racial minorities (2000) ranges from 1.2% (Nicholas) to 12.9% (McDowell).[11]

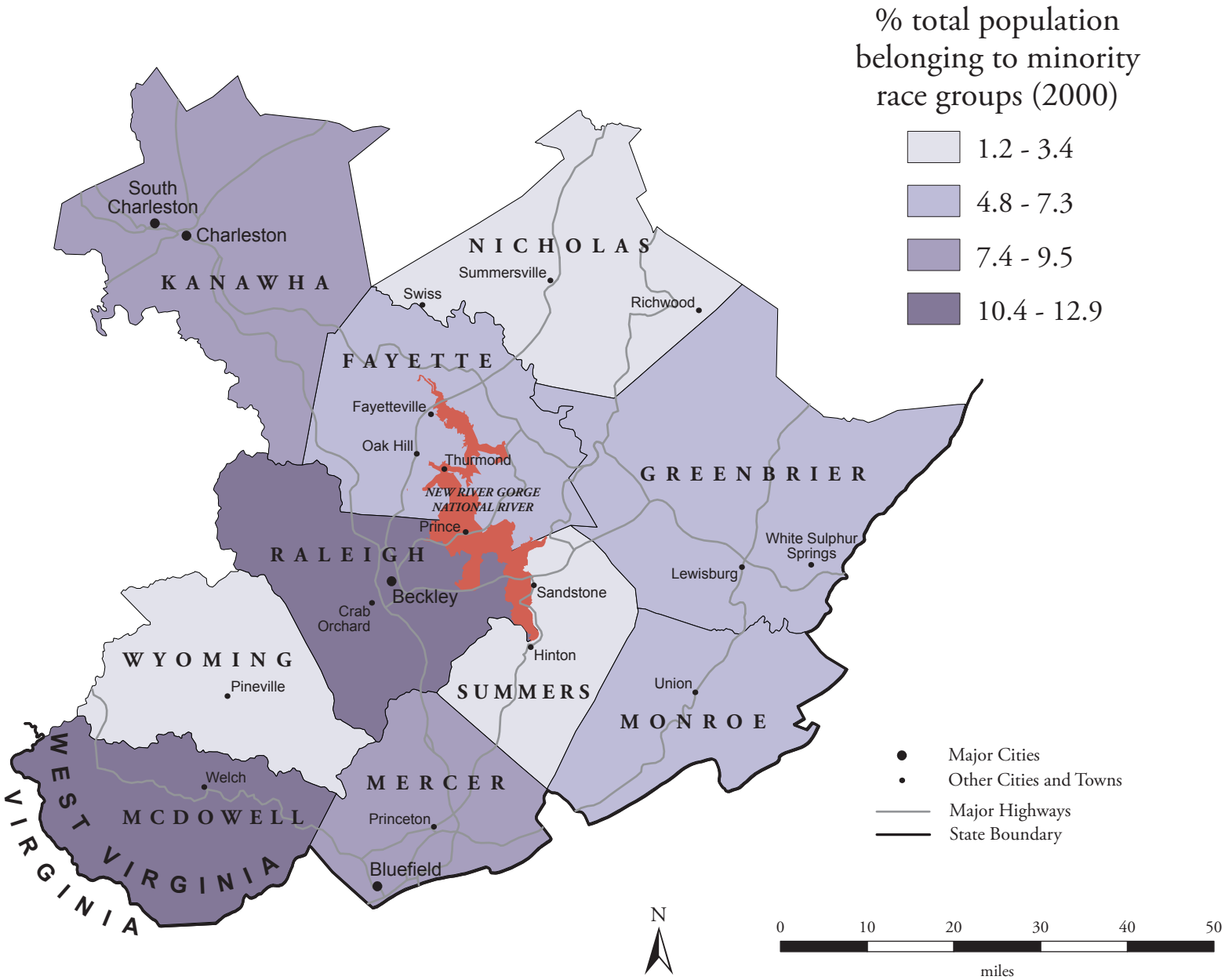


Number Line
showing distribution of data

% total population belonging to minority race groups (2000)	
Nicholas	1.2
Wyoming	1.4
Summers	3.4
Greenbrier	4.8
Fayette	**7.3**
Monroe	**7.3**
Mercer	7.4
Kanawha	9.5
Raleigh	10.4
McDowell	12.9

National = 24.9
West Virginia = 5.0

Racial Diversity



Educational Attainment

Educational attainment indicators measure the average amount of formal education that a county's residents have received. One indicator of educational attainment is the percentage of adults who have attended or graduated from college. Educational attainment influences many aspects of life, such as how much money people earn, what they do for recreation, where they get their information, and how they participate in civic life. With regard to park management, the educational attainment of the general public is an important consideration in activities, such as marketing, public participation processes, and the design of interpretive programs. Within the New River Gorge National River region, the percentage of adults with some college education (2000) ranges from 14.6% (McDowell) to 35.7% (Kanawha).[12]

Number Line
showing distribution of data

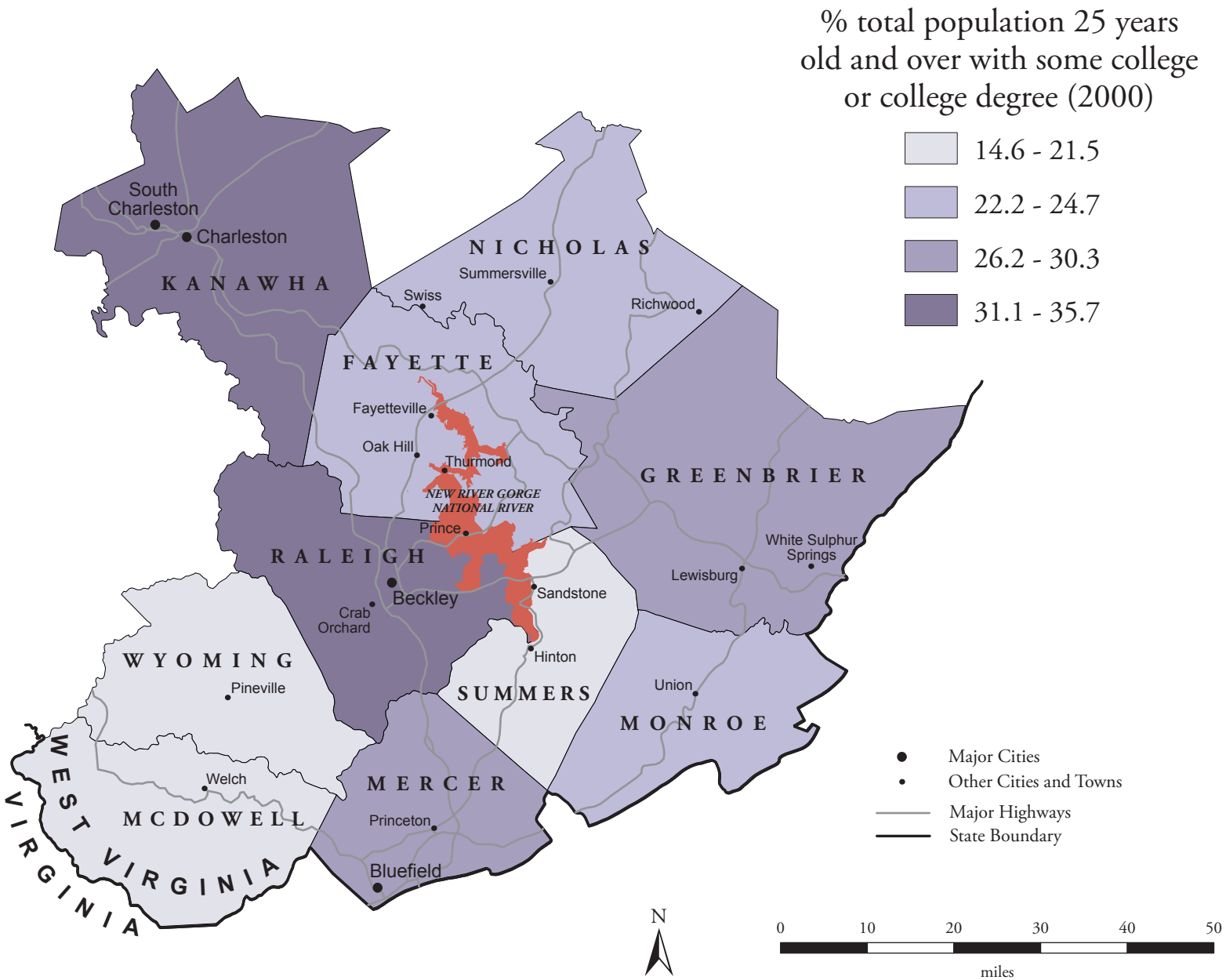
% total population 25 years old and over with some college or college degree (2000)

McDowell	14.6
Wyoming	19.4
Summers	21.5
Nicholas	22.2
Monroe	24.0
Fayette	24.7
Greenbrier	26.2
Mercer	30.3
Raleigh	31.1
Kanawha	35.7

24.4

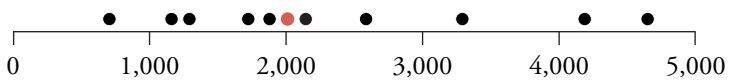
National = 42.9
West Virginia = 29.8

Educational Attainment



Crime

Crime indicators measure the frequency of various types of lawbreaking. One commonly used crime indicator is the number of serious crimes reported per 100,000 people. Serious crimes refer to murder and non-negligent manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny-theft, arson, and motor vehicle theft. A high crime rate has many impacts on the general population, such as higher insurance rates and a reduced sense of security. Crime also affects government by increasing the demand for police, court services, and prisons. Crime presents direct challenges to park management, as the protection of visitors, park property, and resources becomes a greater priority. Within the New River Gorge National River region, the number of serious crimes reported per 100,000 people (2000) ranges from 706 (Monroe) to 4,648 (Kanawha).



Number Line
showing distribution of data

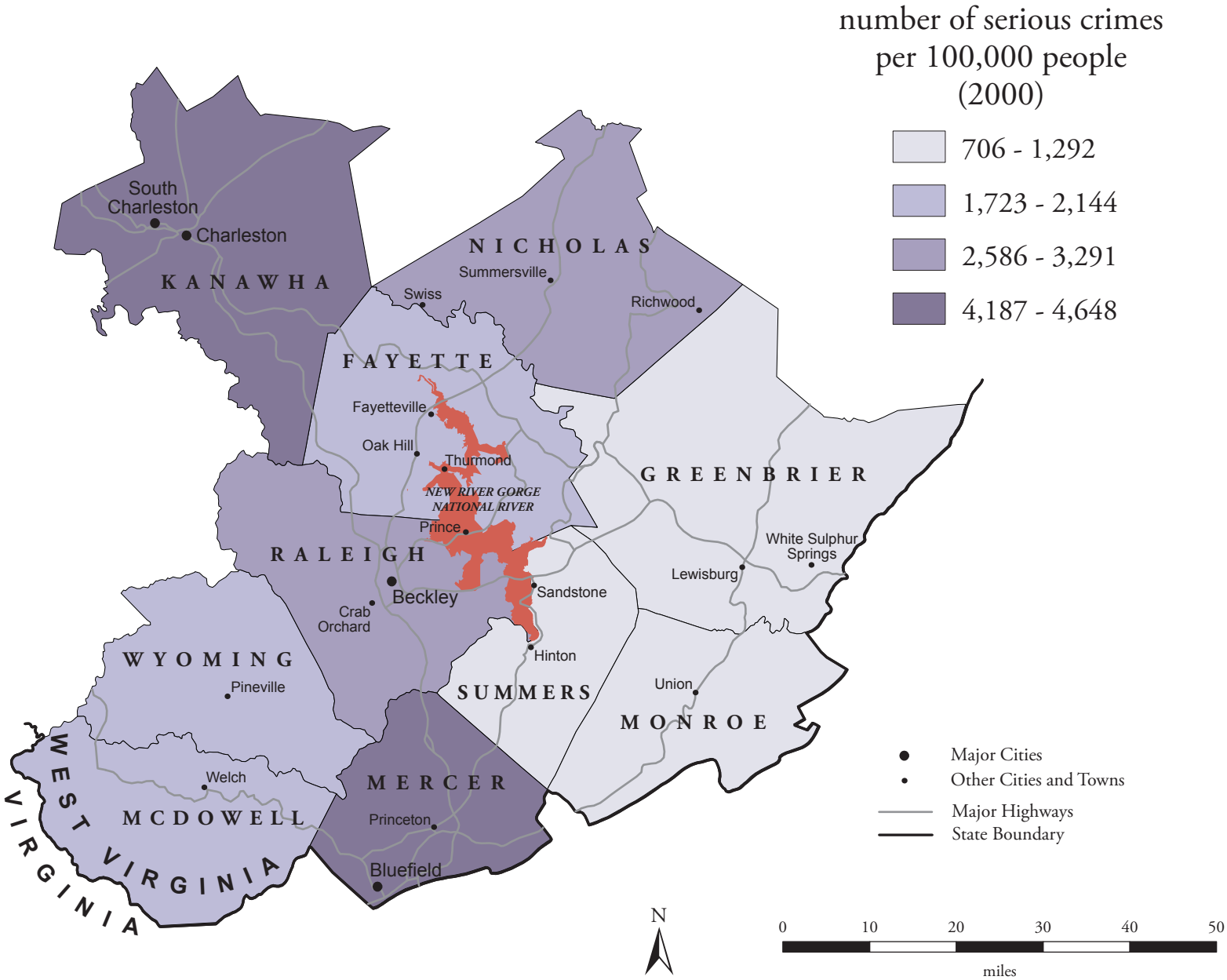
number of serious crimes per 100,000 people (2000)

Monroe	706
Greenbrier	1,161
Summers	1,292
McDowell	1,723
Wyoming	1,879
Fayette	2,144
Nicholas	2,586
Raleigh	3,291
Mercer	4,187
Kanawha	4,648

2,011

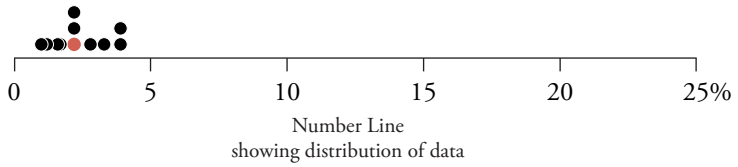
National = N/A
West Virginia = 2,543

Crime


number of serious crimes per 100,000 people (2000)
706 - 1,292
1,723 - 2,144
2,586 - 3,291
4,187 - 4,648
KANAWHA
South Charleston
Charleston
NICHOLAS
Summersville
Swiss
Richwood
FAYETTE
Fayetteville
Oak Hill
Thurmond
NEW RIVER GORGE NATIONAL RIVER
Prince
GREENBRIER
White Sulphur Springs
Lewisburg
RALEIGH
Beckley
Crab Orchard
Sandstone
Hinton
WYOMING
Pineville
SUMMERS
Union
MONROE
WEST VIRGINIA
Welch
MCDOWELL
MERCER
Princeton
Bluefield
VIRGINIA
Major Cities
Other Cities and Towns
Major Highways
State Boundary
N
0
10
20
30
40
50
miles

Recreation/Tourism Establishments

The recreation and tourism industry is measured using two categories: the arts, entertainment and recreation sector (ranging from museums and concerts, to sporting events and amusement parks) and the accommodation subsector of the accommodation and food services sector (ranging from hotels to campsites). The size of these sectors is a broad indicator of a county's economic reliance on recreation and tourism relative to the other sectors of the economy. Recreation and tourism establishments can be proponents of actions that enhance their area's attractiveness as a visitor destination (such as transportation improvements, protection of scenic or cultural landmarks, or marketing campaigns). Recreation and tourism establishments also can be vulnerable to, and thus wary of, actions, policies, or chance events that could affect business, such as visitor use restrictions, fires, or economic downturns. Within the New River Gorge National River region, the percentage of total establishments in arts, entertainment, recreation, and accommodation (2001) ranges from 1.0% (McDowell) to 3.9% (Fayette).[13]

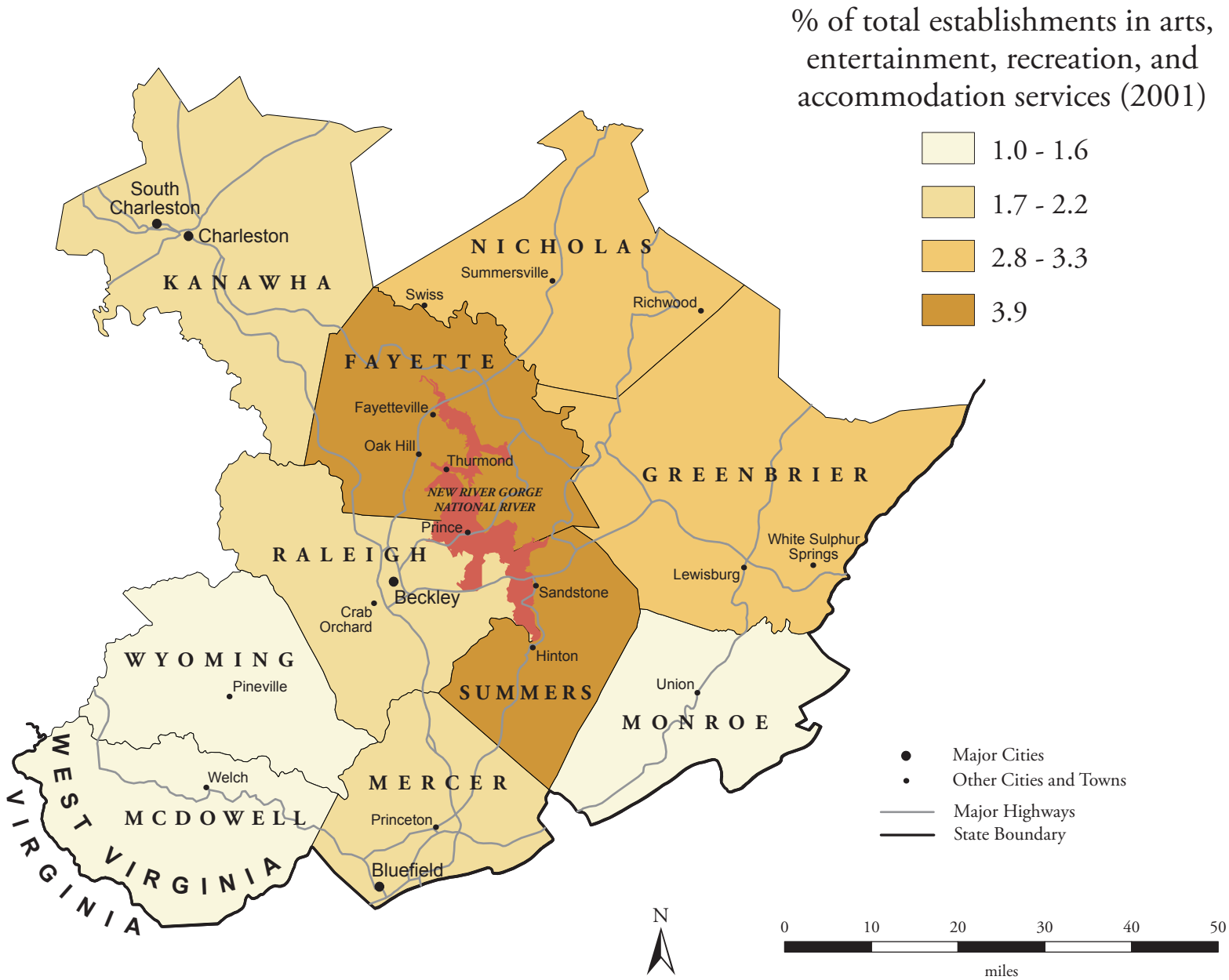


% of total establishments in arts, entertainment, recreation, and accommodation services (2001)

McDowell	1.0
Wyoming	1.2
Monroe	1.6
Kanawha	1.7
Raleigh	**2.2**
Mercer	**2.2**
Nicholas	2.8
Greenbrier	3.3
Summers	3.9
Fayette	3.9

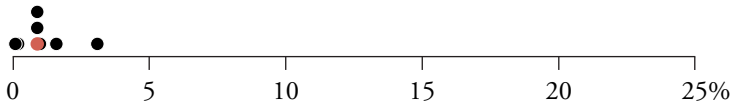
National = 2.3
West Virginia = 2.3

Recreation/Tourism Establishments



Recreation/Tourism Revenue

Recreation and tourism revenue is a key indicator of the economic importance of recreation and tourism to a county. Recreation and tourism revenue can be expressed as a percentage of total sales and service receipts. Recreation and tourism establishments can occupy an important position within a county economy because they attract visitor dollars from elsewhere. Secondary economic benefits are realized when these dollars are re-spent within the local economy or deposited in banks, where they provide capital to other businesses. Within the New River Gorge National River region, the percentage of total sales from arts, entertainment, recreation, and accommodation services (1997) ranges from 0.1% (Wyoming) to 3.1% (Fayette).[14]



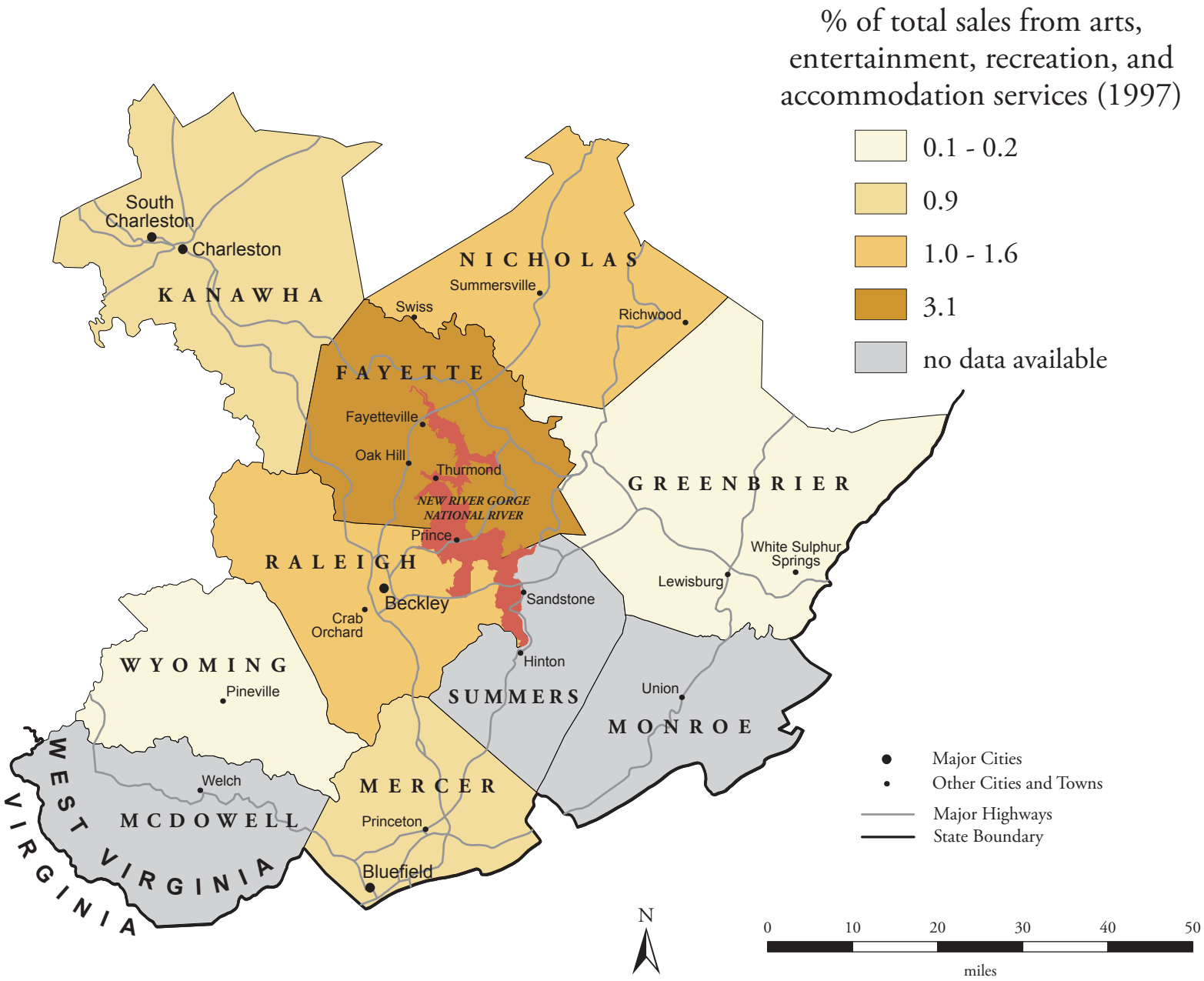
Number Line
showing distribution of data

% of total sales from arts, entertainment, recreation, and accommodation services (1997)

Wyoming	0.1
Greenbrier	0.2
Kanawha	**0.9**
Mercer	**0.9**
Nicholas	1.0
Raleigh	1.6
Fayette	3.1
McDowell	N/A
Monroe	N/A
Summers	N/A

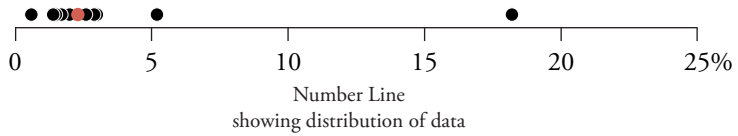
National = 1.1
West Virginia = 4.5

Recreation/Tourism Revenue



Recreation/Tourism Employment

The significance of the recreation/tourism industry to a county economy can be indicated by the percentage of county workers that it employs. Workers counted as recreation and tourism employees include country club managers, blackjack dealers, campground employees, fishing guides, motel attendants, and other providers of recreation services. A high level of recreation/tourism employment may mean that residents have more disposable income or that the area attracts visitors or vacationers. Within the New River Gorge National River region, the percentage of total paid employees in arts, entertainment, recreation, and accommodation services (2001) ranges from 0.6% (McDowell) to 18.2% (Greenbrier).[15]



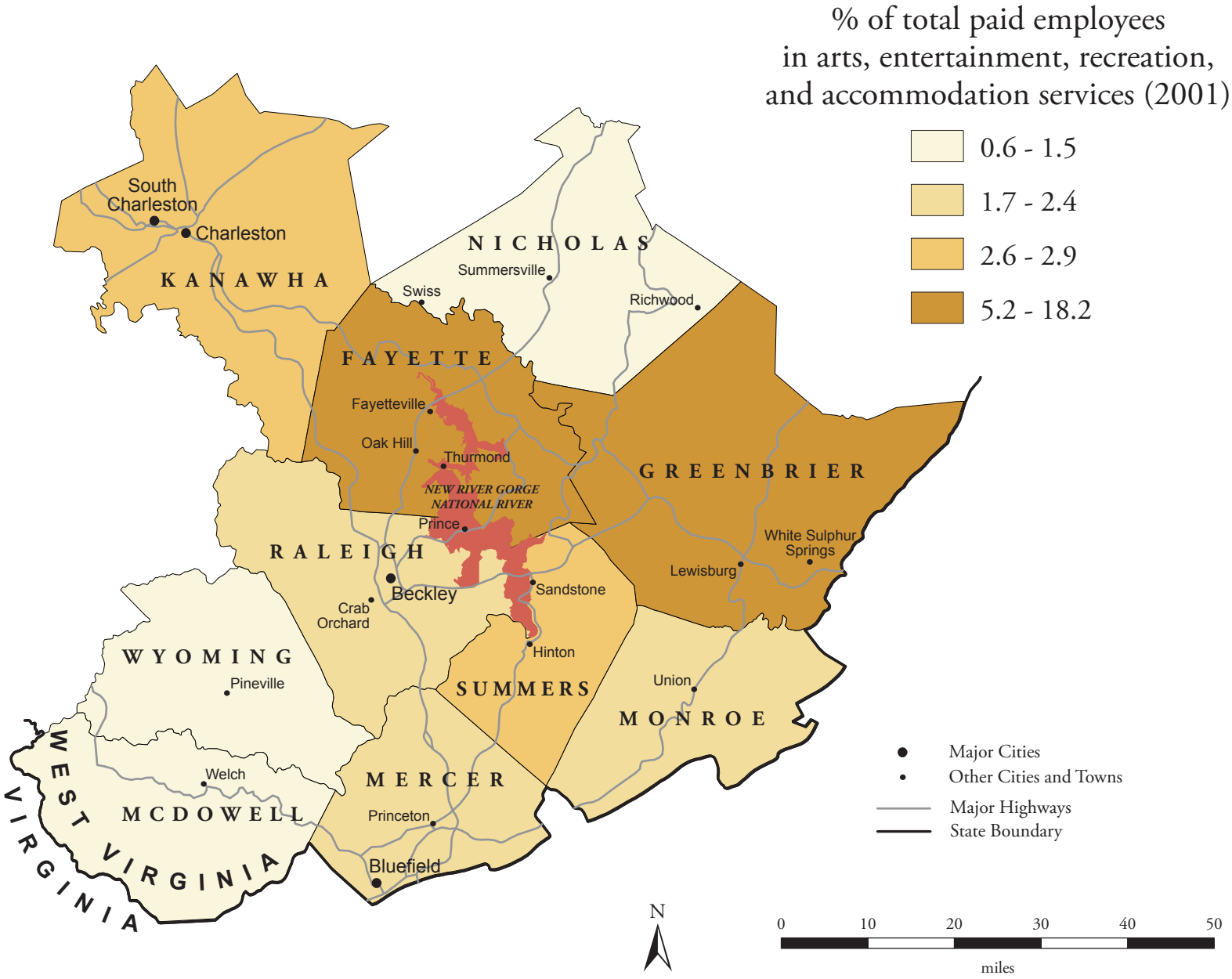
% of total paid employees in arts, entertainment, recreation, and accommodation services (2001)

McDowell	0.6
Nicholas	1.4
Wyoming	1.5
Monroe	1.7
Mercer	2.0
Raleigh	2.4
Kanawha	2.6
Summers	2.9
Fayette	5.2
Greenbrier	18.2

2.2

National = 3.1
West Virginia = 3.0

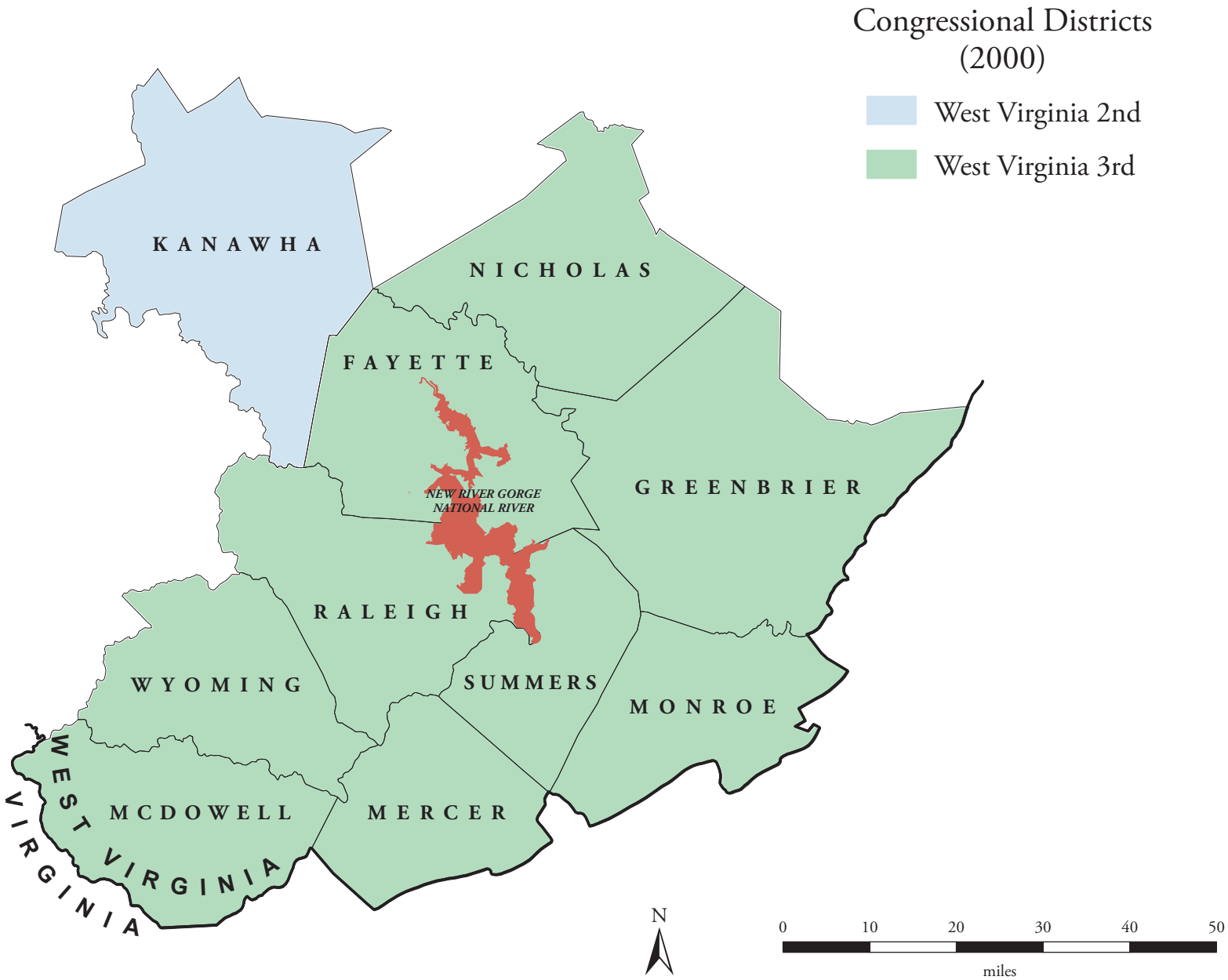
Recreation/Tourism Employment



Congressional Districts

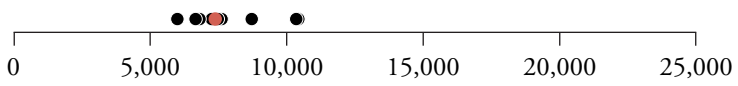
Congressional districts form a key layer in the political structure of a region of interest for a park. These districts, roughly equivalent in population, are defined by state legislatures based on the national census and redrawn every ten years. Members of Congress are key points of access for citizens seeking to influence federal-level policies and programs, including those related to federal lands such as national parks and national forests. The New River Gorge National River region includes parts of two Congressional Districts. These districts are based on Census 2000.

Congressional Districts



Federal Expenditures

The importance of the federal government to a county economy can be indicated by the amount of federal expenditures per person. These expenditures can be a key source of dollars flowing into the county economy (in contrast, taxes and fees are an outflow of dollars). Federal spending can influence the park region through such wide-ranging initiatives as agricultural subsidies, social programs, military bases, and national parks. Within the New River Gorge National River region, federal expenditures per person (2002) range from $5,998 (Nicholas) to $10,428 (Kanawha).[16]



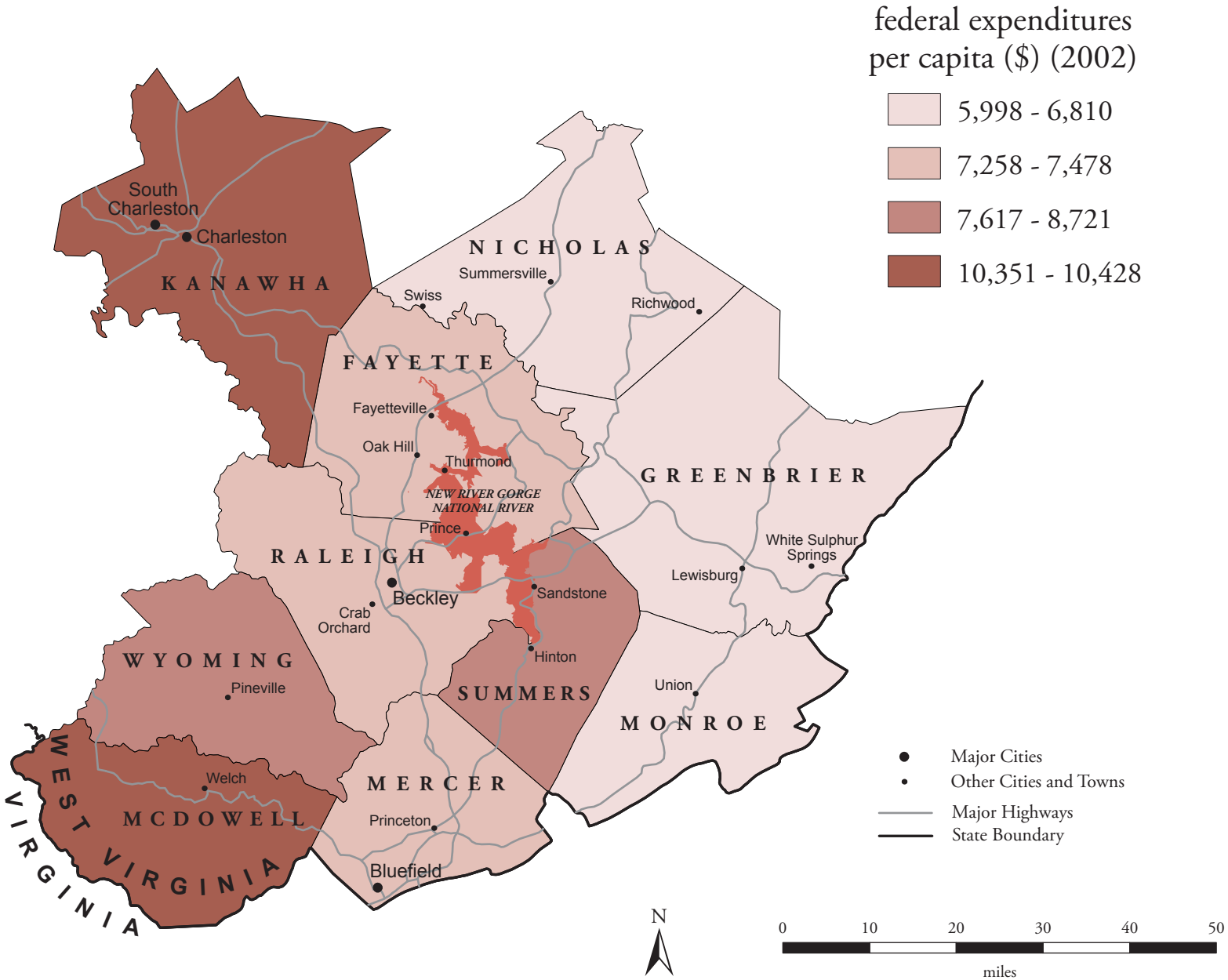
Number Line
showing distribution of data

federal expenditures per capita ($) (2002)	
Nicholas	5,998
Monroe	6,665
Greenbrier	6,810
Mercer	7,258
Fayette	7,291
Raleigh	7,478
Wyoming	7,617
Summers	8,721
McDowell	10,351
Kanawha	10,428

7,384

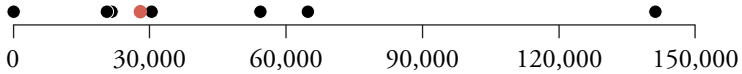
National = 6,650
West Virginia = 7,415

Federal Expenditures



Payments in Lieu of Taxes

Payments in lieu of taxes are measured as the total dollars transferred to counties by the federal government as part of the PILT Program (Payments-In-Lieu-of-Taxes) administered by the Bureau of Land Management. PILT payments are calculated according to a formula that includes population and the amount of federal land within an affected county. They have a direct impact on the park region as revenue for county governments. As counties use this revenue for capital projects or service provisions, the tax burden on local residents is effectively reduced. Indirectly, PILT payments are an indication of the federal government's presence, visibility, and perhaps influence within counties in the park region. Within the New River Gorge National River region, payments in lieu of taxes (2004) range from $163 (Mercer) to $141,172 (Greenbrier).

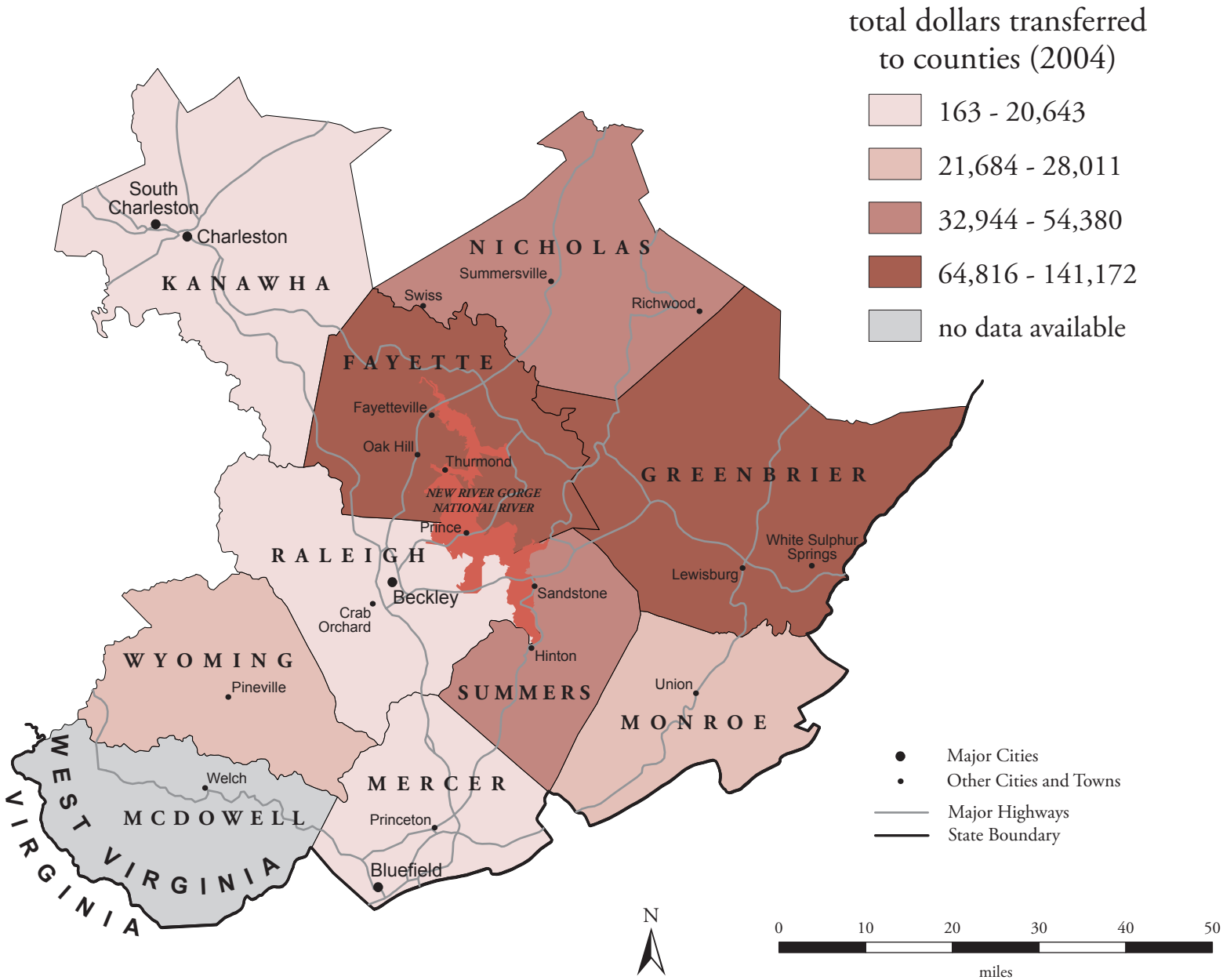


Number Line
showing distribution of data

total dollars transferred to counties (2004)	
Mercer	163
Kanawha	167
Raleigh	20,643
Wyoming	21,684
Monroe	**28,011**
Summers	32,944
Nicholas	54,380
Fayette	64,816
Greenbrier	141,172
McDowell	N/A

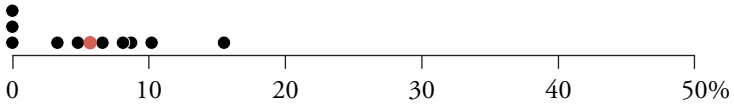
National = 224,301,697
West Virginia = 1,689,467

Payments in Lieu of Taxes



Federal Land Management

One indicator of the federal government's role in regional resource management is the amount of land under federal management. This amount can be measured as a percentage of the total land area in each county. Stewardship of private land is carried out through a combination of regulation, market forces, and voluntary action. In contrast, stewardship of public land is carried out through direct implementation of agency policies. Thus the variation in public versus private land ownership across the park region can significantly influence the design and implementation of resource protection strategies. Within the New River Gorge National River region, land under federal management (2004) ranges from 0% (in 3 counties) to 15.5% (Greenbrier).[17]



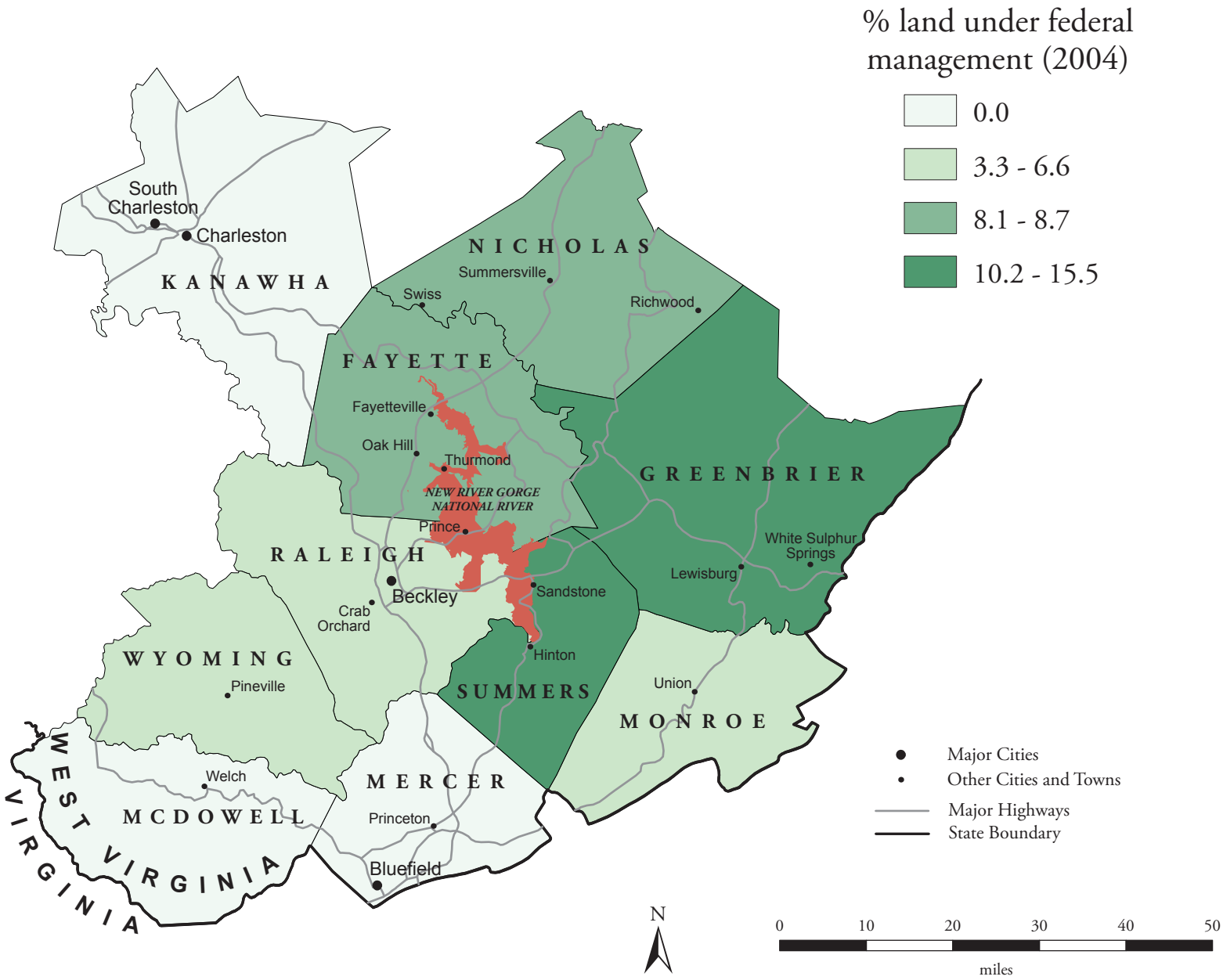
Number Line
showing distribution of data

% land under federal management (2004)	
McDowell	0.0
Kanawha	0.0
Mercer	0.0
Raleigh	3.3
Wyoming	4.8
Monroe	6.6
Fayette	8.1
Nicholas	8.7
Summers	10.2
Greenbrier	15.5

5.7

National = 27.2
West Virginia = 8.0

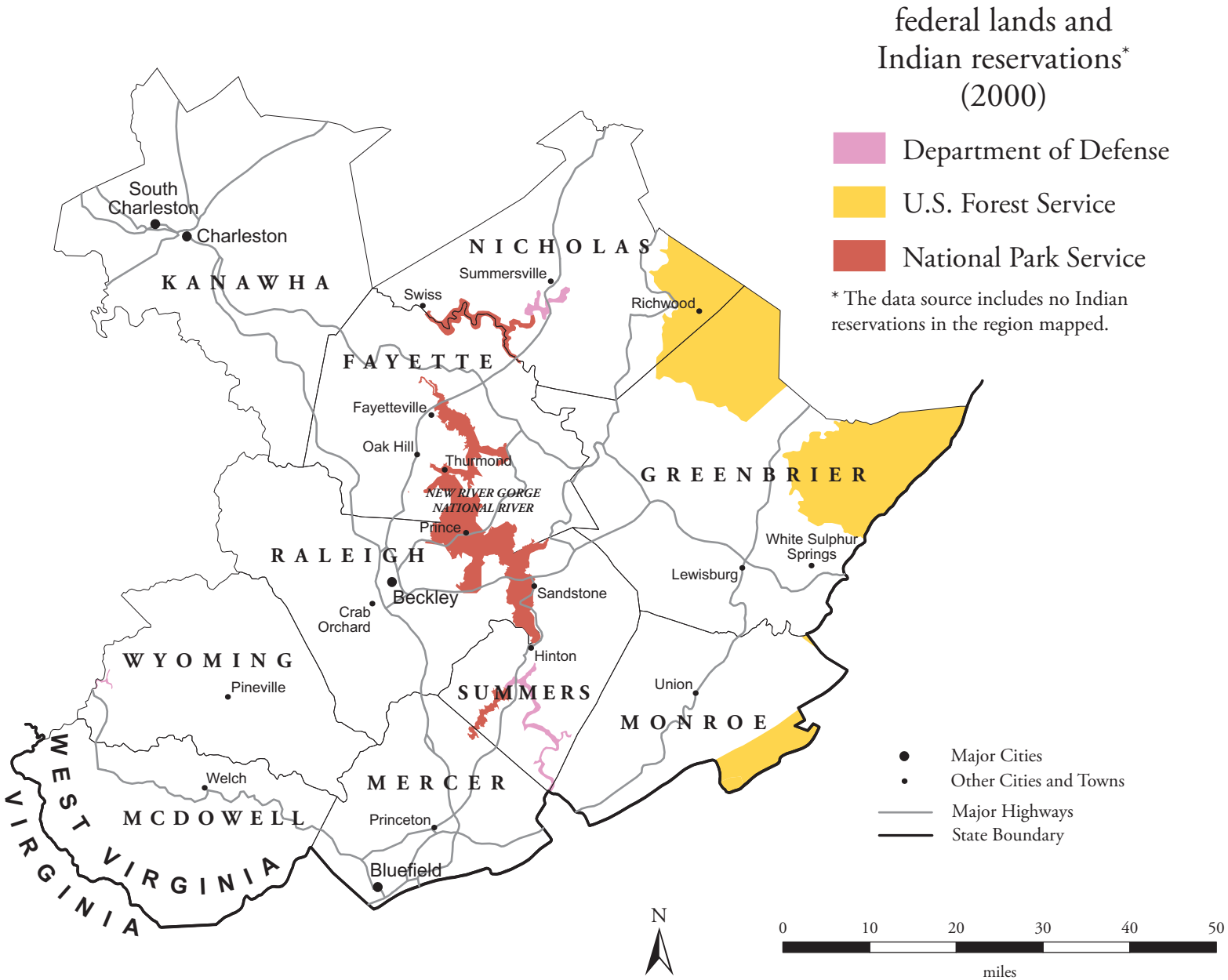
Federal Land Management



Federal Lands and Indian Reservations

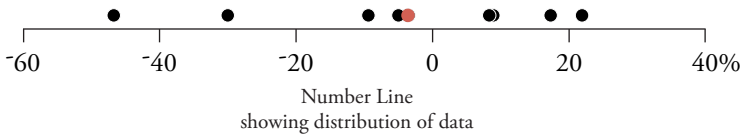
National park units, administered by the National Park Service, are part of a larger system of public lands. Other federal agencies that administer public lands include the Bureau of Land Management, Bureau of Reclamation, Department of Defense, U.S. Fish and Wildlife Service, and U.S. Forest Service. Indian reservations are also an important part of the landscape. Public land managed by one federal agency may share boundaries with land managed by a different federal agency or with an Indian reservation. Understanding the location and pattern of federal lands (by agency) and Indian reservations can help park managers and others in the region cooperate on resource protection and planning issues.[18]

Federal Lands and Indian Reservations



Change in Farmland

Changes in the amount of farmland provide an indication of economic and land use trends among counties in the park region. Land can be converted to farming because of increased demand for agricultural products or because new technology, business practices, or government programs make farming profitable. Land can be taken out of farming due to soil depletion, competition from growers elsewhere, loss of labor, or conversion of land to other (often urban) uses. Within the New River Gorge National River region (1987 - 1997), the change ranged from a net decrease of 46.7% (McDowell) to a net increase of 21.9% (Raleigh).[19]



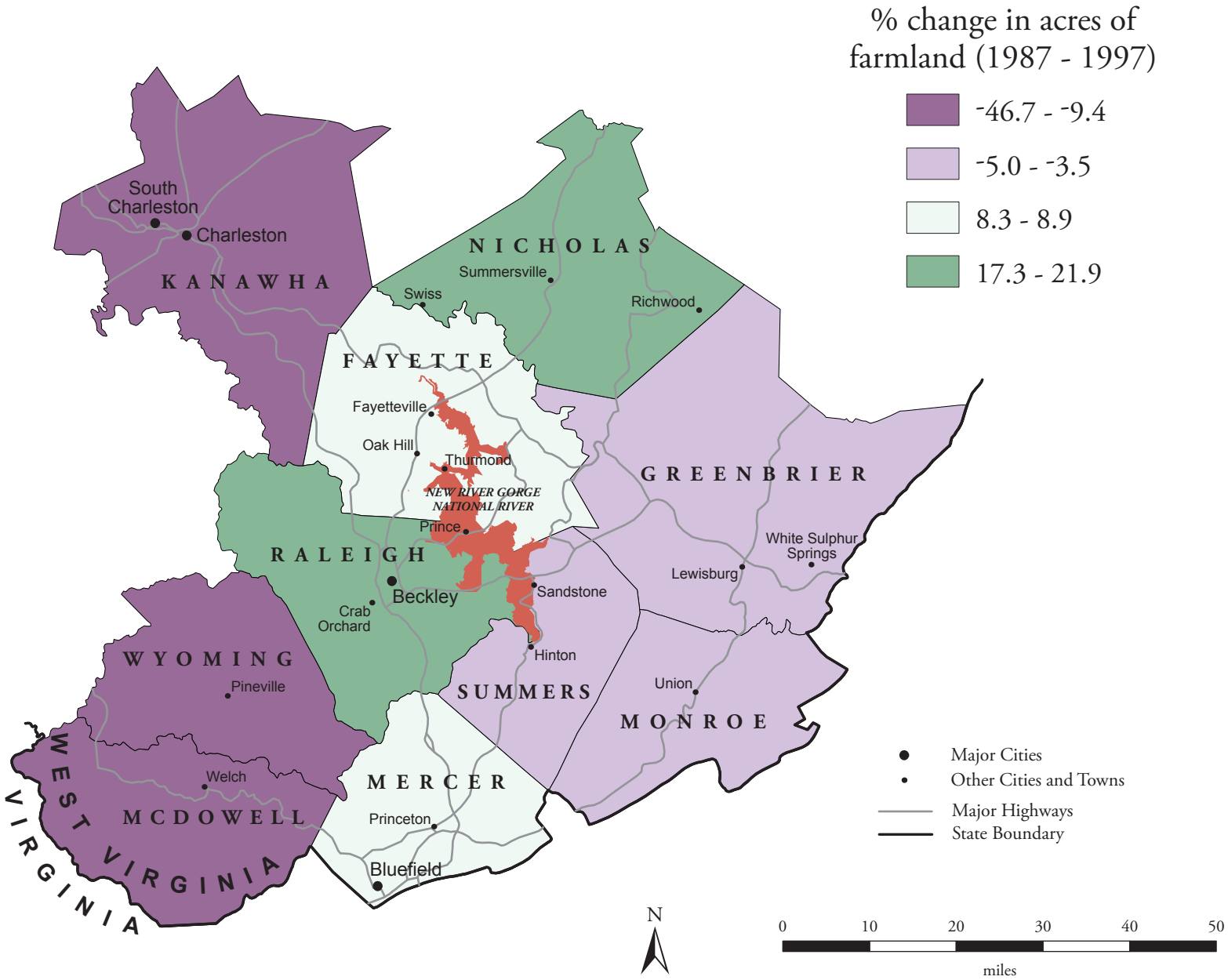
% change in acres of farmland (1987 - 1997)

McDowell	-46.7
Wyoming	-30.0
Kanawha	-9.4
Summers	-5.0
Greenbrier	-3.7
Monroe	-3.5
Mercer	8.3
Fayette	8.9
Nicholas	17.3
Raleigh	21.9

-3.6

National = -3.4
West Virginia = 2.4

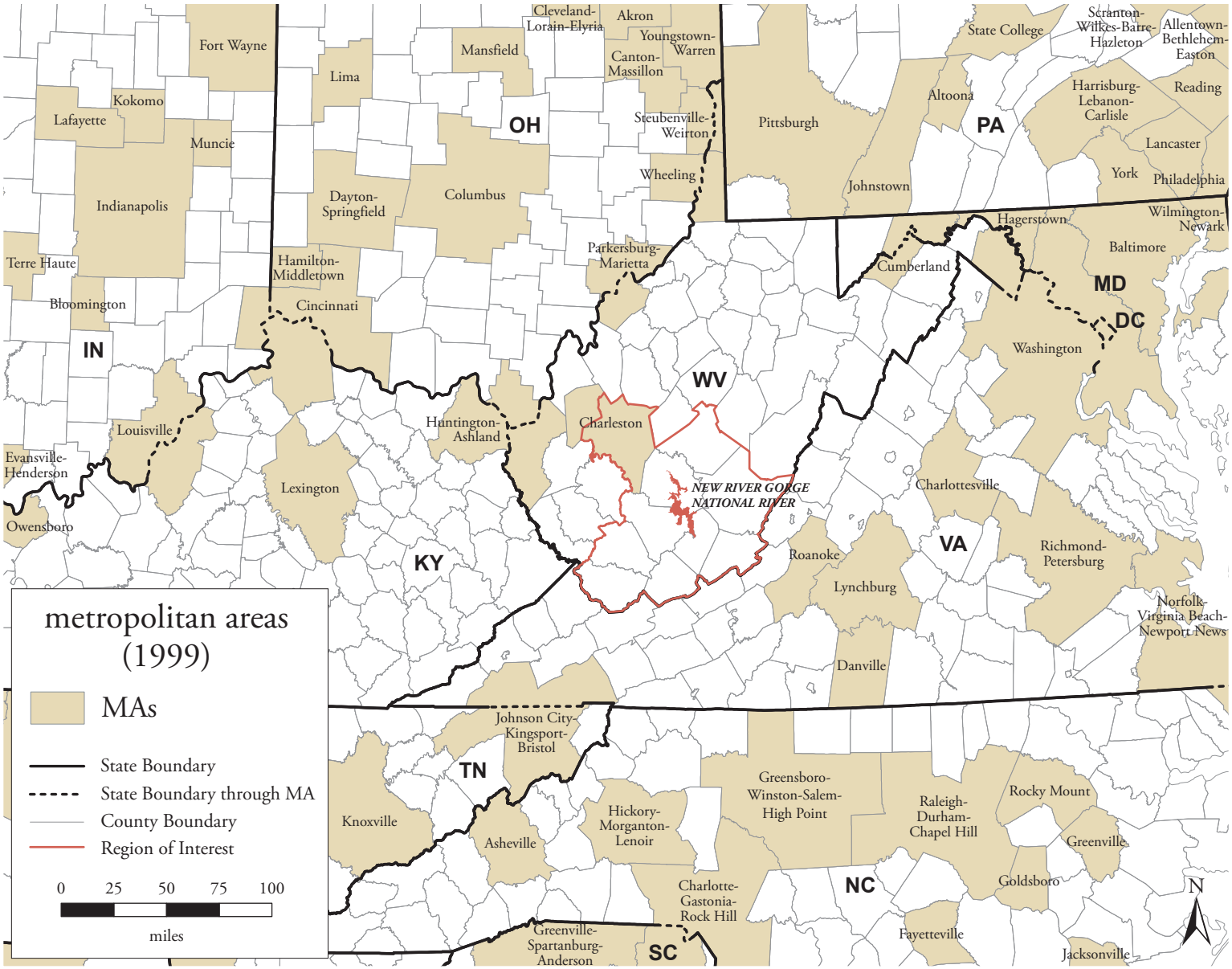
Change in Farmland



Metropolitan Areas

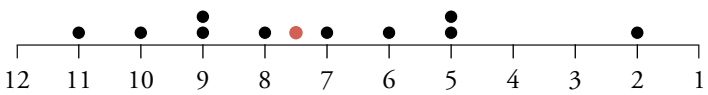
Maps of metropolitan areas show park managers densely populated urban areas that are near national park units. The Census Bureau defines a metropolitan area (MA) as having a large population nucleus, together with adjacent communities that have a high degree of economic and social integration with that nucleus. MAs are single counties or aggregations of counties. Most counties in MAs include both urban and rural land uses. For this map, a larger region around New River Gorge National River is provided to show the extent of nearby MAs.[20]

Metropolitan Areas



Urbanization

Urbanization is a measure of the degree to which counties are associated with metropolitan areas based on population and commuting patterns. The political and economic priorities of more urbanized counties tend to differ from those of less urbanized counties. The concentration of people in towns, cities, and large metropolitan areas creates opportunities for cooperative efforts (such as municipal water systems, public transportation, and a host of non-governmental organizations) but also can increase the incidence of problems such as congestion, air pollution, and habitat fragmentation. The Economic Research Service classifies counties' degree of urbanization along a continuum ranging from completely rural (not near metro area and small population size) to large metropolitan. Within the New River Gorge National River region (2003), 9 of the 10 counties are classified as nonmetropolitan.[21]



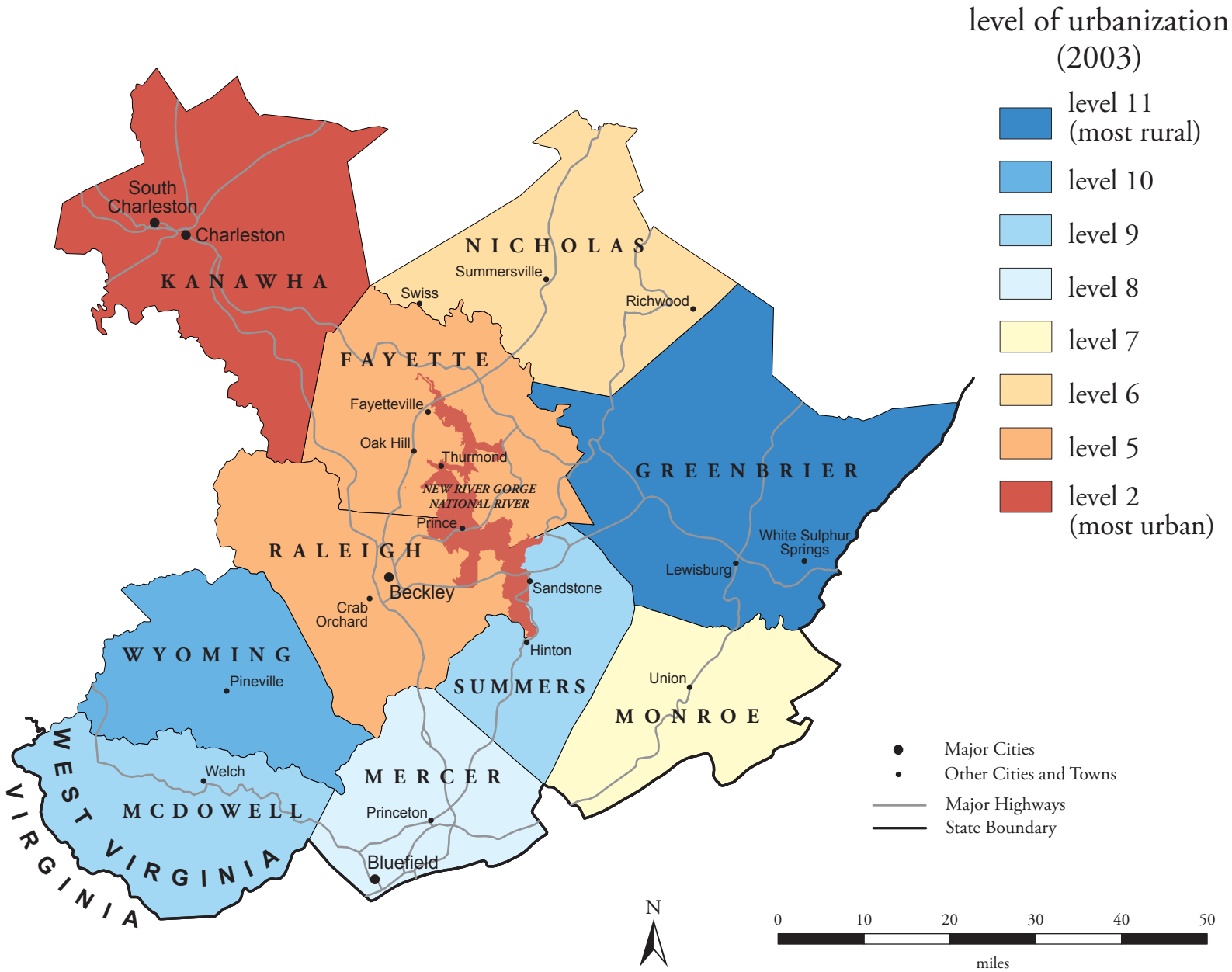
Number Line
showing distribution of data

level of urbanization (2003)

Greenbrier	11
Wyoming	10
McDowell	9
Summers	9
Mercer	8
Monroe	7
Nicholas	6
Fayette	5
Raleigh	5
Kanawha	2

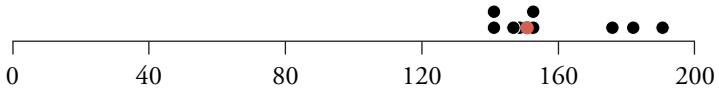
7.5

Urbanization



Domestic Water Use

Domestic water use can be measured in gallons per day per person. The rate of domestic water consumption can be indicative of local consumption patterns, attitudes toward conservation, the cost of water, or the amount of regulatory control over water use. Higher rates of domestic water use may be associated with a more active tourism industry or with a greater prevalence of water-intensive landscaping, swimming pools, and so forth. Relatively low rates of domestic water use may indicate the presence of higher water costs or stricter water conservation guidelines. Among the counties of the New River Gorge National River region, domestic water use per person (1995) ranges from 141.1 gallons/day (in 2 counties) to 190.5 gallons/day (McDowell).



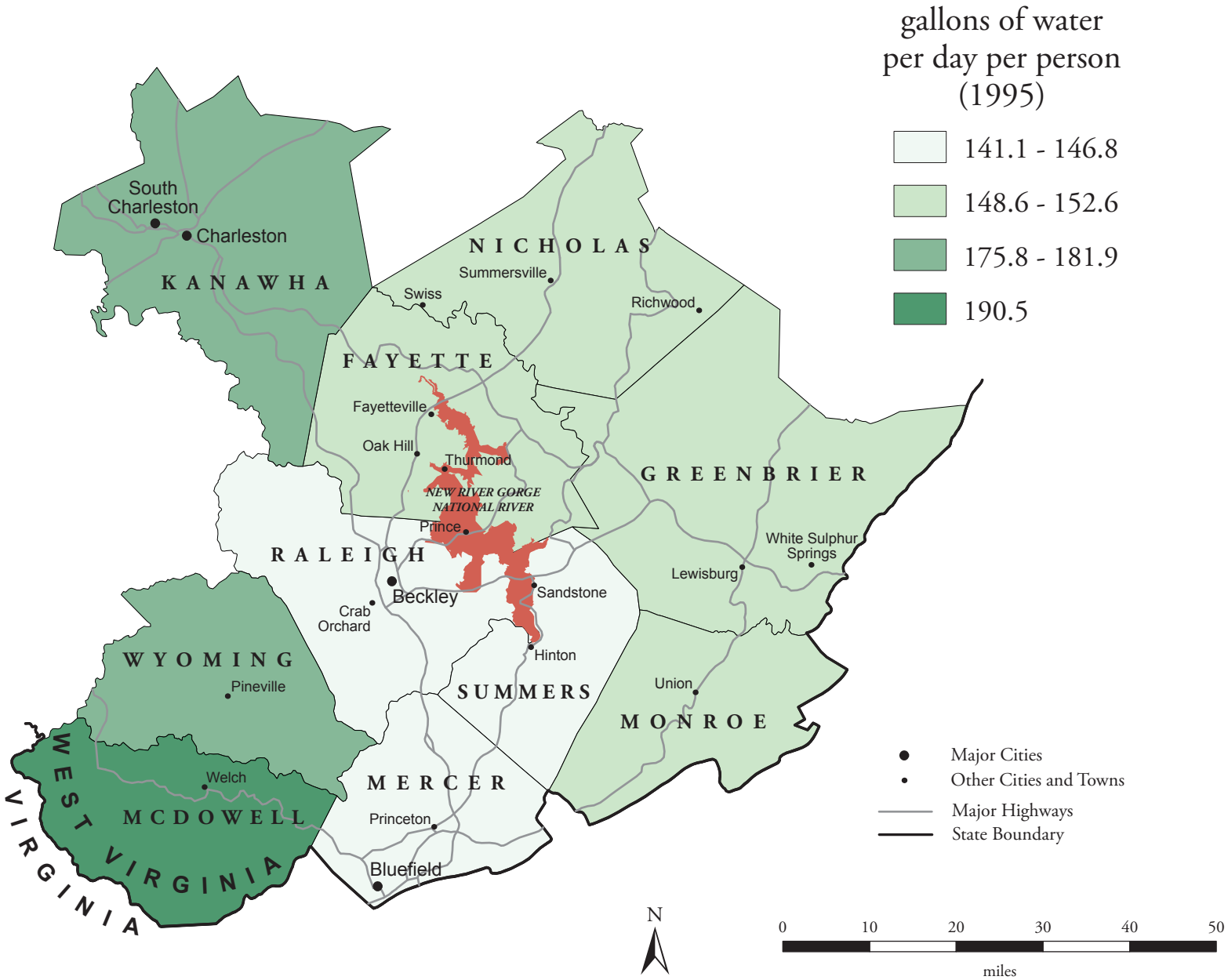
Number Line
showing distribution of data

gallons of water per day per person (1995)	
Mercer	141.1
Raleigh	141.1
Summers	146.8
Greenbrier	148.6
Monroe	148.9
Nicholas	152.6
Fayette	152.6
Kanawha	175.8
Wyoming	181.9
McDowell	190.5

150.8

National = 181.9
West Virginia = 152.4

Domestic Water Use



Building Permits

One indicator of growth in a local economy is the number of building permits issued for new privately-owned housing units. A greater number of building permits indicates demand for construction labor, supplies, and services. It indirectly implies that families are growing, retirees are moving to an area, or industries are moving and expanding economic output. Growth can generate new political priorities (such as greater demand for roads and schools) and can increase land values. Growth also alters the human impact within the ecosystem through effects such as increased water consumption, loss of cropland or habitat, or greater valuation of open space. Within the New River Gorge National River region, the average number of building permits issued annually (1992 - 2002) ranges from 0.4 (Monroe) to 137.3 (Raleigh).[22]

Number Line
showing distribution of data

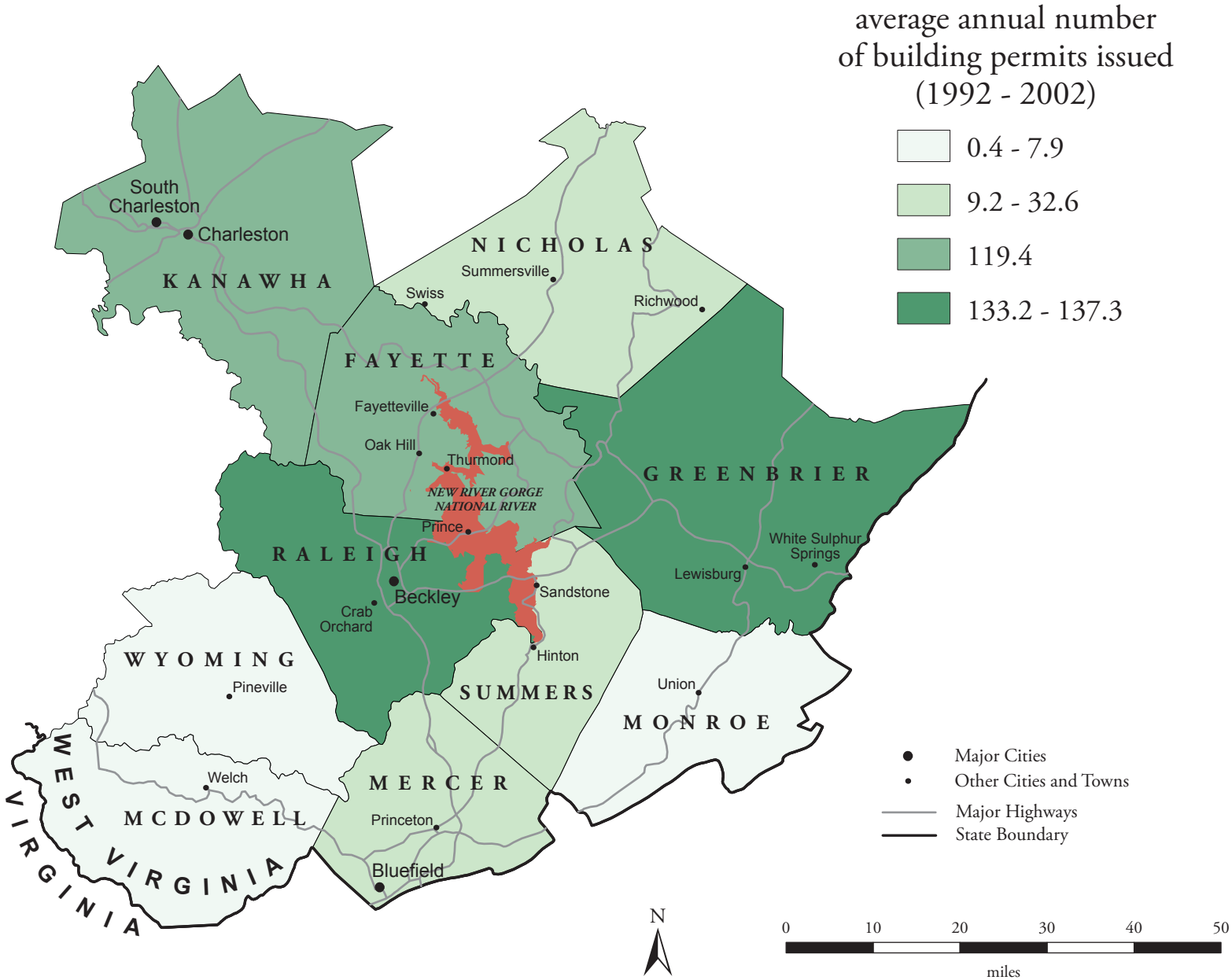
average annual number of building permits issued (1992 - 2002)

Monroe	0.4
Wyoming	0.4
McDowell	7.9
Summers	9.2
Nicholas	12.2
Mercer	32.6
Fayette	119.4
Kanawha	119.4
Greenbrier	133.2
Raleigh	137.3

22.4

National = N/A
West Virginia = 3,353.5

Building Permits



Conclusion: Using This Atlas for Park Management

A national park functions as part of a regional human ecosystem. A natural ecosystem can be understood in terms of factors such as flora, fauna, rainfall, temperature, elevation, and soil. Similarly, a human ecosystem can be understood in terms of factors such as population, commerce, social and cultural practices, politics, and land-use patterns.

The regional human ecosystem, like the natural ecosystem, strongly influences the long-term health of the park's natural and cultural resources. Just as a park may be concerned with upstream activities outside its boundaries yet inside its watershed, parks are also concerned with human activities taking place outside their boundaries yet inside their region. Thus, knowledge of natural and human conditions external to a park is as essential to park management as knowledge of internal natural and cultural conditions.

This atlas focuses on human activities and features in the region surrounding New River Gorge National River. Five primary applications for this atlas as a tool for park management are:

- monitoring activities and analyzing trends that could have short- or long-term impacts on the park;
- making comparative studies, both within the region and between regions;
- assessing potential social impacts of management decisions;
- supporting collaborative decision-making and public participation; and
- educating park staff and other stakeholders about regional socioeconomic trends.

Monitoring activities and analyzing trends. The standardized data sources and presentation format of this atlas allow it to serve as a baseline for long-term monitoring of human conditions and trends that impact the park, such as immigration or economic shifts. These human conditions and trends can have significant implications for park planning and management. For example, the atlas can be consulted to determine trends in educational attainment among regional residents. This information could be helpful in designing interpretive and public participation programs and materials that can increase access to and understanding of the role of the park in the region. The atlas can be used to gain knowledge about the overall structure of and local variations in the regional economy. This information could be important to developing a strong collaborative working relationship with regional business leaders. The atlas can be examined to recognize trends in land use. This information could support proactive planning to mitigate potential impacts of development such as habitat fragmentation, degradation of air or water quality, or intrusions upon historic settings and/or scenic values.

Comparative studies. This atlas can support comparative studies of two kinds. First, the atlas can be used to compare counties within the region. By displaying the range of values for a particular indicator or a set of indicators, the atlas can help identify specific counties where it may be desirable to take (or avoid taking) certain management actions because of the potential impact on the human ecosystem. Second, the atlas can be used to make comparisons with other park regions. Potential management actions can be evaluated in terms of how effective they have been for another park unit where similar regional socioeconomic factors are involved.

Social impact assessment. Federal law and NPS planning directives require that park managers evaluate the social impacts of potential management actions. The socioeconomic indicators displayed in this atlas can make an important contribution to such social impact assessments. For example, the maps displayed here could be used to help understand the impacts of various park management plans and provide context for assessments at smaller scales, such as local communities.

Collaborative decision making. In developing general management plans, park staff are directed to "consider the park holistically … as part of the surrounding region" and to conduct planning "as part of cooperative regional planning whenever possible" (Director's Order 1998-2, par. 3.3.1.2). Tools such as this atlas can support the goal of applying a regional perspective to park planning and management. Distribution of this atlas to citizens, elected officials, educators, business and service groups, resource managers, and others can strengthen their ability to effectively participate in park management activities and decision-making. Maps that present facts in a standardized format can be particularly helpful for establishing common ground on which to decide upon management priorities, especially for decisions that affect both the park and the adjacent region.

Education and orientation. The atlas can be used to orient new park staff, as well as central office staff, to some of the basic facts about human activities in the park's region of interest. It can also serve as a tool for sharing information about socioeconomic trends with the public, gateway communities, media, and Congress.

In conclusion, effective park management requires a clear understanding of human activities in the surrounding region that can impact park resources and operations. By providing the "basic facts" about such activities, this atlas can help managers, citizens, and others better provide for the preservation and enjoyment of New River Gorge National River.

Appendices

Appendix 1: Data Sources for Indicators

The data sources used to obtain the measures for the socioeconomic indicators are listed below. The indicators listed on the left correspond to the titles of the maps in the atlas. The measure corresponds to captions for the legends used in the maps and the ranked data tables.

INDICATOR	MEASURE	DATA SOURCE
General Population		
*Total Population	total number of people (2003)	U.S. Department of Commerce, Census Bureau, http://eire.census.gov/popest/estimates_dataset.php
Historical Population Change	% change in total number of people (1970 - 1990)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
*Recent Population Change	% change in total number of people (1990 - 2000)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/population/cen2000/atlas/all_00.xls
*Projected Population Change	projected % change in total number of people (2000 - 2020)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
Rural Population	% of total population living in rural areas (2000)	U.S. Department of Commerce, Census Bureau http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Table P2
Median Age	median age of total population (2000)	U.S. Department of Commerce, Census Bureau http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Table P13
Elderly Population	% of total population 65 years old and over (2000)	U.S. Department of Commerce, Census Bureau http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Table P12

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
Projected Elderly Population	projected % of total population 65 years old and over (2020)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
Economy and Commerce		
*Earnings by Industry	% total earnings by industrial category (1999)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
Projected Change in Earnings by Industry	projected % change in total earnings by industrial category (2000 - 2020)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
*Employment by Industry	% employment by industrial category (1999)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
Change in Employment by Industry	% change in employment by industrial category (1990 - 1999)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
Unemployment	% of civilian labor force unemployed (1999)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 3 (SF3) Sample Data, Table PCT35

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
*Poverty	% total population in poverty (1999)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/hhes/poverty/2000census/poppvstat00.html
Median Household Income	median household income ($) (1999)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 3 (SF3) Sample Data, Table P53
Social and Cultural Characteristics		
Racial and Ethnic Composition	% total population in each racial/ethnic category (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Tables P7, P8
*Racial Diversity	% total population belonging to minority race groups (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Table P7
*Educational Attainment	% total population 25 years old and over with some college or college degree (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 3 (SF3) Sample Data, Table P37
Crime	number of serious crimes per 100,000 people (2000)	U.S. Department of the Interior, U.S. Geological Survey, http://nationalatlas.gov/crimesm.html
Recreation and Tourism		
Recreation/Tourism Establishments	% of total establishments in arts, entertainment, recreation, and accommodation services (2001)	U.S. Department of Commerce, Census Bureau, http://censtats.census.gov/cbpnaic/cbpnaic.shtml
*Recreation/Tourism Revenue	% of total sales from arts, entertainment, recreation, and accommodation services (1997)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/epcd/www/econ97.html
*Recreation/Tourism Employment	% of total paid employees in arts, entertainment, recreation, and accommodation services (2001)	U.S. Department of Commerce, Census Bureau, http://censtats.census.gov/cbpnaic/cbpnaic.shtml

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
Administration and Government		
*Congressional Districts	Congressional Districts (2000)	U.S. Department of the Interior, U.S. Geological Survey, http://nationalatlas.gov/cgd108m.html
*Federal Expenditures	federal expenditures per capita ($) (2002)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/prod/www/abs/cffr.html
Payments in Lieu of Taxes	total dollars transferred to counties (2004)	U.S. Department of the Interior, Bureau of Land Management, http://www.blm.gov/pilt/search.html
Land Use		
*Federal Land Management	% land under federal management (2004)	1) U.S. Department of the Interior, Bureau of Land Management. Payment in Lieu of Taxes, Fiscal Year 2004. Washington, DC. http://www.blm.gov/pilt/search.html *(federal land in acres)* 2) U.S. Department of Commerce, Census Bureau http://www.census.gov/population/cen2000/atlas/all_00.xls *(county square mile data to convert into acres)*
*Federal Lands and Indian Reservations	federal lands and Indian reservations (2000)	U.S. Department of the Interior, U.S. Geological Survey, http://nationalatlas.gov/atlasftp.html
*Change in Farmland	% change in acres of farmland (1987 - 1997)	U.S. Department of Agriculture, National Agricultural Statistics Service, http://www.nass.usda.gov/census/
*Metropolitan Areas	metropolitan areas (1999)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/geo/www/cob/ma1999.html#shp
*Urbanization	level of urbanization (2003)	U.S. Department of Agriculture, Economic Research Service, http://www.ers.usda.gov/Data/UrbanInfluenceCodes/
Domestic Water Use	gallons of water per day per person (1995)	U.S. Department of the Interior, U.S. Geological Survey, http://water.usgs.gov/watuse/spread95/usco95.txt

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
Building Permits	average annual number of building permits issued (1992 - 2002)	U.S. Department of Commerce, Census Bureau, Manufacturing and Construction Division, http://www.census.gov/const/www/permitsindex.html

** Denotes a core indicator, common to all atlases in this series. Additional indicators were selected by park managers to include information specific to their particular management needs.*

Appendix 2: Technical Notes on Map Design

Selection of Base Map Data – The regional base map used to map socioeconomic indicators in this atlas includes state and county boundaries, some of the major roads, major cities, and a few other selected cities and towns. The roads, cities, and towns are included to provide readers with a few familiar points of reference. It should be emphasized that this is not a general purpose atlas of the region, for it focuses only on socioeconomic indicators.

Choropleth Mapping – For most of the maps, data are grouped by quartiles which vary in shading from light to dark (for low to high values). This shading technique, known as choropleth mapping, is usually applied to ratio data; population density, infant deaths per 1,000 live births, and median income are examples. Maps that display total amounts (such as total population) often use other approaches, such as proportional symbols. For clarity, ease of use, and consistent design, choropleth mapping is used for most of the social indicator data.

Quartile Classification – The choice of a *quartile* classification of the data means that for most maps, counties were divided into four classes. Rather than focusing on the actual numerical value of the indicator for each county, the quartile approach emphasizes the rankings of data values among counties. The legend accompanying the map allows the reader to see the range of values among counties within a class. Quartiles make it easy for the reader to make intuitive comparisons among counties; the darkest shaded counties are in the "top quarter," the lightest shaded counties are in the "bottom quarter," and so forth. Quartiles also facilitate comparisons between maps in the atlas ("this county ranks in the bottom quartile on all three of these indicators").

Two notes: (1) Whenever the number of counties cannot be evenly divided by four, the convention for this atlas series is to reduce the size of the highest quartile first, then the next quartile if needed, then the third quartile if needed. Hence 10 counties would be divided into groups of 3, 3, 2, and 2, with the last groups of 2 having the highest data values/darkest shading. (2) Counties with identical data values are grouped in the same quartile, even if this results in quartiles of unequal size.

Note on Political Boundaries – The regional base map depicts the formally defined political boundaries of states and counties.

Map Sources – The regional map on the cover and at the beginning of the atlas was generated from the North American HYDRO1k dataset (http://edcdaac.usgs.gov/gtopo30/hydro/) developed at the U.S. Geological Survey's EROS Data Center. The standard region of interest map used throughout the atlas was generated from U.S. Geological Survey shapefiles. Contextual information (roads and cities) was also obtained from the U.S. Geological Survey (http://www.nationalatlas.gov).

Production – Indicator data for the atlas were compiled in Microsoft Excel 2000. These were linked to U.S. Geological Survey shapefiles using ESRI ArcMap GIS 8.3. The GIS files were imported into Adobe Illustrator 10.0 for final map

design. Text was prepared in Microsoft Word 2000. The final atlas layout (text, maps, graphics) was completed using Adobe InDesign 2.0.

Text Sources – Additional web resources used to prepare park and regional descriptions are:

- National Park Service; http://www.nps.gov/neri/
- New River WV; http://www.newriverwv.com
- The West Virginia Geological and Economic Survey; http://www.wvgs.wvnet.edu/
- U.S. Census Bureau FactFinder; http://factfinder.census.gov/
- West Virginia Coal Mining Facts; http://www.wvminesafety.org/wvcoalfacts.htm

Appendix 3: Technical Notes on Measurement of Selected Indicators

[1] Persons enumerated in the census were counted as inhabitants of their usual place of residence, which generally means the place where a person lives and sleeps most of the time. This place is not necessarily the same as the legal residence, voting residence, or domicile. In the vast majority of cases, however, the use of these different bases of classification would produce substantially the same statistics, although appreciable differences may exist for a few areas.

[2] For an explanation of Woods & Poole's projection methods see page 11 in the Woods and Poole Technical Documentation manual.

[3] **Rural population** is measured as the percentage of the total population living in rural areas. All territory, population, and housing units not classified as urban are classified as rural.

[4] Economic activity is categorized as belonging to one of four **industry categories**: agriculture/natural resources, construction/manufacturing, sales/services, and government. Individual workers, regardless of their specific job responsibilities, are classified according to the category their overall company or organization belongs to. Thus, while accounting is considered a "service" activity, an accountant for a mining company would be counted as working in "agriculture/natural resources." "Government" includes all federal government workers and all state/local employees, such as teachers, police, firefighters, etc. Even though government jobs may involve construction, natural resource

management, or provision of services, they are still counted as belonging to the "government" category.

[5] See note above on **industry categories**.

[6] See note above on **industry categories**.

[7] See note above on **industry categories**.

[8] **Unemployed** persons include civilians 16 years old and over who had no employment during the reference week, made specific efforts to find a job within the previous 4 weeks, and were available for work during that week, except for temporary illness. Persons laid off and expecting recall to a job also are classified as unemployed. All other civilian persons, 16 years old and over, are "not in the labor force." The reference week is the full calendar week (Sunday through Saturday) preceeding the date each respondent completed their Census 2000 questionnaire. This calendar week is not the same for all people since the enumeration was not completed in one week.

[9] **Poverty** is measured as the percentage of the total population living below the poverty level. The poverty level is defined as earnings of $17,029 or less for a family of four persons (1999). Poverty thresholds are applied on a national basis and are not adjusted for regional, state, or local variations in the cost of living.

[10] **Racial composition** is based upon self-identification by people responding to the U.S. Census. Census respondents are asked to classify themselves according to the race with which they most closely identify. Specific responses such as "Polish," "Haitian," "Thai," or "Lakota" were coded more generally as belonging to one of six general categories (White, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, and Some Other Race). Respondents to Census 2000 could indicate more than one race, and these respondents are grouped together in the category Two or More Races. Persons of Hispanic or Latino origin may be of any race. People of Hispanic origin who are not White were counted in the Hispanic group and were also counted in the Black, American Indian and Alaska Native, Asian, or Native Hawaiian or Other Pacific Islander group they indicated.

[11] **Racial diversity** is defined for this measure as the percentage of the population classified as being non-White. Diversity by this definition does not necessarily measure the degree of "variety" in the population. For example, a hypothetical county with a 90% Asian population would be considered more "diverse" than a county in which each of the six major race groups constituted 10% of the population (in the latter case, diversity would be measured as 60%). The Hispanic or Latino origin category was not included in this measure because persons of Hispanic or Latino origin may be of any race (including White). Data on the Hispanic population is included on pages 42 and 43.

[12] For Census 2000, persons are classified according to the highest level of school completed or the highest degree received.

[13] **Recreation and Tourism** is composed of the arts, entertainment, and recreation sector and the accommodation subsector, both a part of the North American Industry Classification System (NAICS). The arts, entertainment, and recreation sector includes museums, historical sites, gambling and recreation industries, golf courses and country clubs, fitness and recreational sports centers, and all other amusement industries. The accommodation subsector is comprised of establishments including hotels, motels, bed and breakfasts, RV parks, recreational camps, and vacation camps. For a complete definition of these NAICS categories please consult http://www.census.gov/epcd/www/naics.html.

[14] See note above on **recreation/tourism**.

[15] See note above on **recreation/tourism**.

[16] **Federal expenditures** include expenditures, or obligation for, direct payments for individuals, procurement, grants, salaries and wages, direct loans, and guaranteed loans and insurance. Grant awards are reported by county of the initial recipient; thus if the initial recipient is the state government, the county in which the state capital is located is reported as having "received" that "pass-through" grant, even though the monies are subsequently distributed to other local governments.

[17] **Federal lands** include all tax-exempt federal lands administered by the Bureau of Land Management (BLM), the National Park Service, the U.S. Fish and Wildlife Service, the U.S. Forest Service, federal water projects, and some military installations (tribal lands are not included). The BLM calculates the amount of federal land within counties in order to administer the federal government's payments-in-lieu-of-taxes (PILT) program.

[18] The U.S. Geological Survey produces the **federal lands and Indian reservations** map layer. This map layer does not include any federally and Indian held land that has an areal extent smaller than 640 acres. For more information and metadata, consult http://www.nationalatlas.gov/fedlandsm.html.

[19] **Farmland** consists primarily of agricultural land used for crops, pasture, or grazing. Also included is woodland and wasteland not actually under cultivation or used for pasture or grazing, provided it was part of the farm operator's total operation. Farmland includes acres in the Conservation Reserve, Wetlands Reserve Programs, or other governmental programs. Farmland includes land owned and operated as well as land rented from others. Land used rent-free is included as land rented from others. All grazing land, except land used under government permits on a per-head basis, is included as farmland provided it is part of a farm or ranch. Land under the exclusive use of a grazing association is reported by the grazing association and included as farmland. All land in American Indian reservations used for growing crops or grazing livestock is included as farmland. Land in reservations not reported by individual American Indians or non-Native Americans is reported in the name of the cooperative group that used the land.

[20] Certain **Metropolitan Areas** (MAs) are defined around two or more nuclei. Each MA must contain either a place

with a minimum population of 50,000 or a U.S. Census Bureau-defined urbanized area and a total MA population of at least 100,000. For a complete definition, consult http://www.census.gov/geo/www/cob/ma_metadata.html.

[21] The Economic Research Service classifies counties according to their level of **urbanization**. The classification consists of twelve mutually-exclusive codes:

METROPOLITAN COUNTIES

1) In large metro area of greater than 1 million residents
2) In small metro area of less than 1 million residents

NONMETROPOLITAN COUNTIES

3) Micropolitan adjacent to large metro
4) Noncore adjacent to large metro
5) Micropolitan adjacent to small metro
6) Noncore adjacent to small metro with own town
7) Noncore adjacent to small metro, no own town
8) Micropolitan not adjacent to a metro area
9) Noncore adjacent to micro with own town
10) Noncore adjacent to micro with no own town
11) Noncore not adjacent to metro or micro with own town
12) Noncore not adjacent to metro or micro with no own town

[22] The issuing of **building permits** for privately-owned housing units does not necessarily imply that a community is growing, since any community will experience an ongoing replacement of aging houses and buildings. Also, a catastrophic event such as a major storm or fire can generate a short-term surge in the number of building permits issued. Thus a better indicator of growth is an average of annual numbers of building permits issued over a ten-year period. Changes in local codes or enforcement can also affect the number of building permits issued. This measure includes data about new housing units intended for occupancy and maintained by the occupants. It excludes hotels, motels, and group residential structures such as nursing homes and college dormitories. All public housing and nonresidential buildings are also excluded. For a complete definition see http://www.census.gov/ftp/pub/const/www/newresconstdoc.html.

For more information, contact:

Dr. Jean E. McKendry
National Park Service
1849 C Street, NW (MIB 3130)
Washington, D.C. 20240
E-mail: jean_mckendry@partner.nps.gov

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