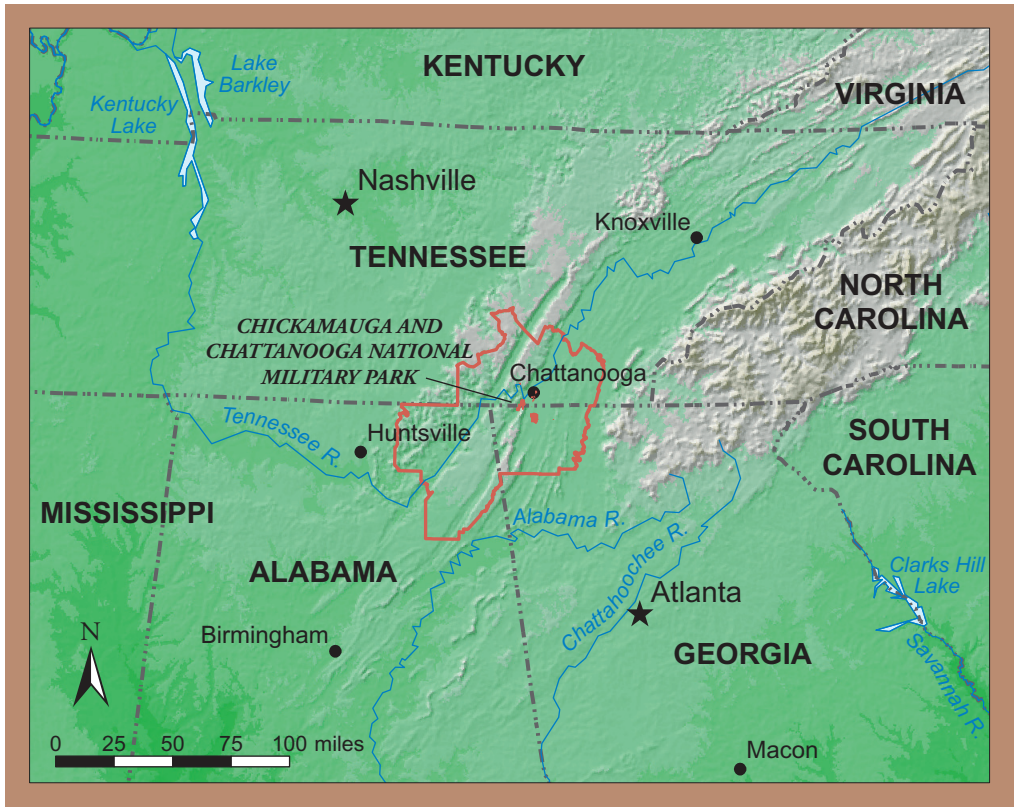
A Socioeconomic Atlas for



Chickamauga and Chattanooga National Military Park and its Region

2004

A Socioeconomic Atlas for Chickamauga and Chattanooga National Military Park and its Region

by

Jean E. McKendry

Cynthia A. Brewer

Steven D. Gardner

2004

Acknowledgments

We would like to express our appreciation to the staff of Chickamauga and Chattanooga National Military Park for their enthusiasm and interest throughout this project, especially Superintendent Patrick Reed and Jim Szyjkowski, Cultural Resource Manager. We are also grateful to Southeast Regional Director Pat Hooks and Rich Sussman, Regional Planning and Compliance Division, for their commitment. Funding from the National Park Service (NPS) Social Science Program and the NPS Recreational Fee Demonstration Program supported this project. In addition, the Peter R. Gould Center for Geography Education and Outreach at the Pennsylvania State University generously supported this project with systems administration and facilities.

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. Chickamauga and Chattanooga National Military Park 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).

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Final Version Date: 1/2005

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 Chickamauga and Chattanooga National Military Park. 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
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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 Chickamauga and Chattanooga National Military Park. 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 Chickamauga and Chattanooga National Military Park 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. Chickamauga and Chattanooga National Military Park 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.

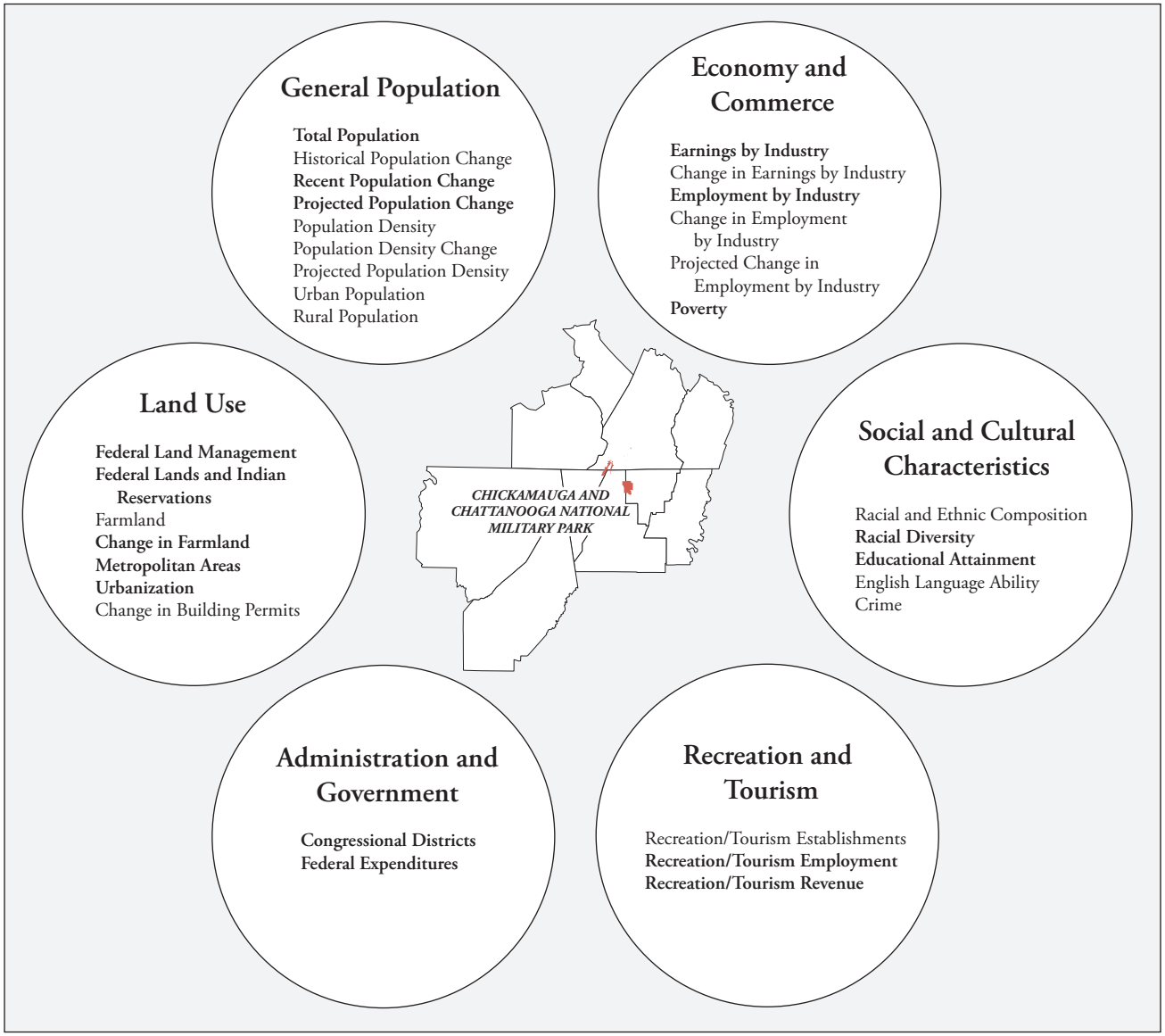


Figure 1. Indicators Included in this Atlas **core indicator** additional indicator

The Region

In selecting the boundaries of the region of interest covered by this atlas, Chickamauga and Chattanooga National Military Park (NMP) 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 two counties in Alabama, four counties in Georgia, and four counties in Tennessee. The map on the facing page depicts the region in its larger context.

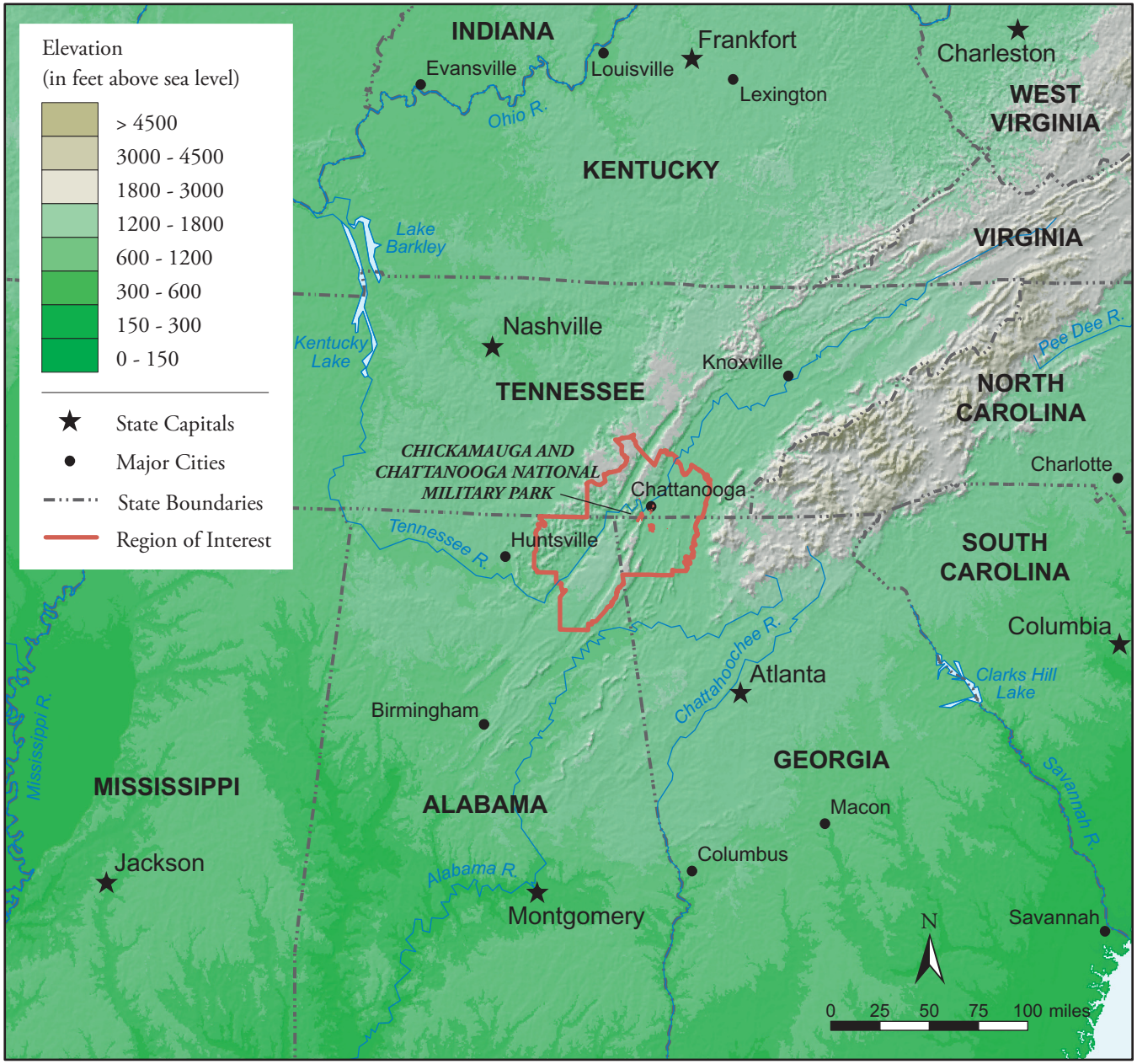
Chickamauga and Chattanooga NMP, at 14.15 square miles, is the largest of the National Military Parks. It is composed of several units including the Chickamauga Battlefield, Lookout Mountain Battlefield and Point Park, and Missionary Ridge. These battlefields were the site of Union and Confederate fighting for control of Chattanooga during late 1863. The park units are located west, south, and east of Chattanooga, Tennessee. They are approximately 120 miles northwest of Atlanta, Georgia; 115 miles southwest of Knoxville, Tennessee; and 130 miles southeast of Nashville, Tennessee.

The region is located in the Tennessee River basin, and is a mixture of rolling and steep hills and plateaus. The Appalachian Mountains rise to the east. The Tennessee River crosses through the region, and was a historically important transportation route. The arrival of the railway from Atlanta increased Chattanooga's importance in early transportation and its strategic importance during the Civil War.

Chattanooga plays a central role in the region. It is the largest city and the surrounding counties are home to many workers who commute daily to jobs in the city. The population of the area is predominantly white, with a large African-American community in Hamilton County and a large Latino/Hispanic community in Whitfield County. Manufacturing is the most important economic activity in the region, but retail trade, finance and insurance, and service industries are other key sectors. Agriculture, particularly livestock raising, remains important in some areas. Tourism plays an increasing role in the economy of the area. Visitors come to enjoy the national forests and state parks in the area as well as shopping and cultural events.

In addition to Chickamauga and Chattanooga NMP, other national park units in the region include Little River Canyon National Preserve and Russell Cave National Monument.

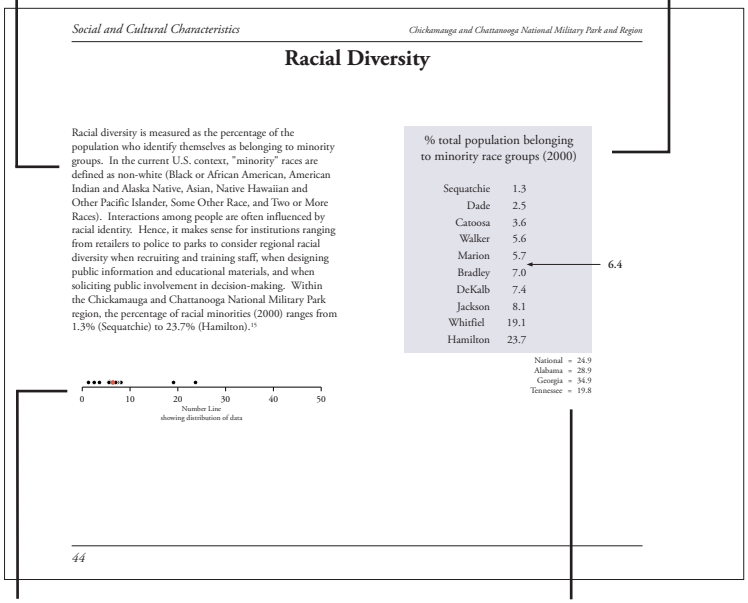
Chickamauga and Chattanooga National Military Park and its Region

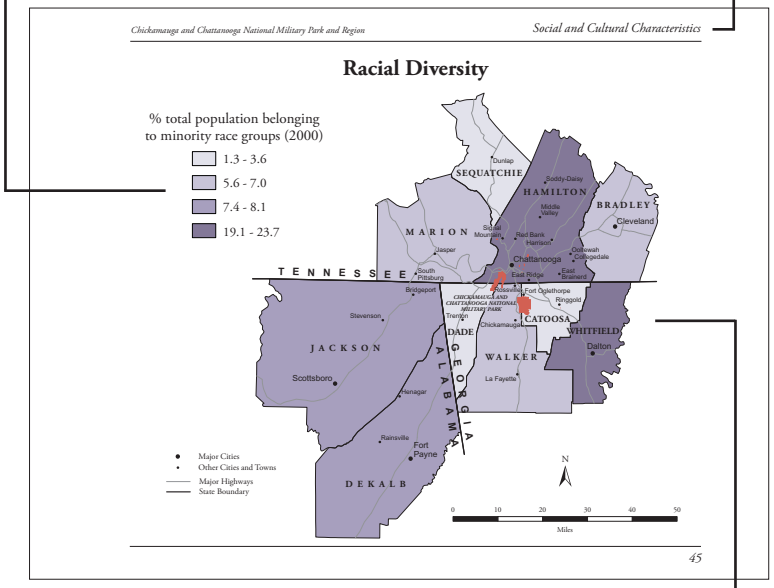


Using the Socioeconomic Indicators and Maps

The socioeconomic indicators for the Chickamauga and Chattanooga National Military Park 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:

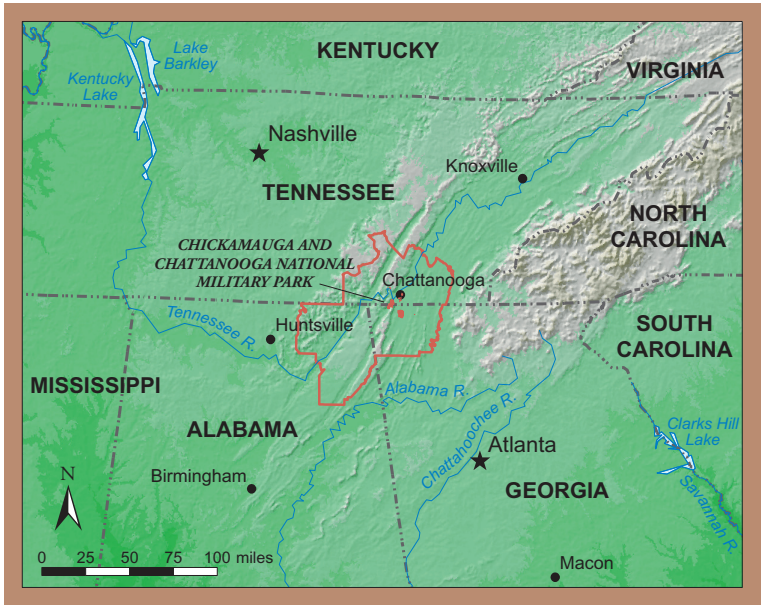
- a brief description of the socioeconomic indicator and an observation about the spatial variation in the data as displayed on the map.
- a table that shows the data and relative rank for each county. The median value is shown with an arrow and bold type. The table allows the reader to look up and compare 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.





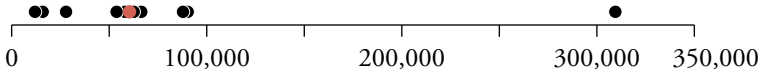
- a number line that shows the distribution of values for the indicator, useful in understanding patterns in the data. The median value is represented by a **red** dot.
- a section displaying national and state data that can be compared with regional county data.
- a map that displays general patterns 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 Chickamauga and Chattanooga National Military Park region, county population (2003) ranges from 11,958 (Sequatchie) to 309,510 (Hamilton).[1]



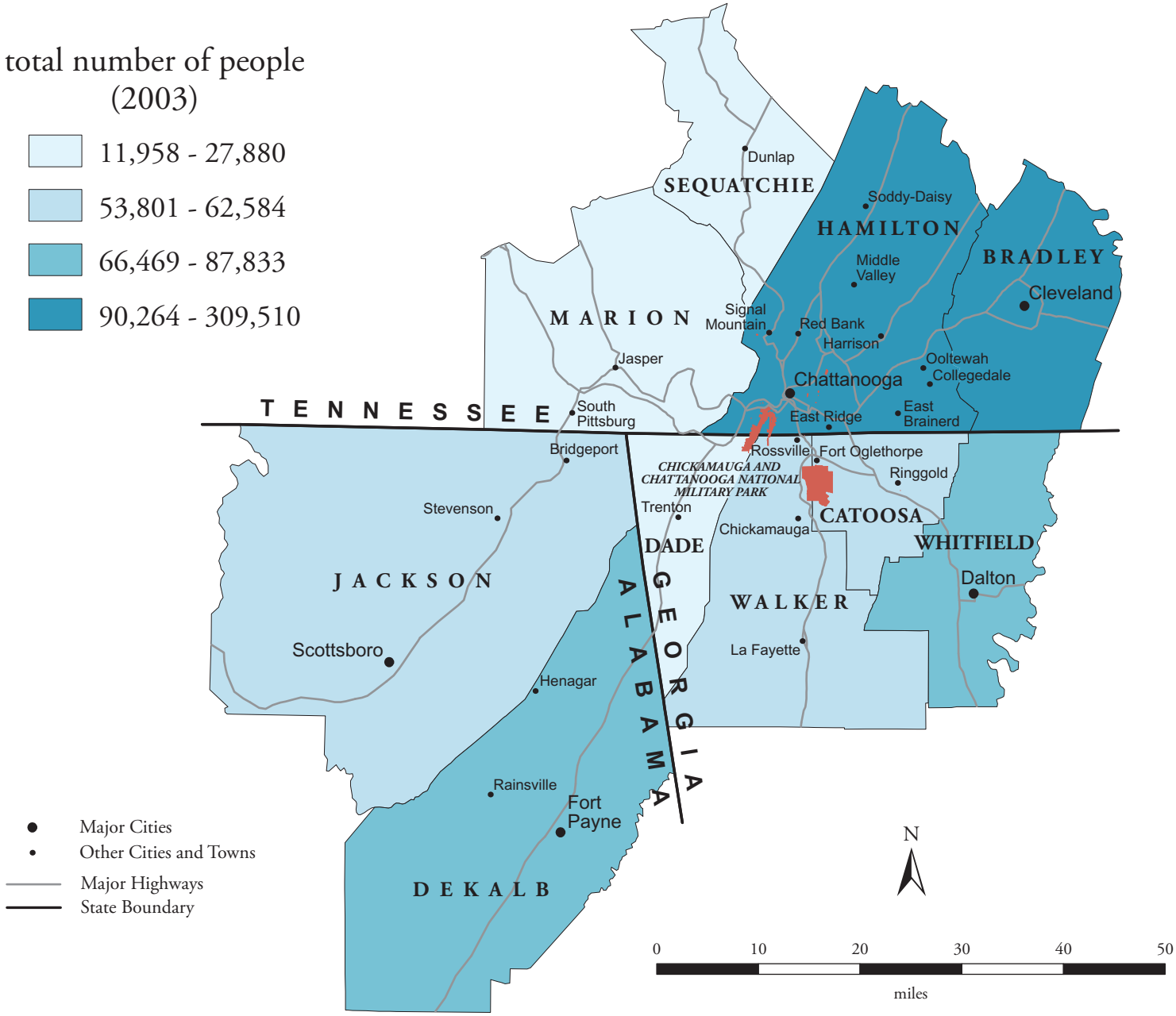
Number Line
showing distribution of data

total number of people (2003)	
Sequatchie	11,958
Dade	15,910
Marion	27,880
Jackson	53,801
Catoosa	58,085
Walker	62,584
DeKalb	66,469
Whitfield	87,833
Bradley	90,264
Hamilton	309,510

60,335

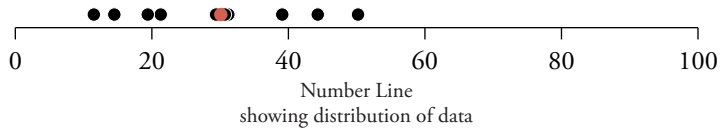
National = 290,809,777
Alabama = 4,500,752
Georgia = 8,684,715
Tennessee = 5,841,748

Total Population



Historical Population Change

Population change is due to birth, 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 Chickamauga and Chattanooga National Military Park region, county growth rates (1970 - 1990) ranged from 11.5% (Hamilton) to 50.2% (Catoosa).



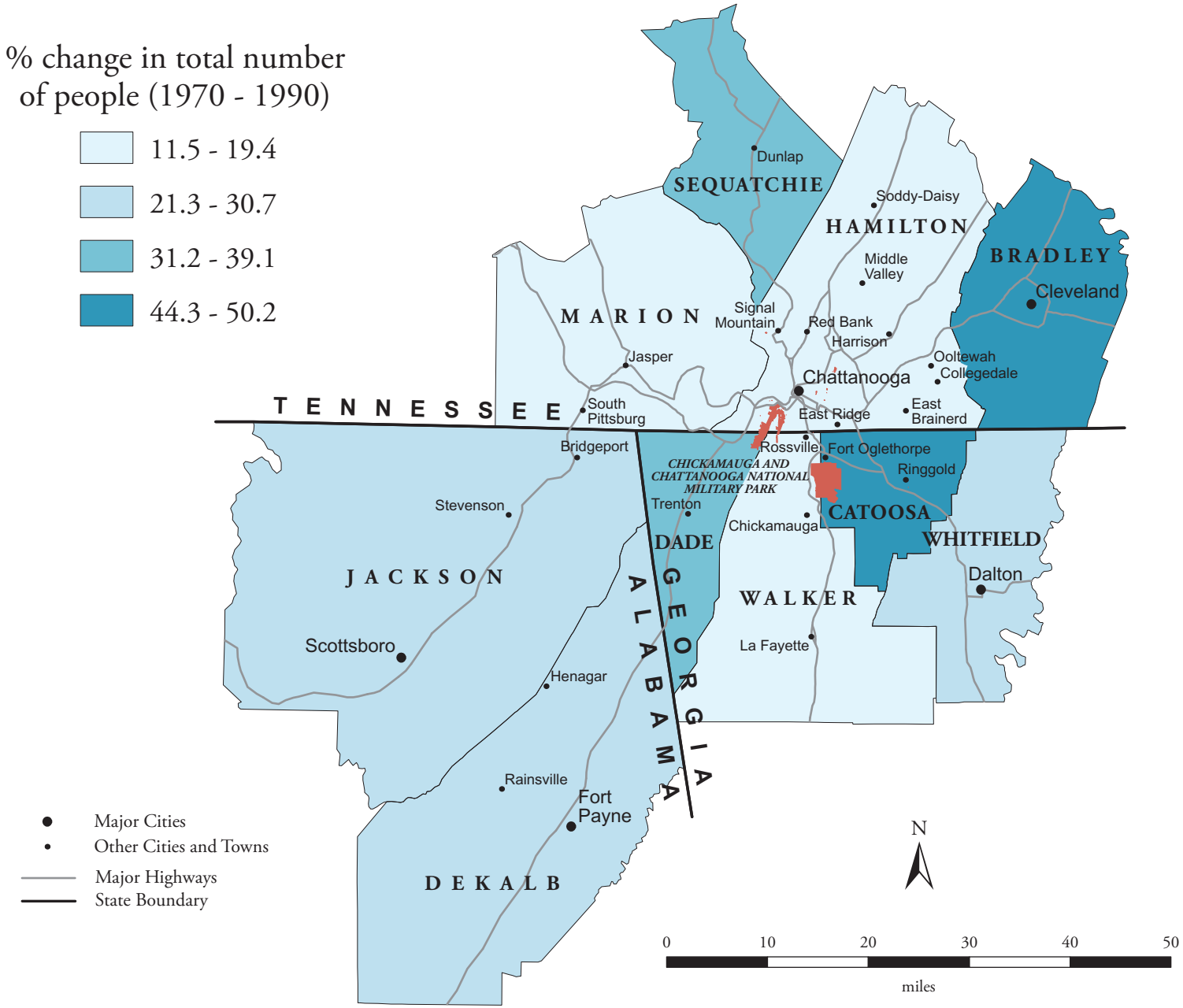
% change in total number of people (1970 - 1990)

Hamilton	11.5
Walker	14.5
Marion	19.4
Jackson	21.3
DeKalb	29.4
Whitfield	30.7
Dade	31.2
Sequatchie	39.1
Bradley	44.3
Catoosa	50.2

30.1

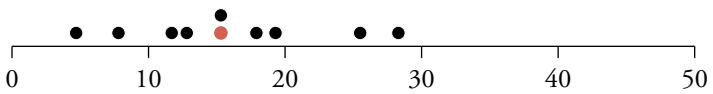
National = 22.3
Alabama = 17.2
Georgia = 41.1
Tennessee = 24.1

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 Chickamauga and Chattanooga National Military Park region, the recent increase in county population (1990 - 2000) ranges from 4.7% (Walker) to 28.3% (Sequatchie).

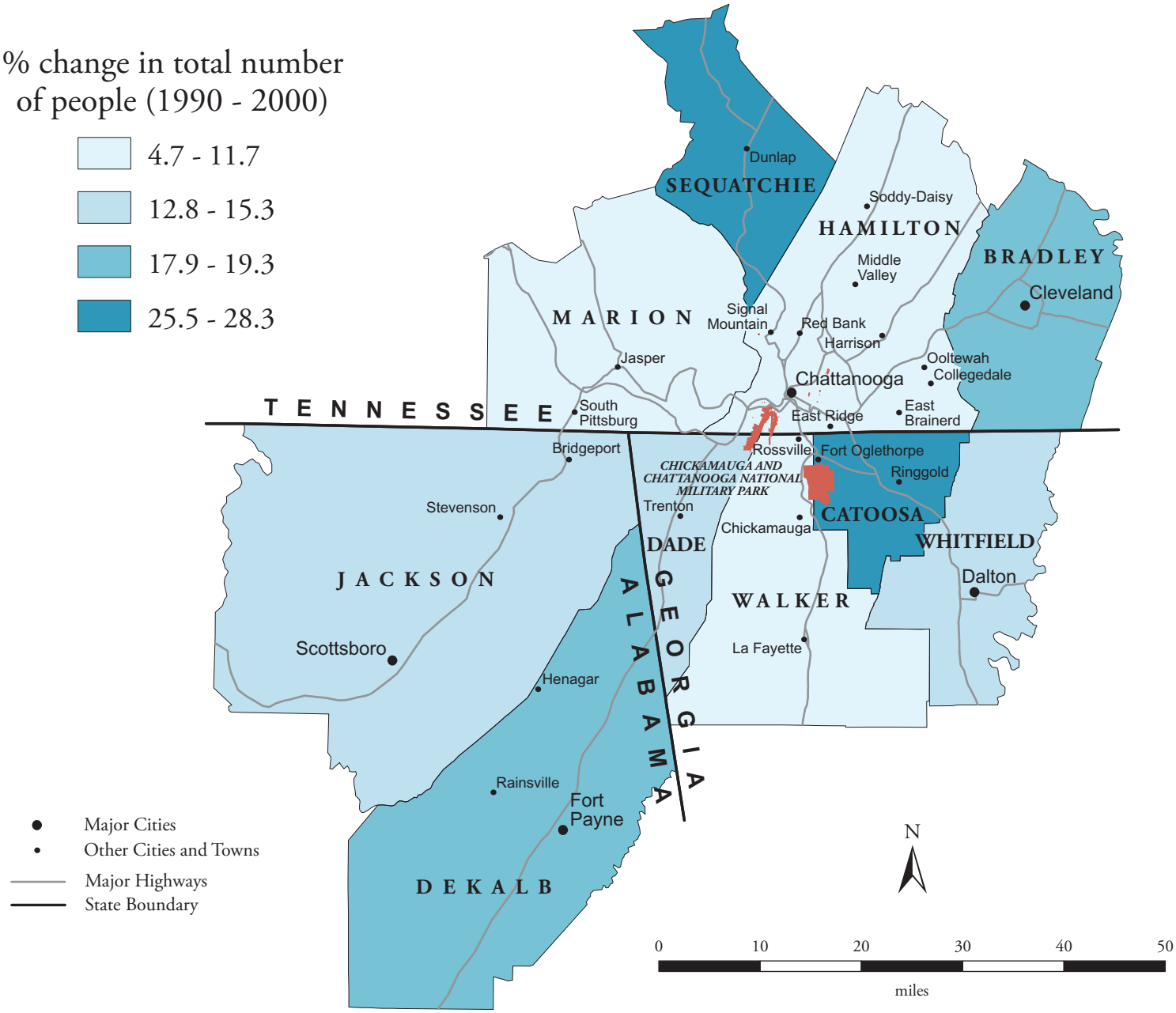


Number Line
showing distribution of data

% change in total number of people (1990 - 2000)	
Walker	4.7
Hamilton	7.8
Marion	11.7
Jackson	12.8
Dade	**15.3**
Whitfield	**15.3**
DeKalb	17.9
Bradley	19.3
Catoosa	25.5
Sequatchie	28.3

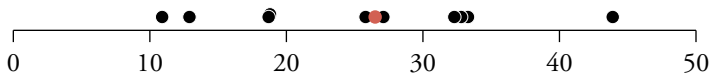
National = 13.2
Alabama = 10.1
Georgia = 26.4
Tennessee = 16.7

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 Chickamauga and Chattanooga National Military Park region, the projected increase in county population by the year 2020 ranges from 10.9% (Walker) to 43.9% (Catoosa).[2]



Number Line
showing distribution of data

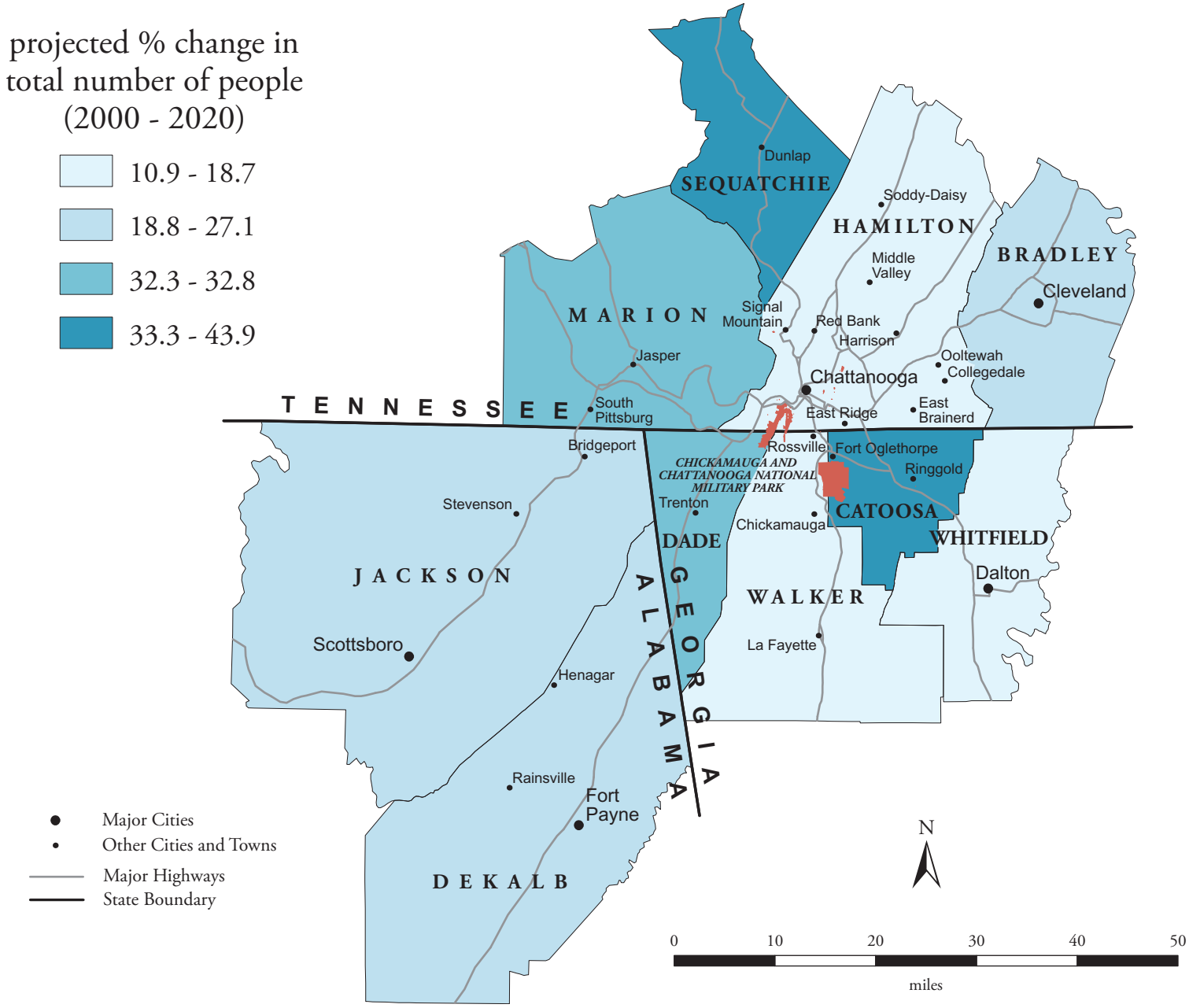
projected % change in total number of people (2000 - 2020)

Walker	10.9
Hamilton	12.9
Whitfield	18.7
Jackson	18.8
DeKalb	25.8
Bradley	27.1
Marion	32.3
Dade	32.8
Sequatchie	33.3
Catoosa	43.9

26.5

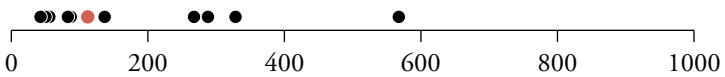
National = 21.1
Alabama = 18.0
Georgia = 28.2
Tennessee = 25.6

Projected Population Change



Population Density

Population density is a measure of population in terms of persons per square mile. Higher concentrations of people tend to support more business activities and can generate greater demand for public goods ranging from roads to open space. Thus, monitoring differences in population density can be an important way to detect potential stresses and impacts on natural resources in the park region. Within the Chickamauga and Chattanooga National Military Park region, county population density (2000) ranges from 42.8 people per square mile (Sequatchie) to 567.6 people per square mile (Hamilton).[3]



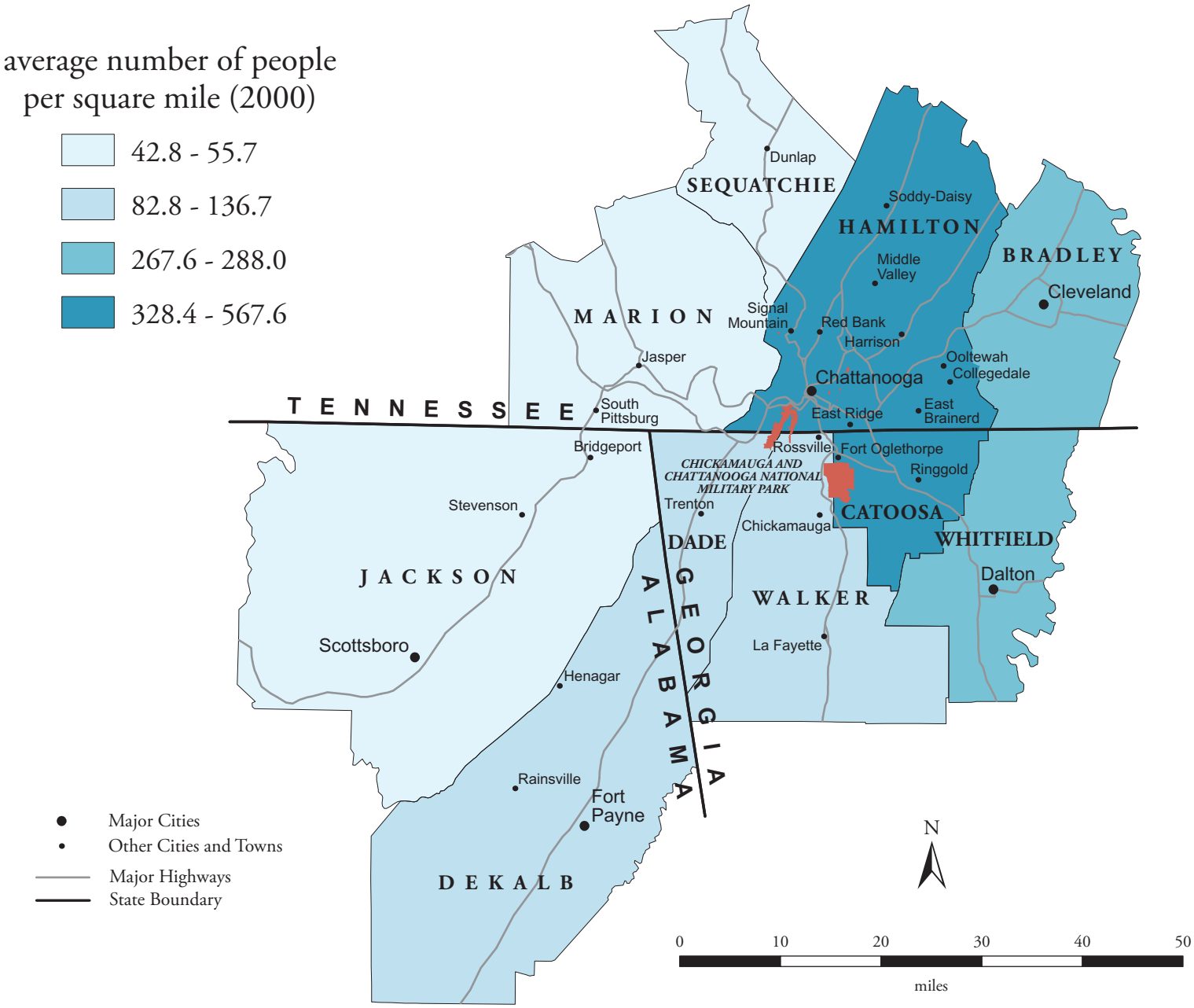
Number Line
showing distribution of data

average number of people per square mile (2000)	
Sequatchie	42.8
Jackson	50.0
Marion	55.7
DeKalb	82.8
Dade	87.1
Walker	136.7
Bradley	267.6
Whitfield	288.0
Catoosa	328.4
Hamilton	567.6

111.9

National = 79.6
Alabama = 87.6
Georgia = 141.4
Tennessee = 138.0

Population Density



Population Density Change

Population density change is an alternate means to describe population growth, stability, or decline. Steady or decelerating growth over a 20-year time period suggests that government and institutions can anticipate and plan for needs in advance. Accelerating population growth may be placing stress on government and institutions to respond rapidly to changes in civic life, industry, infrastructure, and the use of land and resources. Within the Chickamauga and Chattanooga National Military Park region, the change in county population density (1980 - 2000) ranges from 3.9% (Jackson) to 44.2% (Catoosa).[4]

Number Line
showing distribution of data

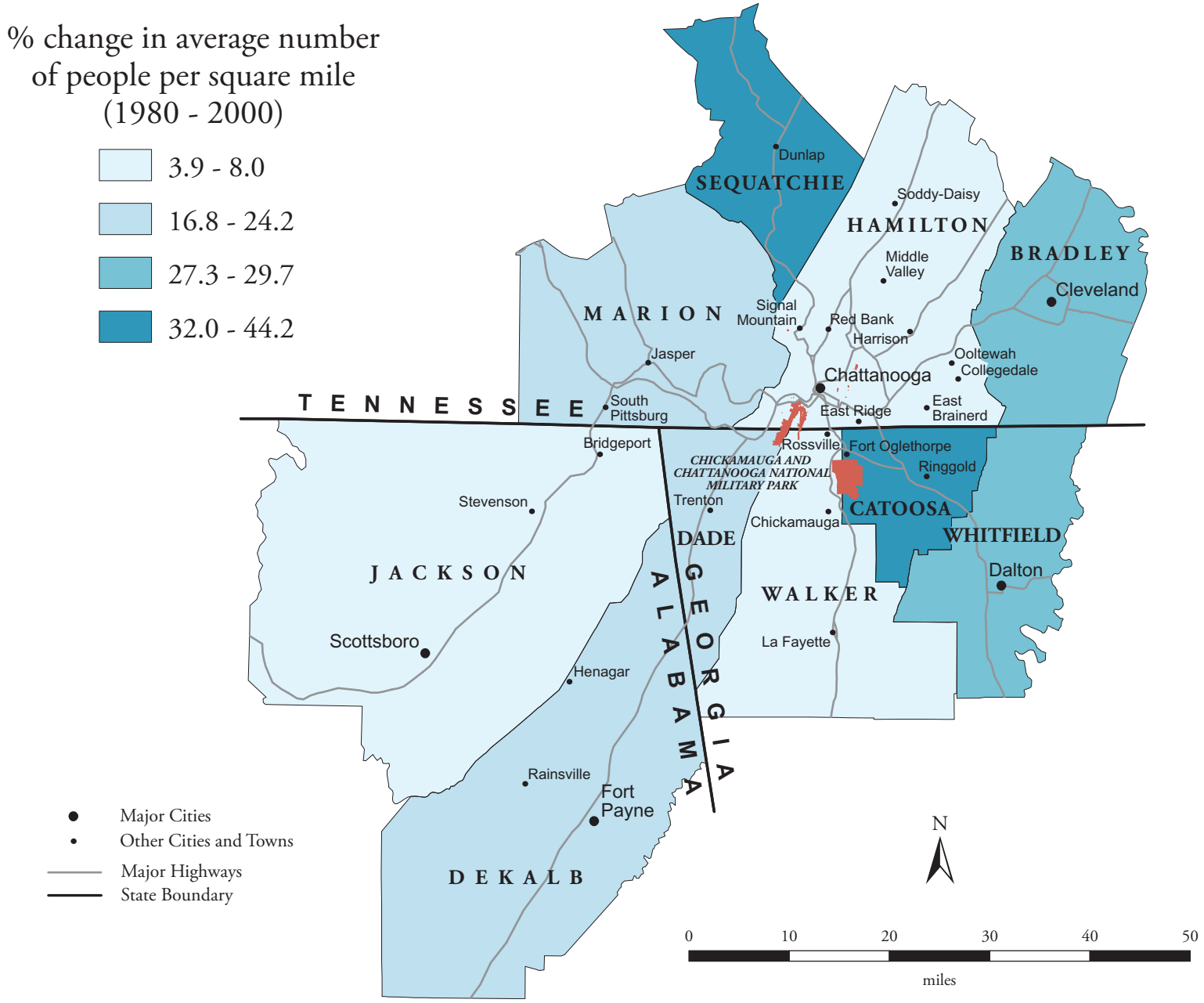
% change in average number of people per square mile (1980 - 2000)

Jackson	3.9
Hamilton	6.3
Walker	8.0
Marion	16.8
DeKalb	20.1
Dade	24.2
Whitfield	27.3
Bradley	29.7
Sequatchie	32.0
Catoosa	44.2

22.2

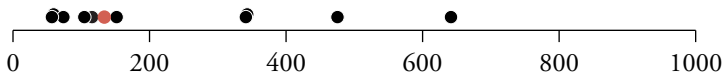
National = 24.3
Alabama = 14.3
Georgia = 50.2
Tennessee = 23.7

Population Density Change



Projected Population Density

Population density projections are based on population projections. Future regional variations in county population density suggest variations in how counties will approach decisions about natural resource-related issues such as transportation, zoning, and water supply. Significantly increased population density can generate rising land costs as well as increased demand for open space to be used for recreation or conservation. Within the Chickamauga and Chattanooga National Military Park region, projected county population density for the year 2020 ranges from 57.0 people per square mile (Sequatchie) to 641.6 people per square mile (Hamilton).[5]



Number Line
showing distribution of data

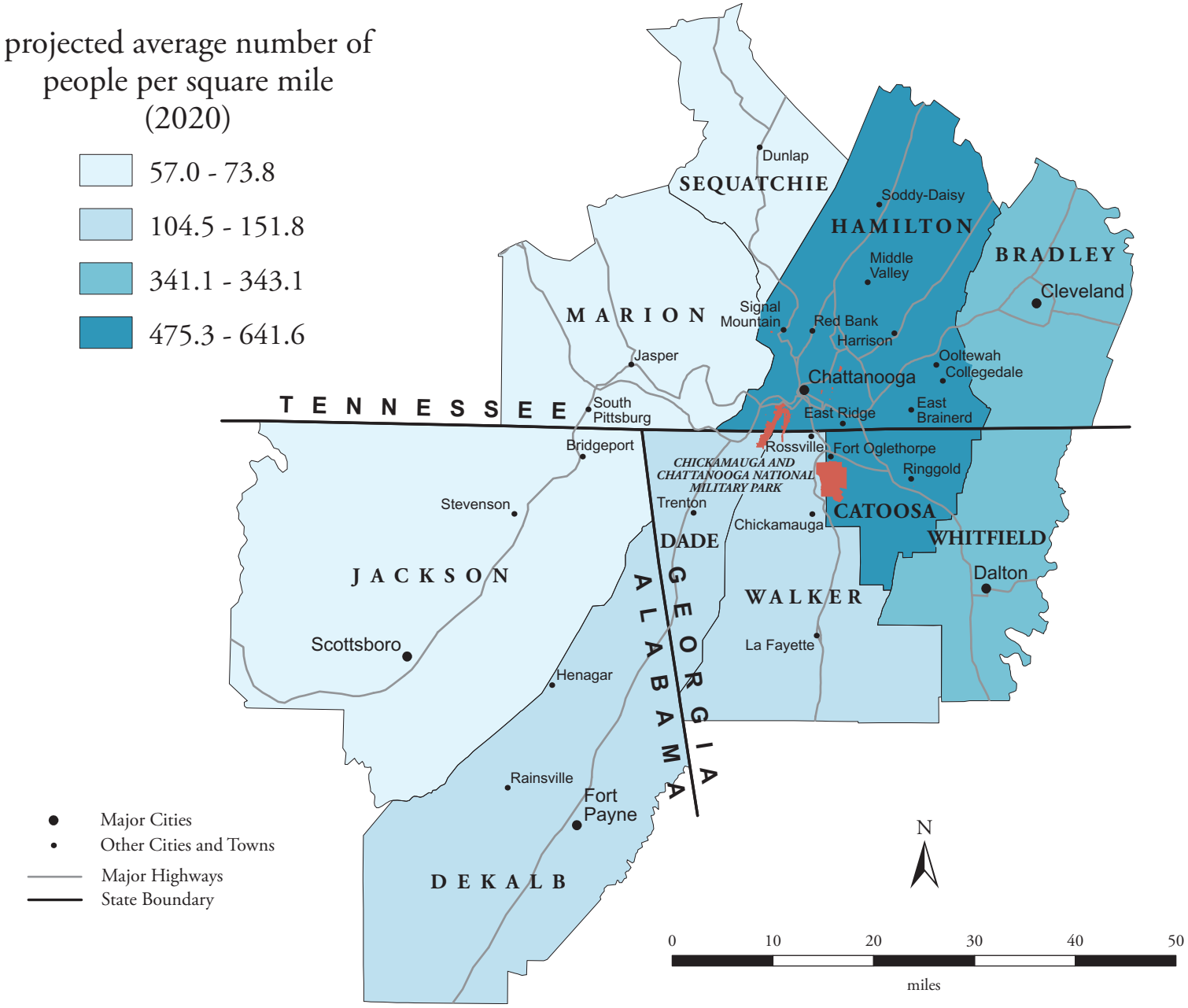
projected average number of people per square mile (2020)

Sequatchie	57.0
Jackson	59.5
Marion	73.8
DeKalb	104.5
Dade	115.8
Walker	151.8
Bradley	341.1
Whitfield	343.1
Catoosa	475.3
Hamilton	641.6

133.8

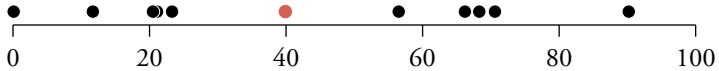
National = 96.6
Alabama = 103.5
Georgia = 182.2
Tennessee = 173.7

Projected Population Density



Urban Population

The relative proportion of urban dwellers within counties in the park region can be significant in addressing regional issues related to park management. Urban dwellers may have easier access to schools, stores, and medical service. They may also benefit from a greater array of public services such as water utilities and municipal police protection. These and many other characteristics can generate differences in urban and rural strategies for dealing with issues such as taxation, development, and environmental protection. Within the Chickamauga and Chattanooga National Military Park region, the percent of total county population living in urban areas (2000) ranges from 0.1% (Sequatchie) to 90.2% (Hamilton).[6]



Number Line
showing distribution of data

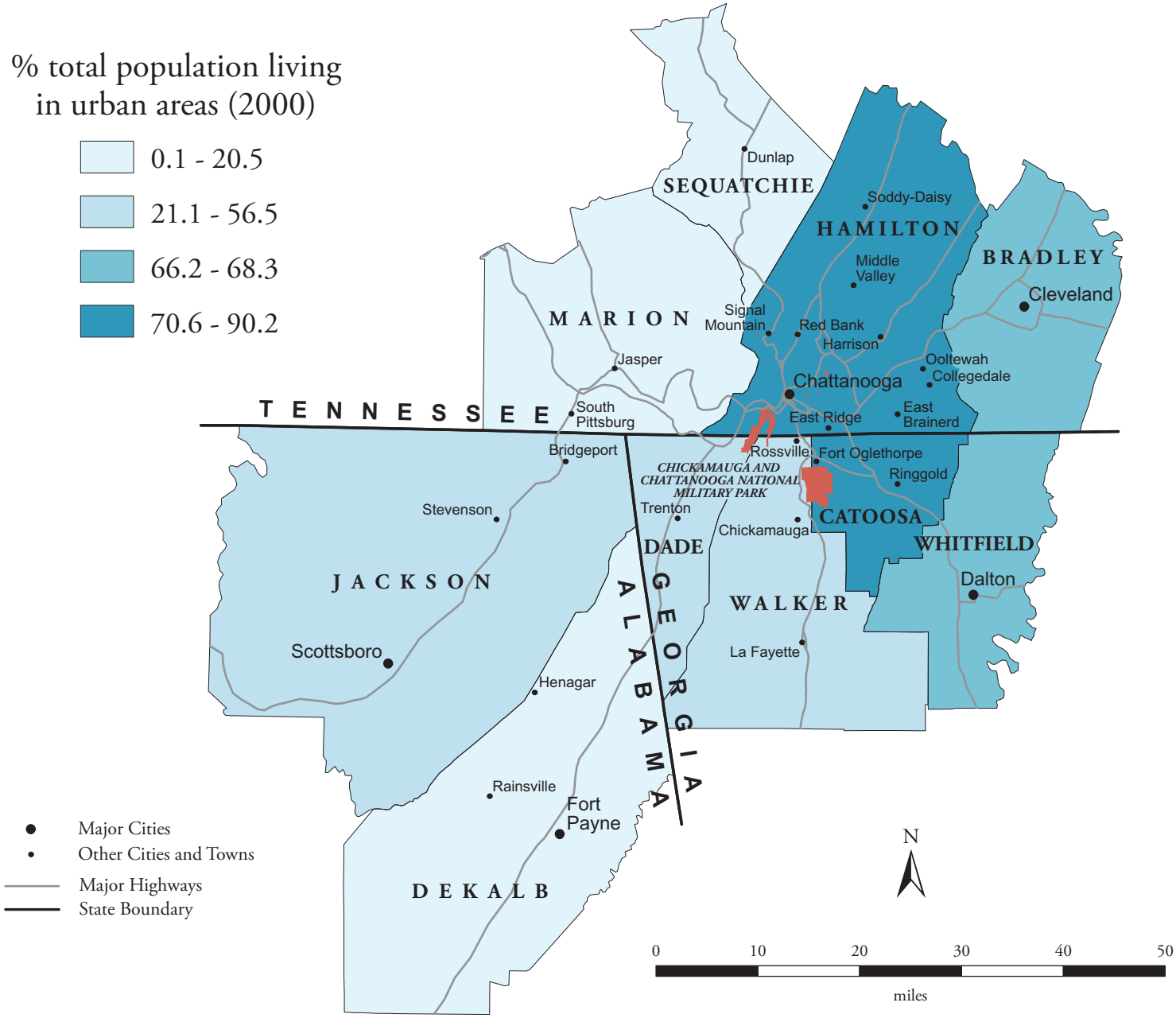
% total population living in urban areas (2000)

Sequatchie	0.1
DeKalb	11.7
Marion	20.5
Dade	21.1
Jackson	23.3
Walker	56.5
Bradley	66.2
Whitfield	68.3
Catoosa	70.6
Hamilton	90.2

39.9

National = 79.0
Alabama = 55.4
Georgia = 71.6
Tennessee = 63.6

Urban Population



Rural Population

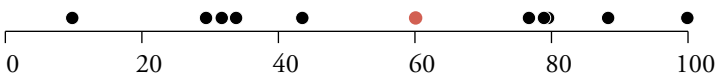
The rural population of a county consists of people who live outside urban areas. Rural dwellers may be less dependent on government for services, such as water supply and police protection. Local networks of neighbors and community groups are likely to be very important in civic life and for rural identity. 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 Chickamauga and Chattanooga National Military Park region, the percent of the county population living in rural areas (2000) ranges from 9.8% (Hamilton) to 99.9% (Sequatchie).[7]

% total population living in rural areas (2000)

Hamilton	9.8
Catoosa	29.4
Whitfield	31.7
Bradley	33.8
Walker	43.5
Jackson	76.7
Dade	78.9
Marion	79.5
DeKalb	88.3
Sequatchie	99.9

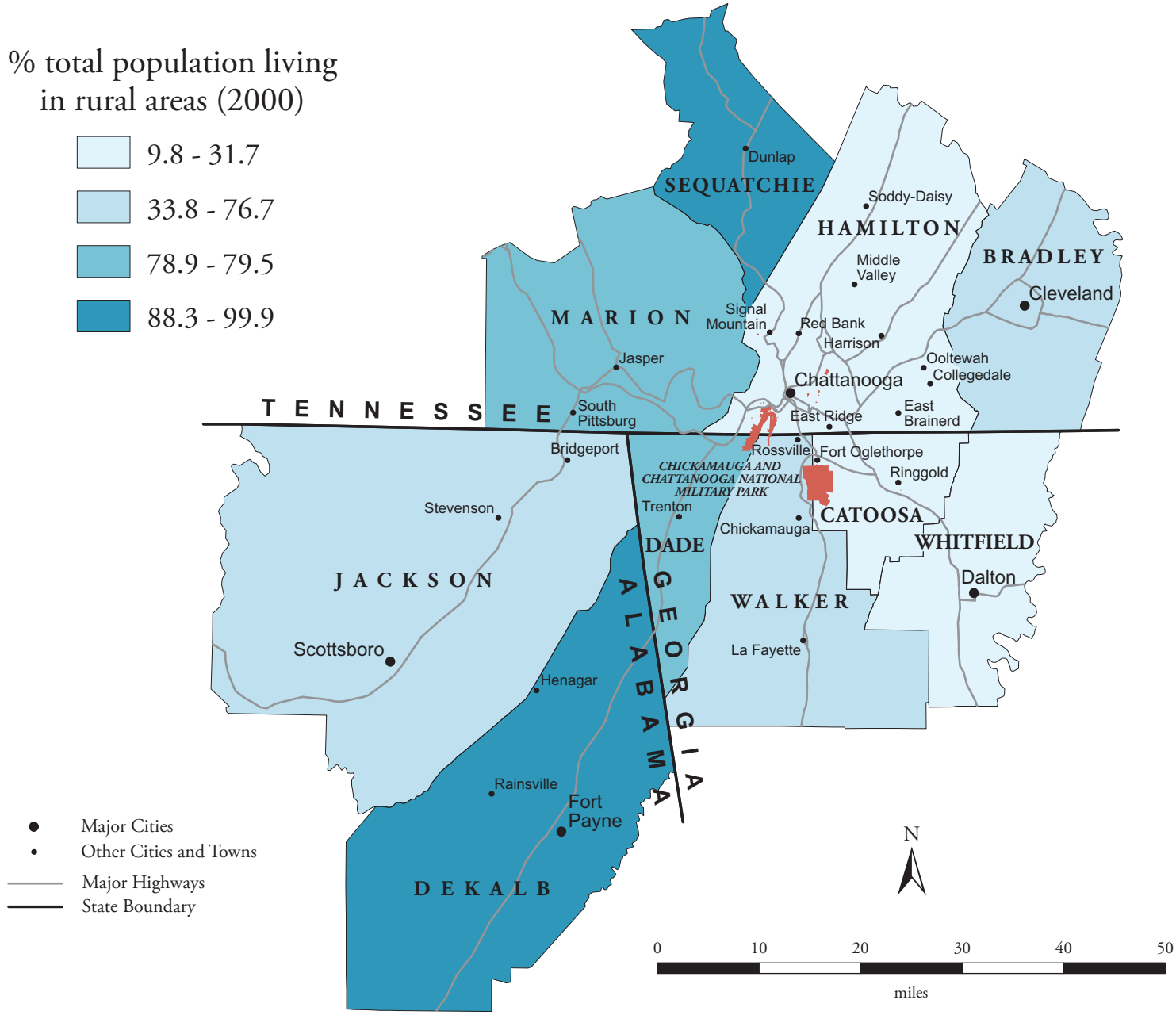
60.1

National = 21.0
Alabama = 44.6
Georgia = 28.4
Tennessee = 36.4



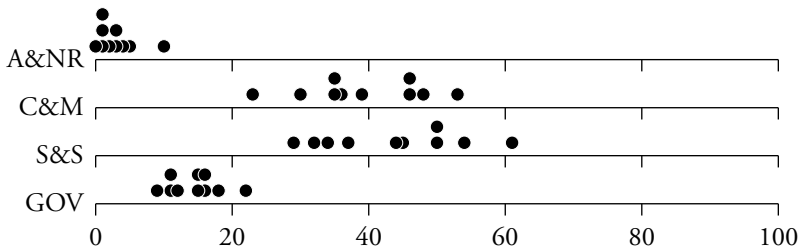
Number Line
showing distribution of data

Rural 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 Chickamauga and Chattanooga National Military Park region (1999), the leading sector of earnings in six counties is Sales and Services. The second-ranking sector is Construction and Manufacturing.[8]



Number Line
showing distribution of data

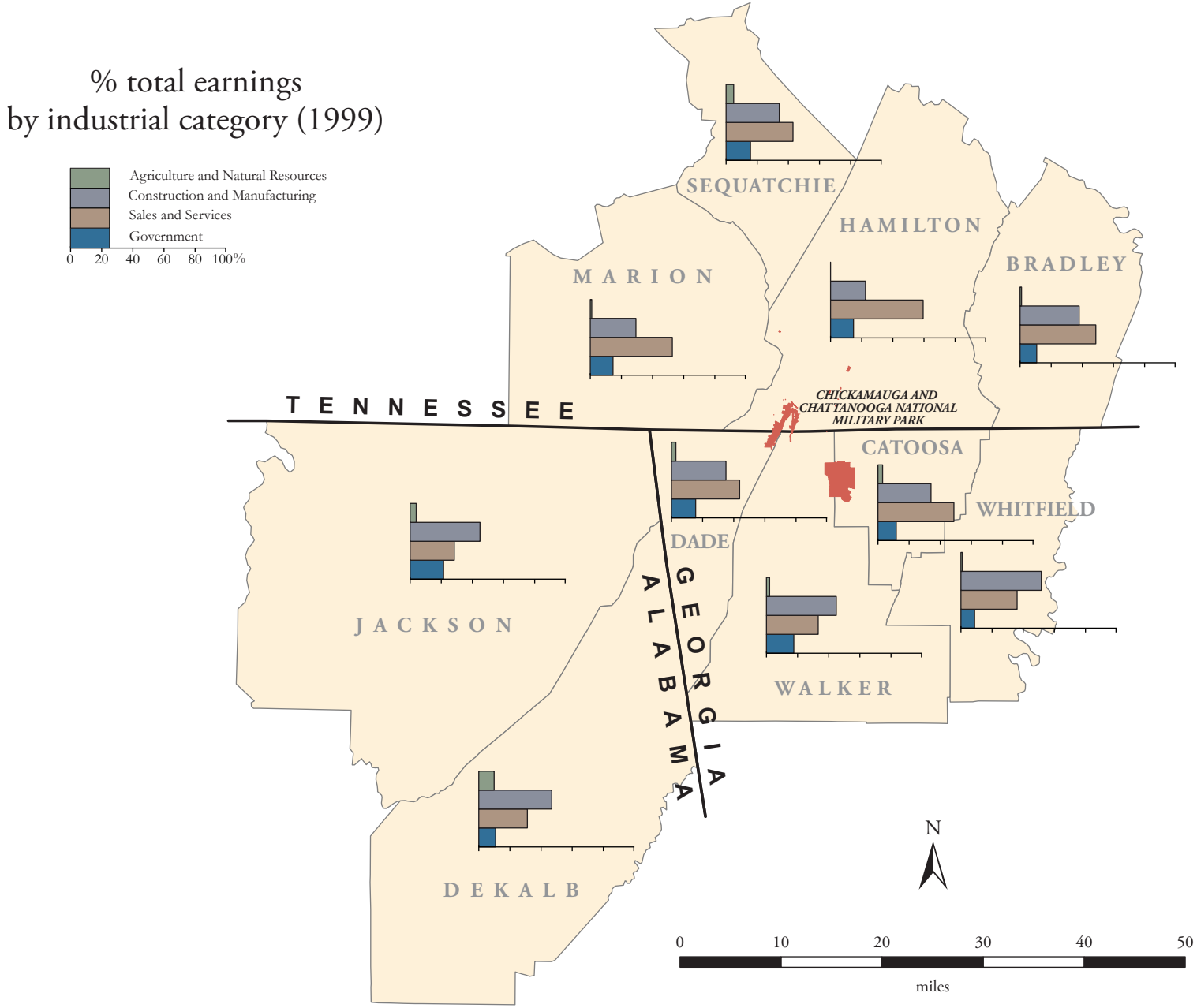
% total earnings
by industrial category (1999)

	A&NR	C&M	S&S	GOV
DeKalb	10	48	32	11
Jackson	4	46	29	22
Catoosa	3	35	50	12
Dade	3	36	45	16
Walker	2	46	34	18
Whitfield	1	53	37	9
Bradley	1	39	50	11
Hamilton	0	23	61	15
Marion	1	30	54	15
Sequatchie	5	35	44	16
National	2	22	60	16
Alabama	3	26	51	20
Georgia	2	21	61	16
Tennessee	1	26	60	14

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

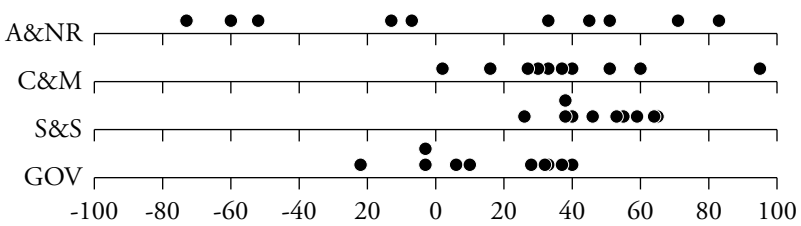
Percentages may not add to one hundred due to rounding.

Earnings by Industry



Change in Earnings by Industry

Change in earnings by industry may be indicative of the overall growth, stability, or decline of a local economy. In addition, an industrial sector that shows significantly increased (or decreased) earnings relative to other sectors may reveal a local economy that is undergoing some restructuring. Changing economic activities within a region can have an impact on land use, migration of people in response to changes in jobs and services, and other livelihood concerns. Understanding trends in the economic activities can assist park managers in being responsive to change. Within the Chickamauga and Chattanooga National Military Park region (1990 - 1999), the Agriculture and Natural Resources sector had the largest losses in five counties while Sales and Services had the largest gains in five counties.[9]



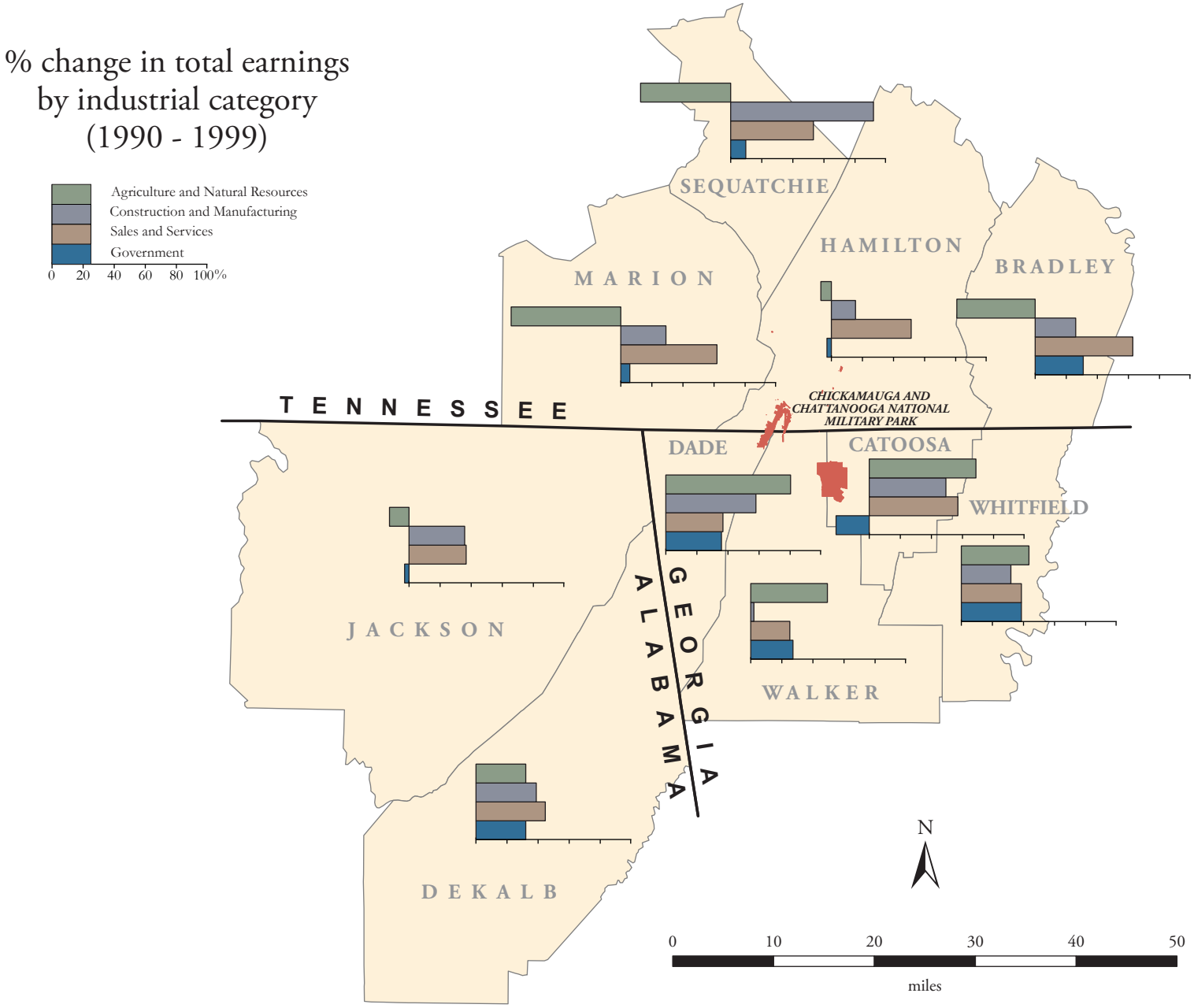
Number Line
showing distribution of data

% change in total earnings
by industrial category
(1990 - 1999)

	A&NR	C&M	S&S	GOV
DeKalb	33	40	46	33
Jackson	-13	37	38	-3
Catoosa	71	51	59	-22
Dade	83	60	38	37
Walker	51	2	26	28
Whitfield	45	33	40	40
Bradley	-52	27	65	32
Hamilton	-7	16	53	-3
Marion	-73	30	64	6
Sequatchie	-60	95	55	10
National	4	16	45	16
Alabama	18	12	40	15
Georgia	43	37	69	24
Tennessee	-28	22	59	13

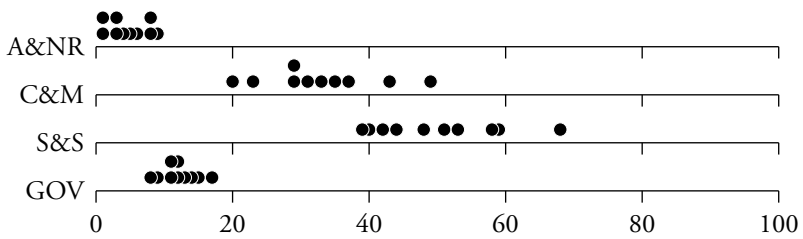
A&NR = Agriculture and Natural Resources
C&M = Construction and Manufacturing
S&S = Sales and Services
GOV = Government

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 Chickamauga and Chattanooga National Military Park region (1999), the leading sector of employment in eight counties is Sales and Services. The second-ranking sector is Construction and Manufacturing.[10]



Number Line
showing distribution of data

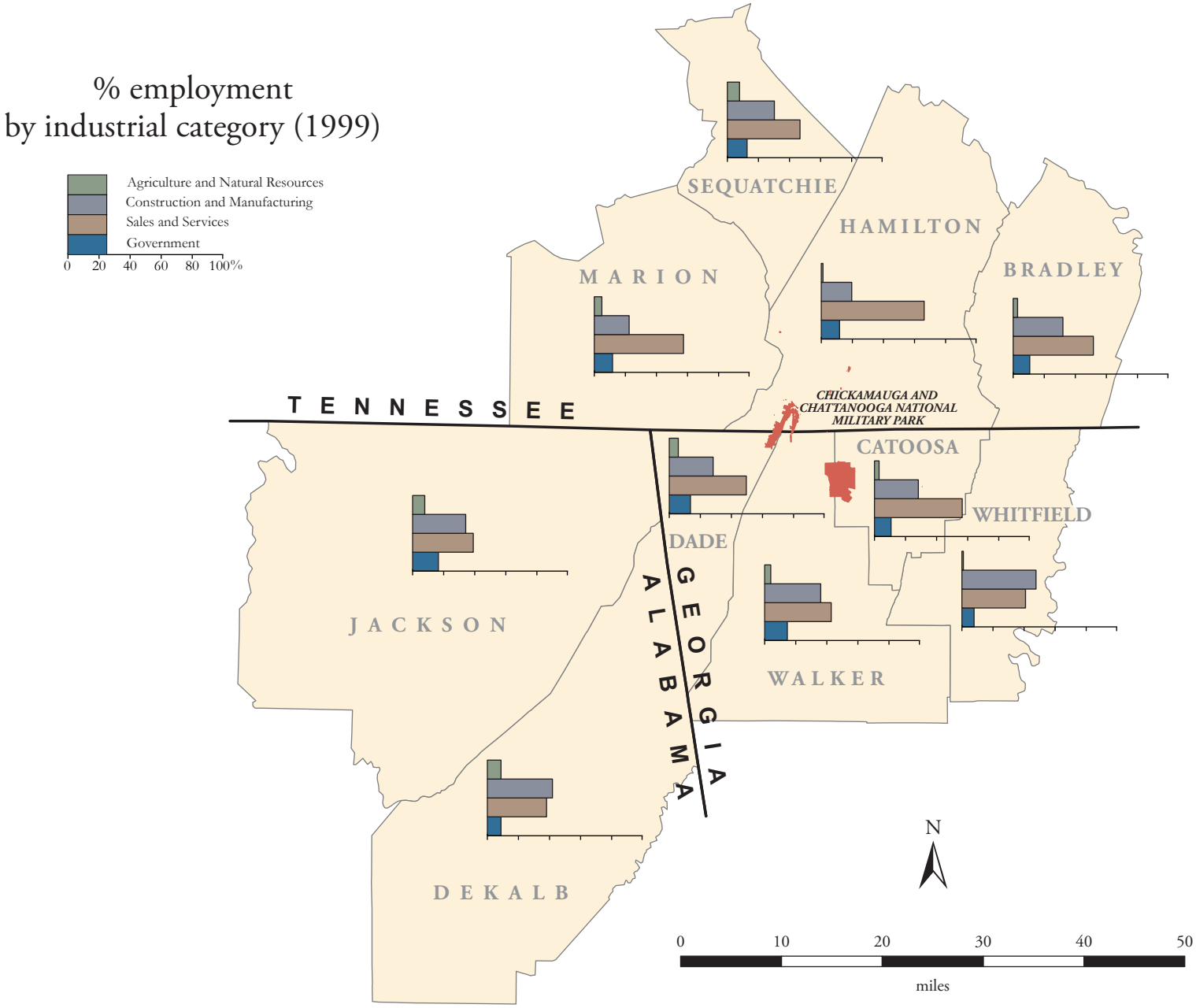
% employment
by industrial category (1999)

	A&NR	C&M	S&S	GOV
DeKalb	9	43	39	9
Jackson	8	35	40	17
Catoosa	3	29	58	11
Dade	6	29	51	14
Walker	4	37	44	15
Whitfield	1	49	42	8
Bradley	3	33	53	11
Hamilton	1	20	68	12
Marion	5	23	59	12
Sequatchie	8	31	48	13
National	4	17	65	14
Alabama	4	22	58	16
Georgia	3	19	64	14
Tennessee	4	21	63	12

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

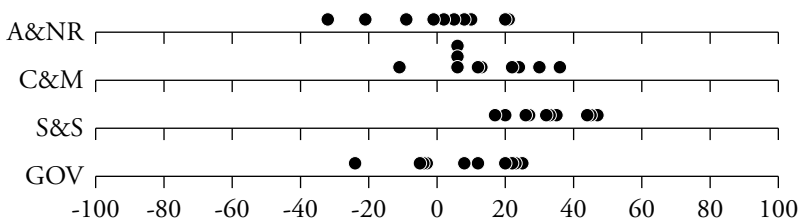
Percentages may not add to one hundred due to rounding.

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 among 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 Chickamauga and Chattanooga National Military Park region (1990 - 1999), nine counties experienced the greatest increases in employment in the Sales and Services sector.[11]



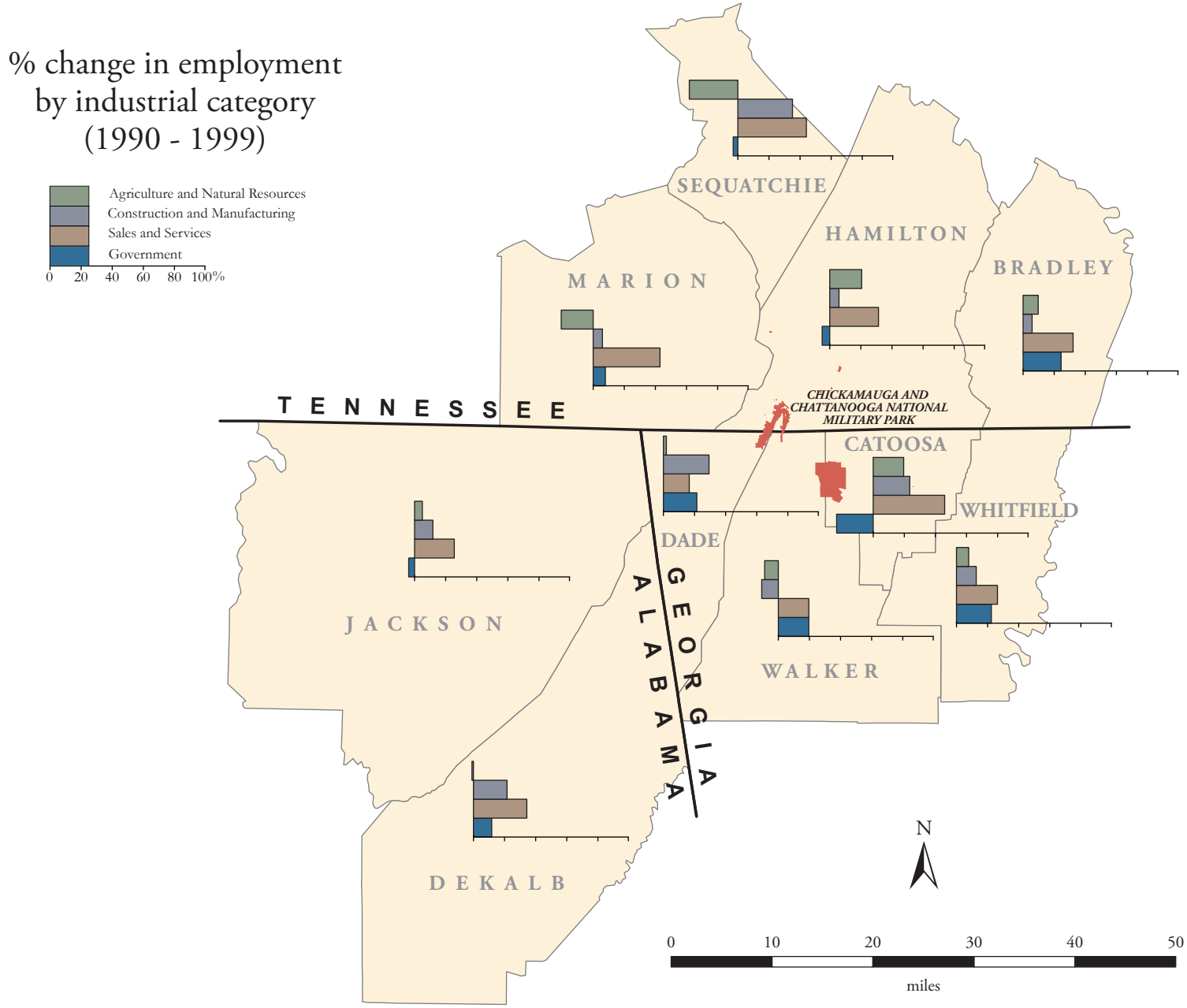
Number Line
showing distribution of data

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

	A&NR	C&M	S&S	GOV
DeKalb	-1	22	35	12
Jackson	5	12	26	-4
Catoosa	20	24	47	-24
Dade	2	30	17	22
Walker	-9	-11	20	20
Whitfield	8	13	27	23
Bradley	10	6	33	25
Hamilton	21	6	32	-5
Marion	-21	6	44	8
Sequatchie	-32	36	45	-3
National	6	6	25	5
Alabama	1	4	30	2
Georgia	12	15	41	11
Tennessee	6	8	35	6

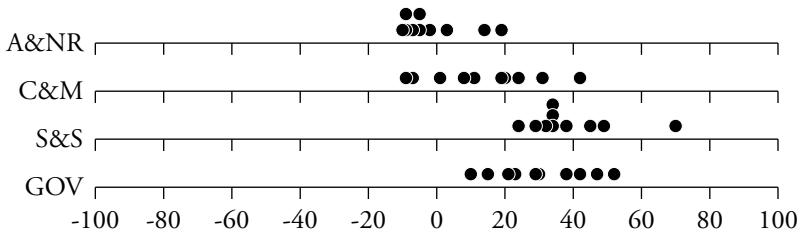
A&NR = Agriculture and Natural Resources
C&M = Construction and Manufacturing
S&S = Sales and Services
GOV = Government

Change in Employment by Industry



Projected Change in Employment by Industry

Jobs in the four industrial sectors are in a constant state of flux. A projected decline or increase in a certain industrial sector may show which skills could be in demand at a future date. This could lead to a change in migration patterns in the counties around the park as new people arrive to take advantage of the new employment opportunities. Within the Chickamauga and Chattanooga National Military Park region (2000 - 2020), five counties have the greatest projected increases in employment in the Sales and Services sector, while the other five show the greatest projected increases in Government.[12]



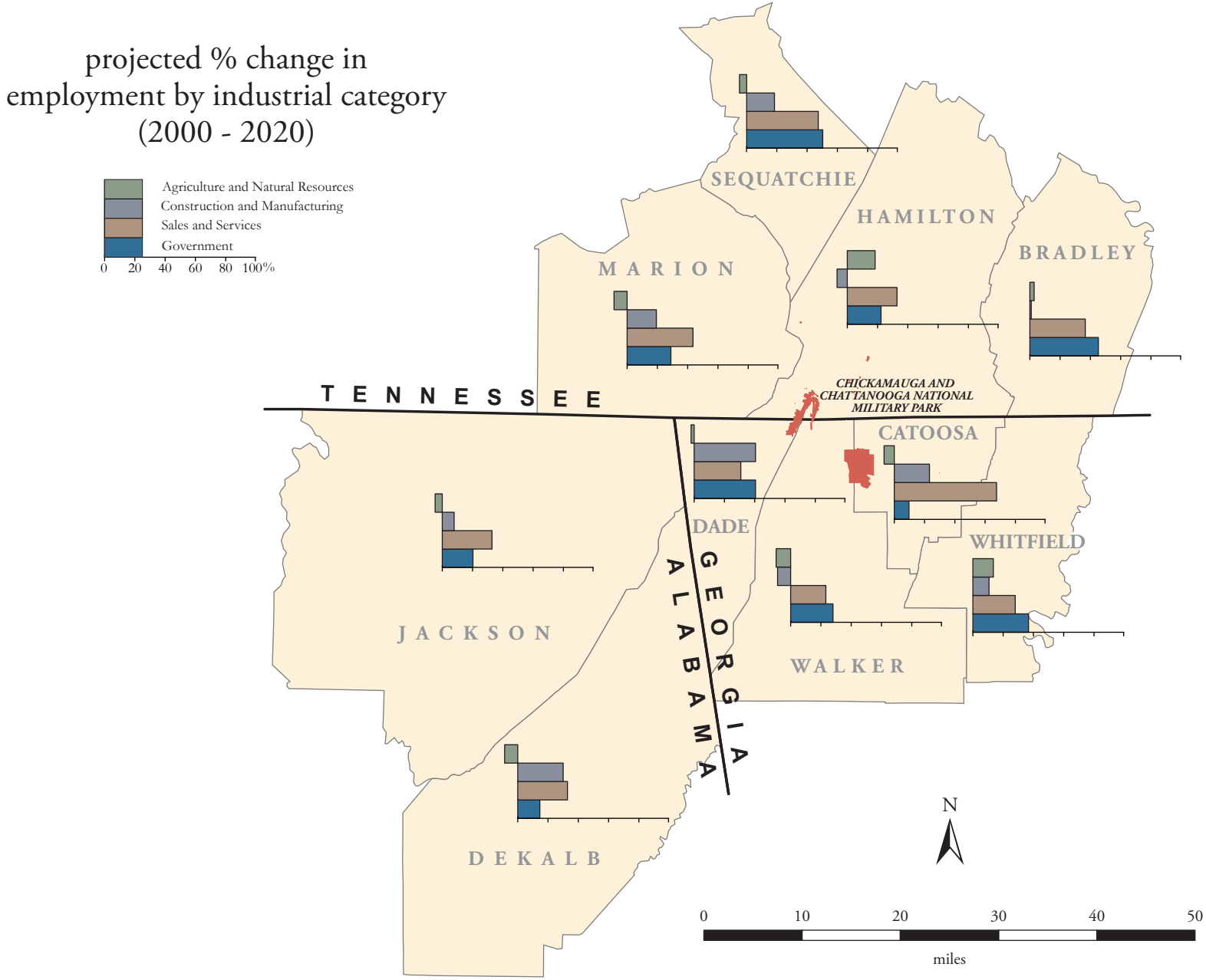
Number Line
showing distribution of data

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

	A&NR	C&M	S&S	GOV
DeKalb	-9	31	34	15
Jackson	-5	8	34	21
Catoosa	-7	24	70	10
Dade	-2	42	32	42
Walker	-10	-9	24	29
Whitfield	14	11	29	38
Bradley	3	1	38	47
Hamilton	19	-7	34	23
Marion	-9	20	45	30
Sequatchie	-5	19	49	52
National	8	10	33	23
Alabama	4	7	34	17
Georgia	9	15	41	23
Tennessee	-1	7	42	23

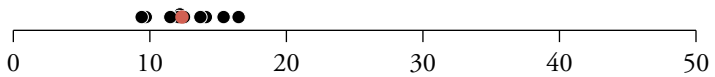
A&NR = Agriculture and Natural Resources
C&M = Construction and Manufacturing
S&S = Sales and Services
GOV = Government

Projected Change in Employment by Industry



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 Chickamauaga and Chattanooga National Military Park region, the incidence of poverty (1999) ranges from 9.4% (Catoosa) to 16.5% (Sequatchie).[13]



Number Line
showing distribution of data

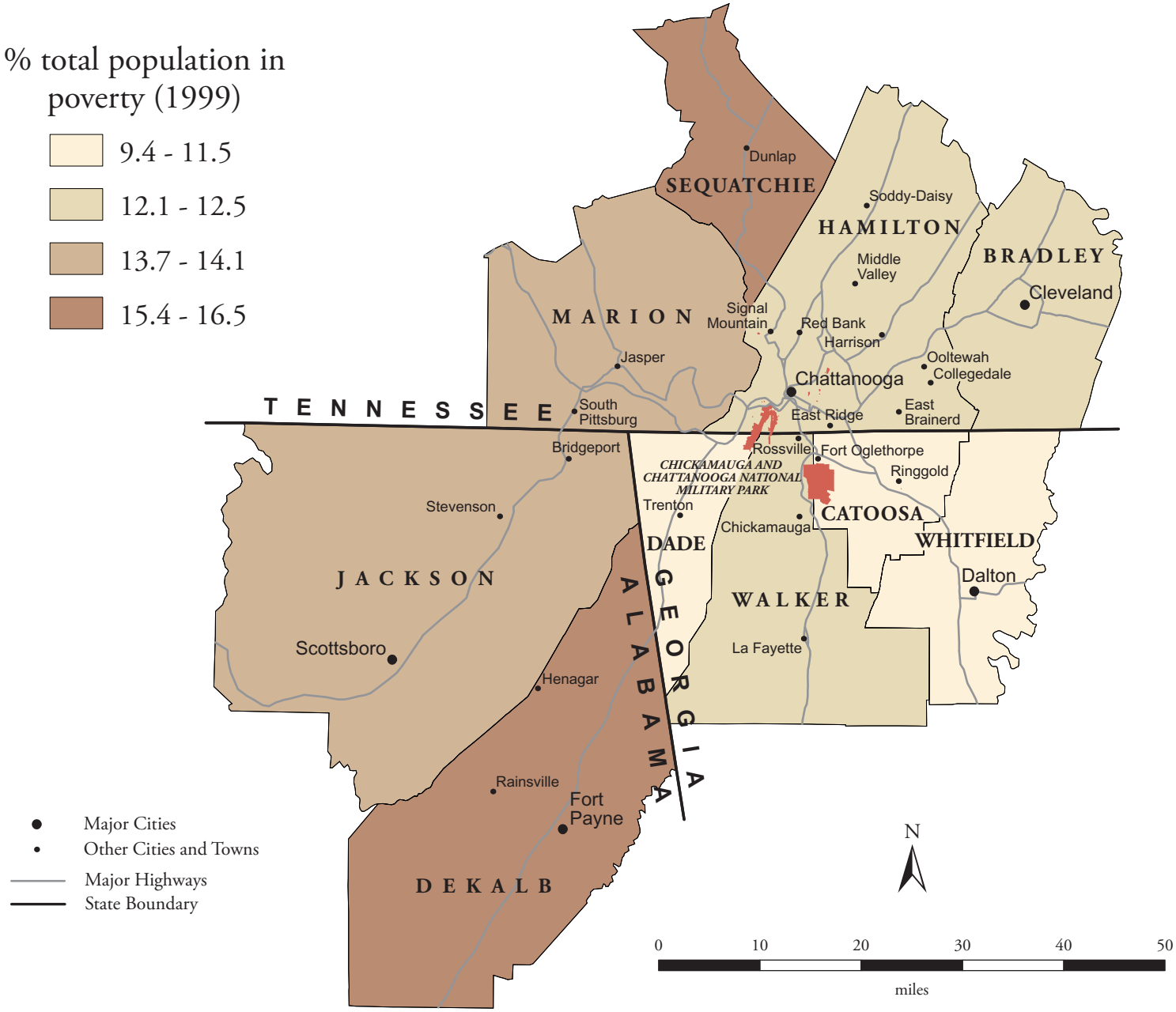
% total population in poverty (1999)

Catoosa	9.4
Dade	9.7
Whitfield	11.5
Hamilton	12.1
Bradley	12.2
Walker	12.5
Jackson	13.7
Marion	14.1
DeKalb	15.4
Sequatchie	16.5

12.4

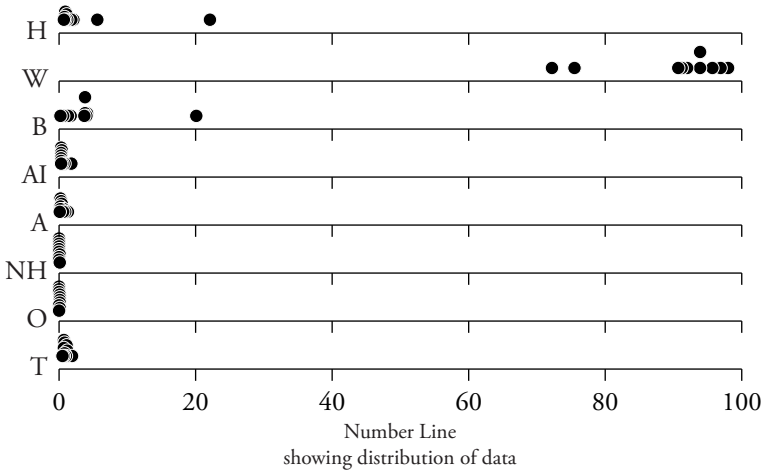
National = 12.4
Alabama = 16.1
Georgia = 13.0
Tennessee = 13.5

Poverty


% total population in poverty (1999)
9.4 - 11.5
12.1 - 12.5
13.7 - 14.1
15.4 - 16.5
SEQUATCHIE
Dunlap
HAMILTON
Soddy-Daisy
Middle Valley
BRADLEY
Cleveland
MARION
Signal Mountain
Red Bank
Harrison
Jasper
Ooltewah
Collegedale
Chattanooga
TENNESSEE
South Pittsburg
East Ridge
East Brainerd
Bridgeport
Rossville
Fort Oglethorpe
CHICKAMAUGA AND CHATTANOOGA NATIONAL MILITARY PARK
Ringgold
Stevenson
Trenton
CATOOSA
Chickamauga
DADE
WHITFIELD
JACKSON
Dalton
WALKER
ALABAMA
GEORGIA
Scottsboro
La Fayette
Henagar
Rainsville
Fort Payne
DEKALB
Major Cities
Other Cities and Towns
Major Highways
State Boundary
N
0
10
20
30
40
50
miles

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 Chickamauga and Chattanooga National Military Park region (2000), White people constitute the largest racial group in all 10 counties. Hamilton County has the largest percentage of Black people, and Whitfield has the largest percentage of Hispanic people.[14]



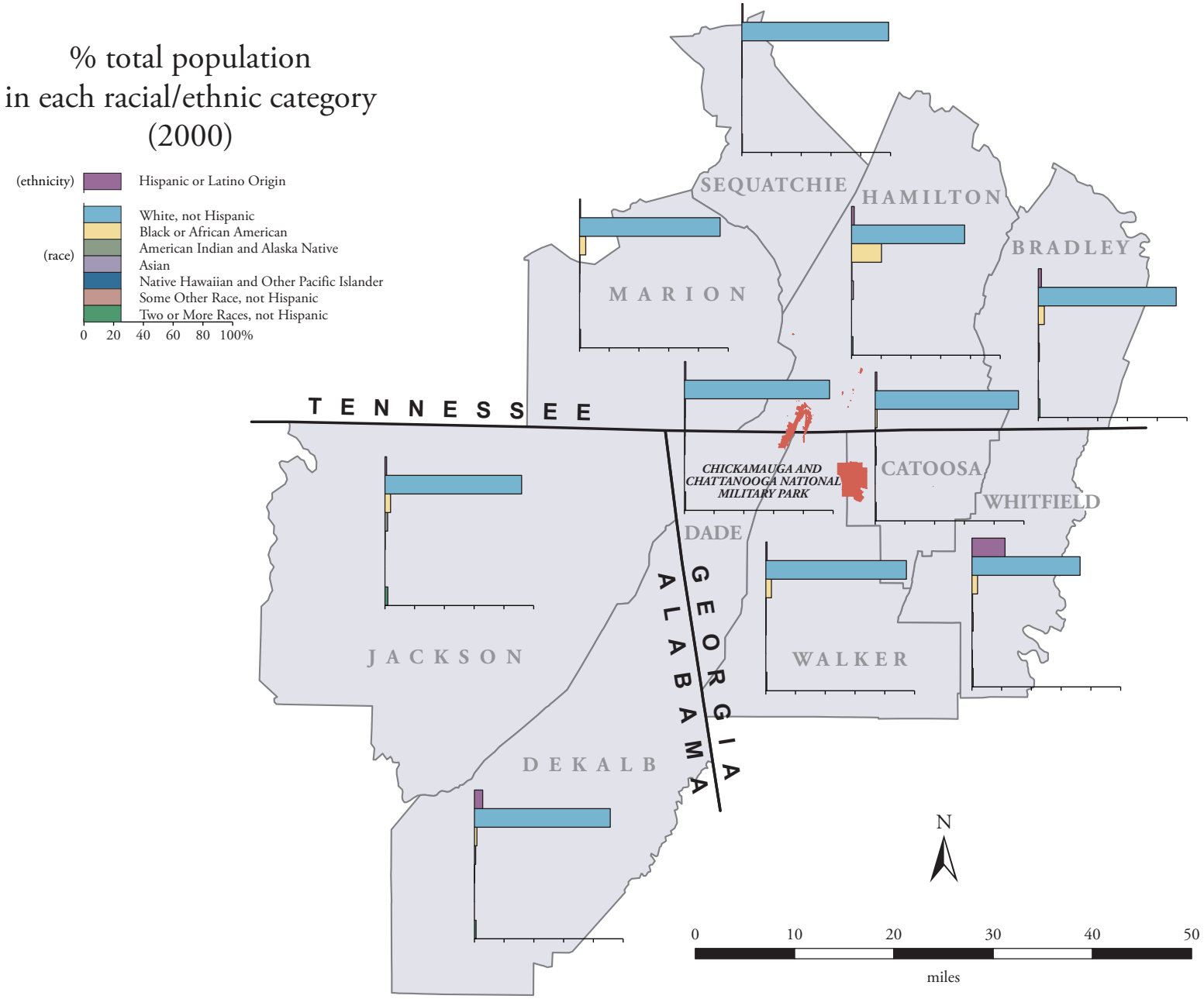
H = Hispanic or Latino Origin
W = White, not Hispanic
B = Black or African American
AI = American Indian and Alaska Native
A = Asian
NH = Native Hawaiian and Other Pacific Islander
O = Some Other Race, not Hispanic
T = Two or More Races, not Hispanic

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

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

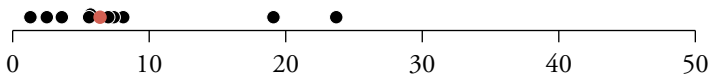
	H	W	B	AI	A	NH	O	T
DeKalb	6	91	2	1	0	0	0	1
Jackson	1	91	4	2	0	0	0	2
Catoosa	1	96	1	0	1	0	0	1
Dade	1	97	1	1	0	0	0	1
Walker	1	94	4	0	0	0	0	1
Whitfield	22	72	4	0	1	0	0	1
Bradley	2	92	4	0	1	0	0	1
Hamilton	2	76	20	0	1	0	0	1
Marion	1	94	4	0	0	0	0	1
Sequatchie	1	98	0	0	0	0	0	1
National	13	69	12	1	4	0	0	2
Alabama	2	70	26	1	1	0	0	1
Georgia	5	63	29	0	2	0	0	1
Tennessee	2	79	16	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 Chickamauga and Chattanooga National Military Park region, the percentage of racial minorities (2000) ranges from 1.3% (Sequatchie) to 23.7% (Hamilton).[15]



Number Line
showing distribution of data

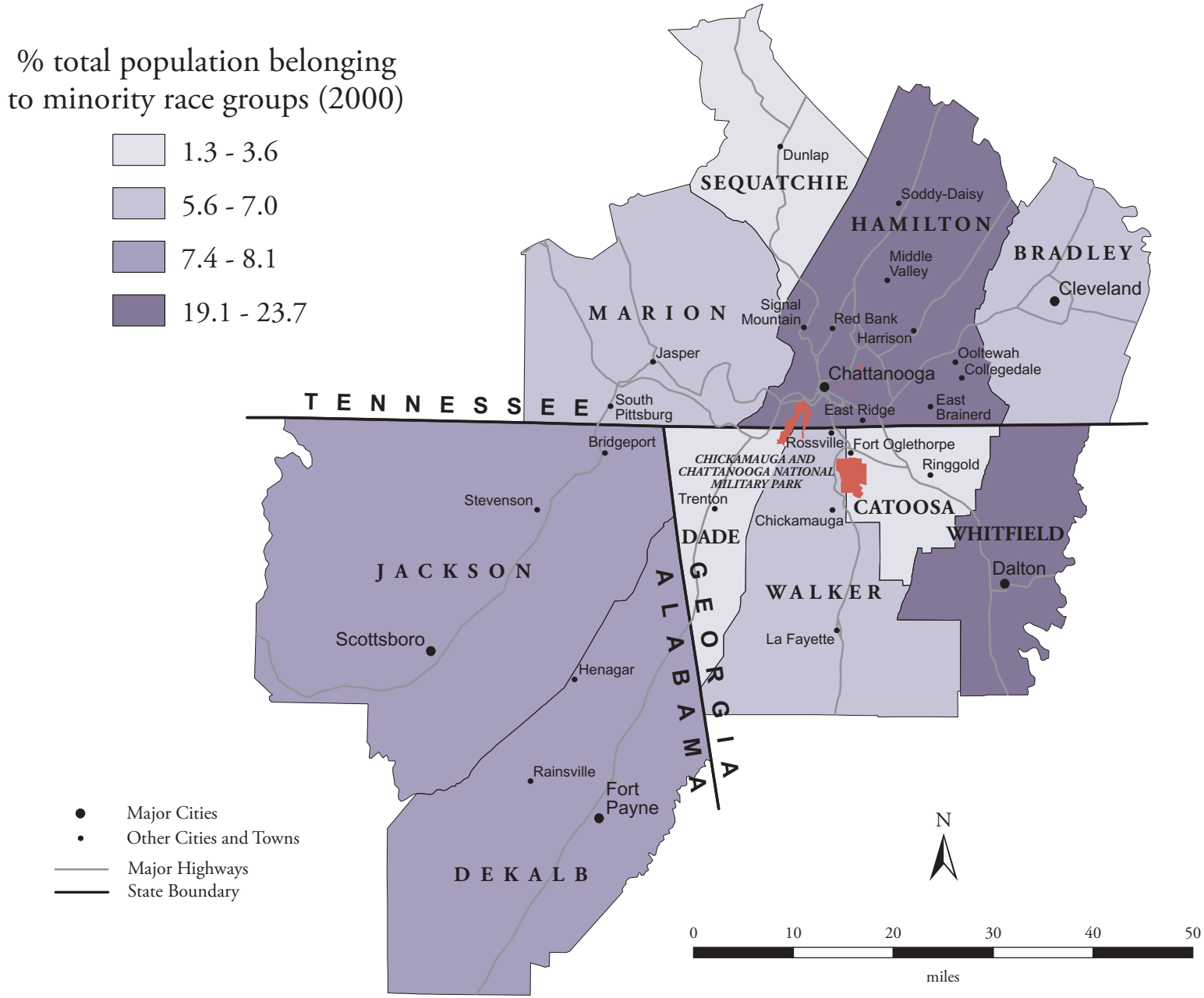
% total population belonging to minority race groups (2000)

Sequatchie	1.3
Dade	2.5
Catoosa	3.6
Walker	5.6
Marion	5.7
Bradley	7.0
DeKalb	7.4
Jackson	8.1
Whitfield	19.1
Hamilton	23.7

6.4

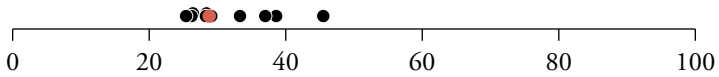
National = 24.9
Alabama = 28.9
Georgia = 34.9
Tennessee = 19.8

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 Chickamauga and Chattanooga National Military Park region, the percentage of adults with some college education (2000) ranges from 25.4% (Sequatchie) to 45.5% (Hamilton).[16]



Number Line
showing distribution of data

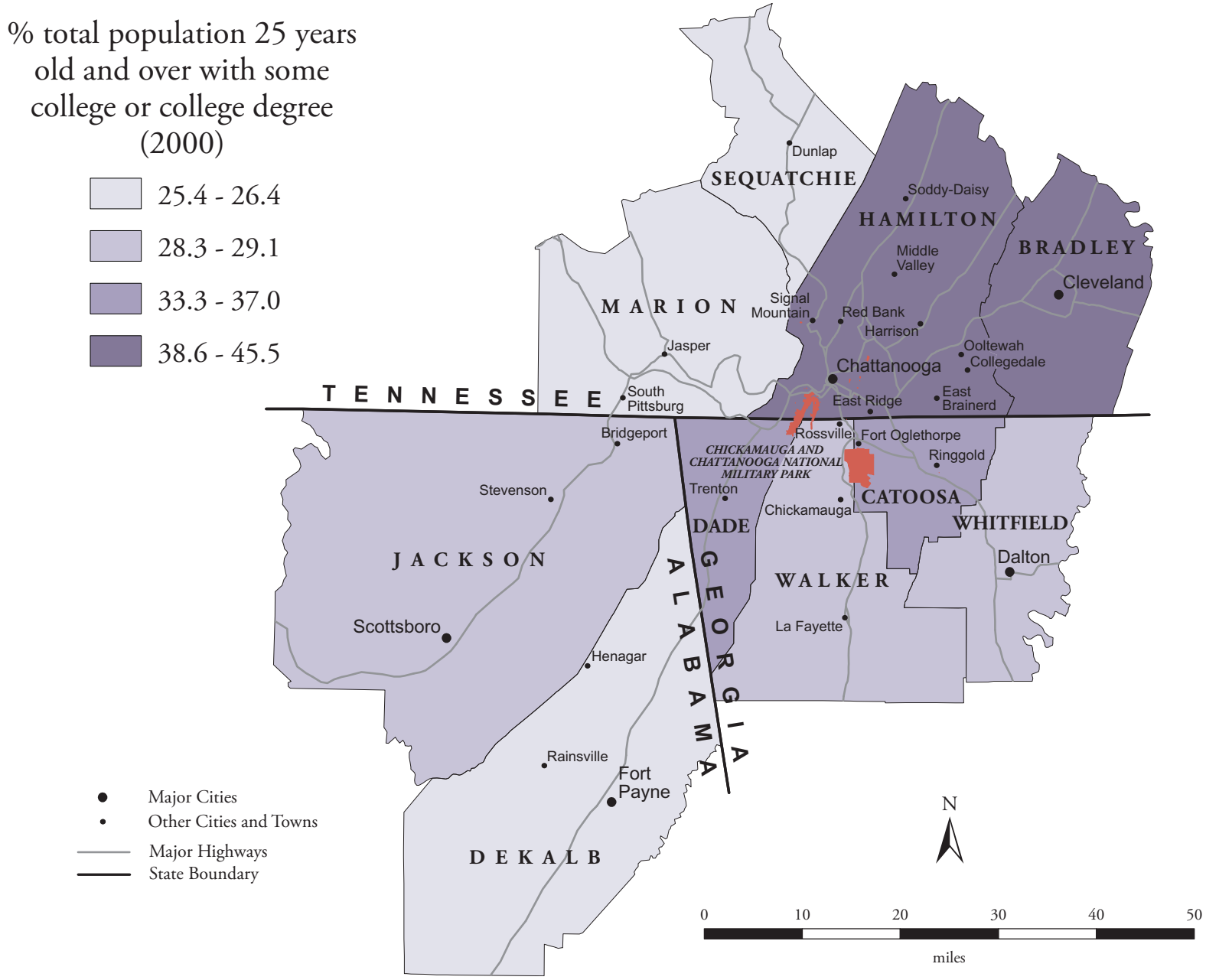
% total population 25 years old and over with some college or college degree (2000)

Sequatchie	25.4
Marion	26.2
DeKalb	26.4
Jackson	28.3
Walker	28.4
Whitfield	29.1
Dade	33.3
Catoosa	37.0
Bradley	38.6
Hamilton	45.5

28.8

National = 42.9
Alabama = 38.0
Georgia = 41.6
Tennessee = 37.6

Educational Attainment



English Language Ability

Indicators of English language ability measure how familiar people are with either spoken or written English. One indicator of English language ability is the percentage of the total county population 5 years old and over that reports that they do not speak English, or do not speak it well. Knowledge of English can influence people's ability to access basic public information, to obtain services such as education and health care, to gain many types of employment, and to exercise political power. An awareness of the characteristics of the region's non-English speaking community can help park managers design effective public relations, public participation, and interpretive programs. Within the Chickamauga and Chattanooga National Military Park region, the percentage of people with little or no English language ability (2000) ranges from 0.3% (Jackson and Marion) to 9.3% (Whitfield).[17]

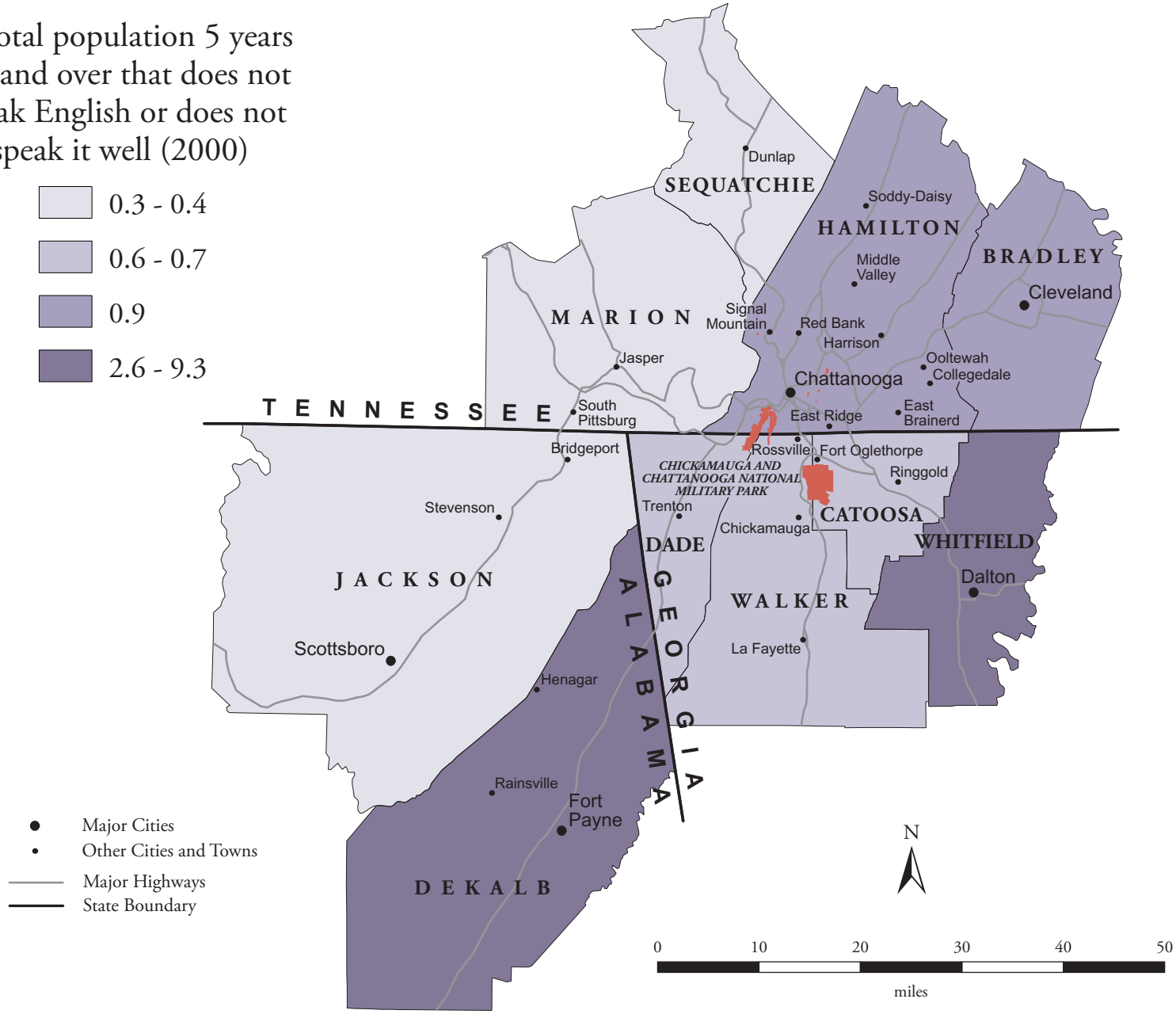
Number Line
showing distribution of data

% total population 5 years old and over that does not speak English or does not speak it well (2000)

Jackson	0.3
Marion	0.3
Sequatchie	0.4
Catoosa	0.6
Dade	**0.7**
Walker	**0.7**
Bradley	0.9
Hamilton	0.9
DeKalb	2.6
Whitfield	9.3

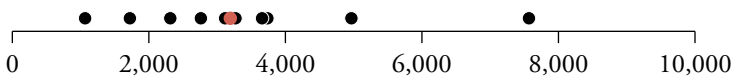
National = 3.9
Alabama = 0.7
Georgia = 2.7
Tennessee = 1.0

English Language Ability



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 Chickamauga and Chattanooga National Military Park region, the number of serious crimes reported per 100,000 people (2000) ranges from 1,066 (DeKalb) to 7,568 (Hamilton).



Number Line
showing distribution of data

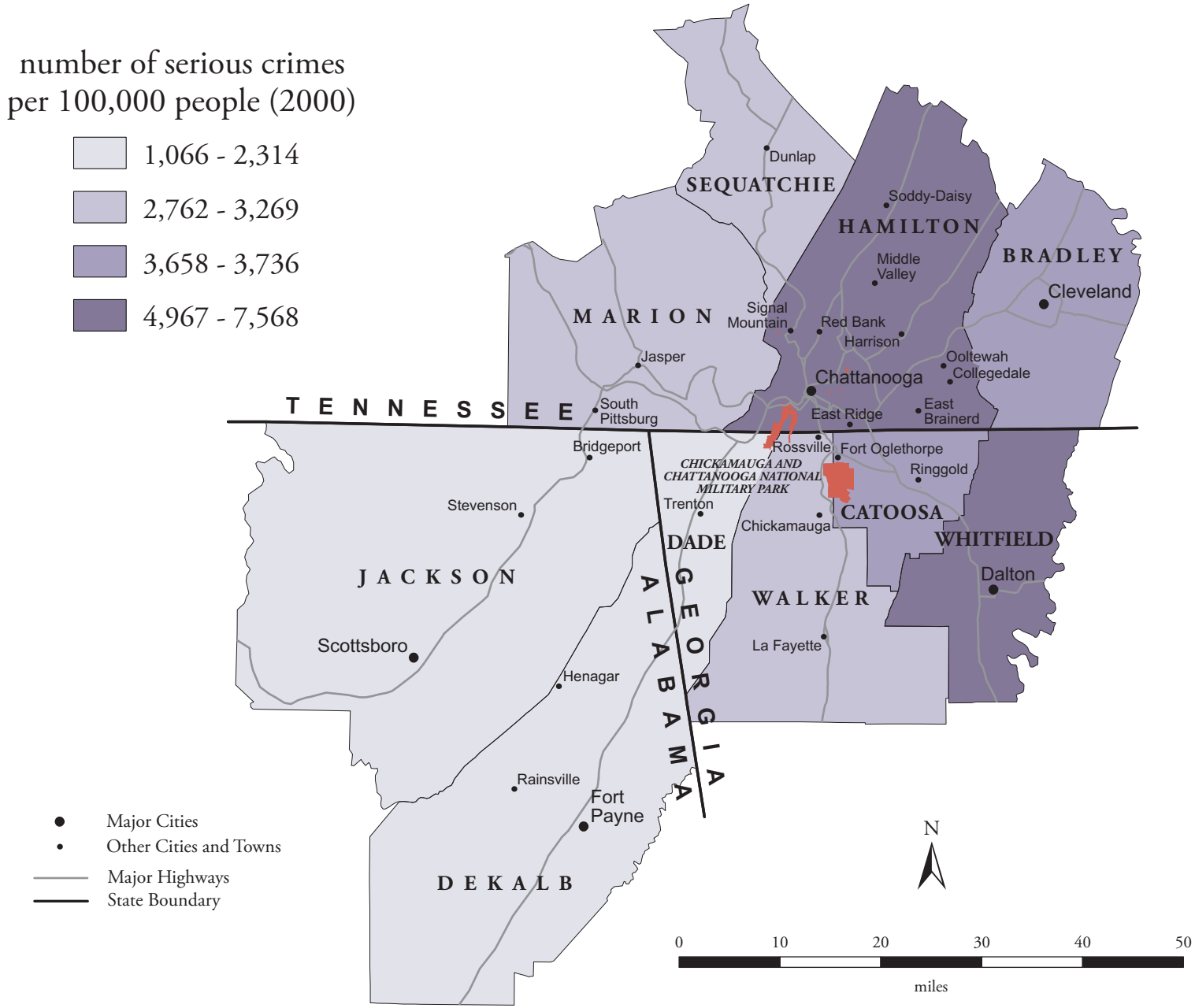
number of serious crimes per 100,000 people (2000)

DeKalb	1,066
Dade	1,722
Jackson	2,314
Sequatchie	2,762
Walker	3,117
Marion	3,269
Catoosa	3,658
Bradley	3,736
Whitfield	4,967
Hamilton	7,568

3,193

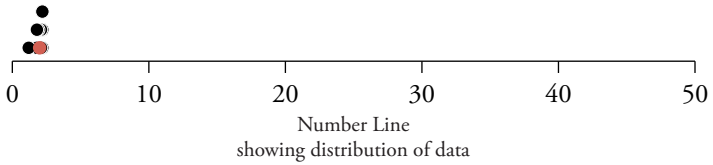
National	=	N/A
Alabama	=	3,817
Georgia	=	4,667
Tennessee	=	4,930

Crime


number of serious crimes
per 100,000 people (2000)
1,066 - 2,314
2,762 - 3,269
3,658 - 3,736
4,967 - 7,568
Major Cities
Other Cities and Towns
Major Highways
State Boundary
TENNESSEE
GEORGIA
ALABAMA
SEQUATCHIE
MARION
HAMILTON
BRADLEY
CATOOSA
WHITFIELD
WALKER
DADE
JACKSON
DEKALB
Dunlap
Soddy-Daisy
Middle Valley
Cleveland
Signal Mountain
Red Bank
Harrison
Ooltewah
Collegedale
Chattanooga
East Ridge
East Brainerd
Jasper
South Pittsburg
Bridgeport
Rossville
Fort Oglethorpe
Ringgold
CHICKAMAUGA AND CHATTANOOGA NATIONAL MILITARY PARK
Trenton
Chickamauga
Dalton
Stevenson
Scottsboro
Henagar
La Fayette
Rainsville
Fort Payne
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 accomodation 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 Chickamauga and Chattanooga National Military Park region, the percentage of total establishments in arts, entertainment, recreation, and accommodation (2001) ranges from 1.2% (Sequatchie) to 2.2% (Hamilton, DeKalb, and Bradley).[18]



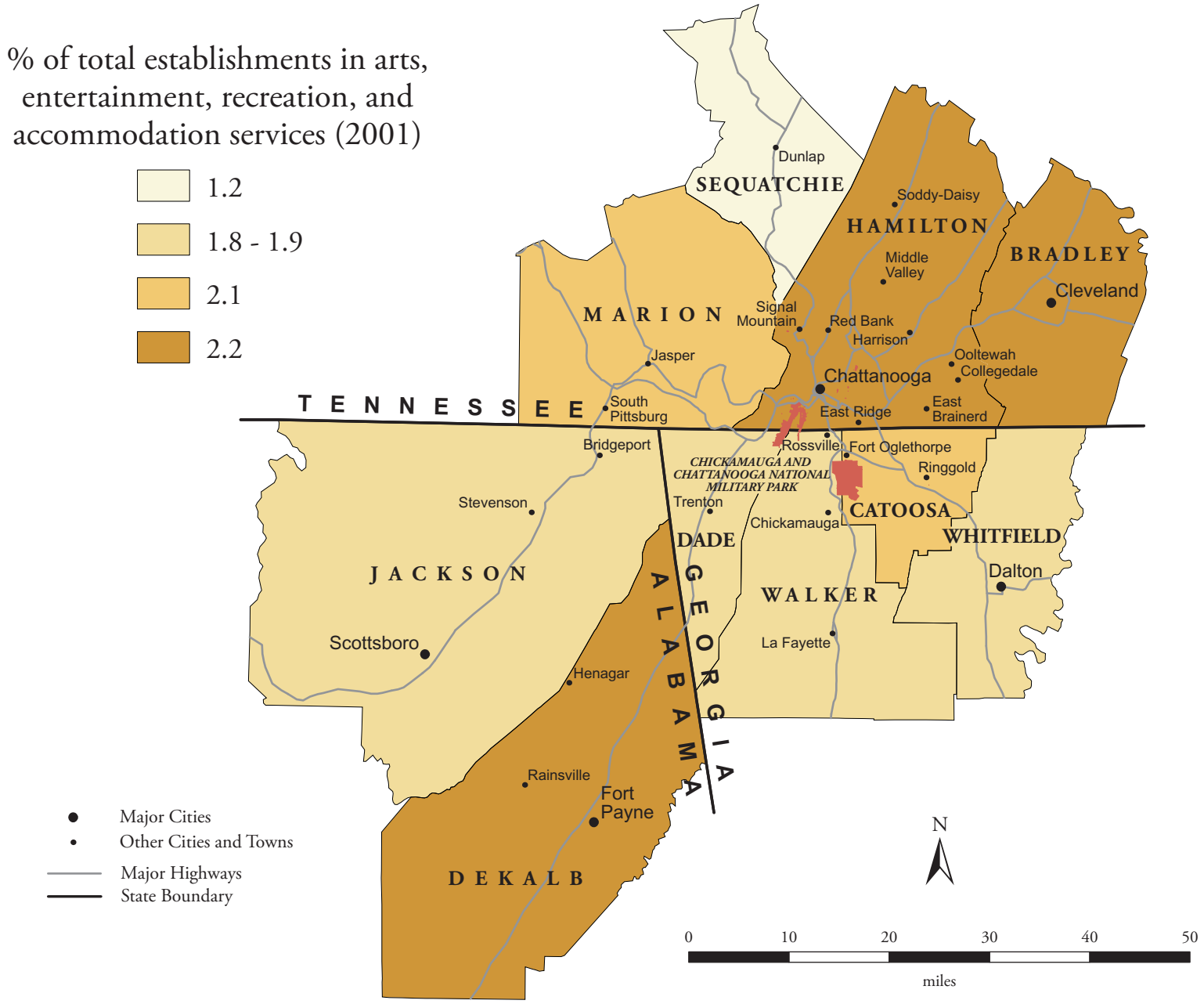
% of total establishments in arts, entertainment, recreation, and accommodation services (2001)

Sequatchie	1.2
Jackson	1.8
Dade	1.8
Walker	1.9
Whitfield	1.9
Marion	2.1
Catoosa	2.1
Hamilton	2.2
DeKalb	2.2
Bradley	2.2

2.0

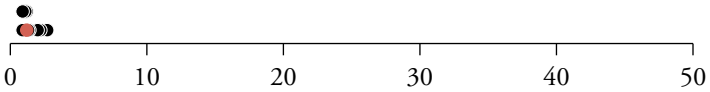
National = 2.3
Alabama = 1.8
Georgia = 2.0
Tennessee = 2.7

Recreation/Tourism Establishments



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 Chickamauga and Chattanooga National Military Park region, the percentage of total paid employees in arts, entertainment, recreation, and accommodation services (2001) ranges from 0.9% (Sequatchie and Whitfield) to 2.7% (Dade).[19]



Number Line
showing distribution of data

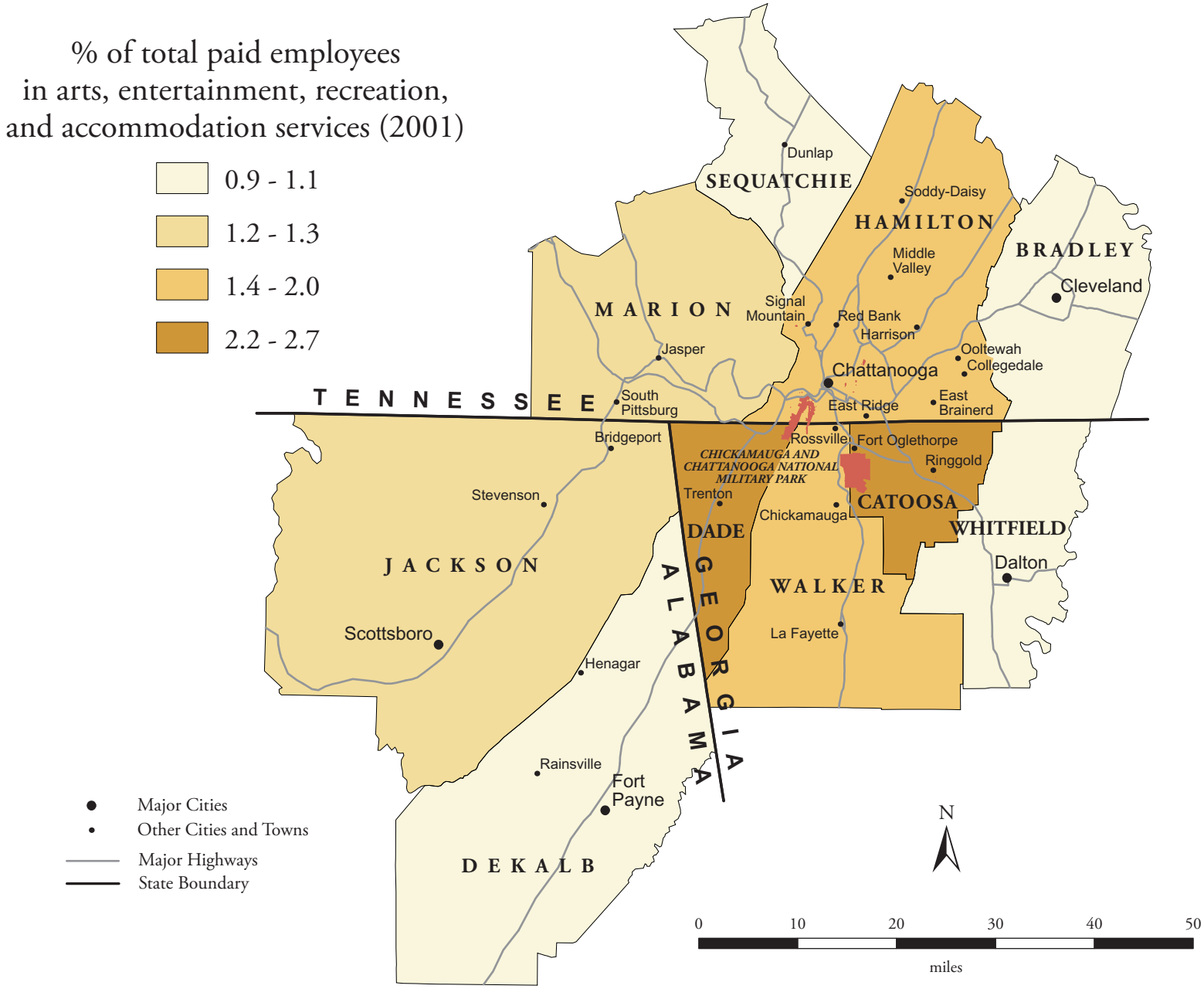
% of total paid employees
in arts, entertainment, recreation,
and accommodation services (2001)

Sequatchie	0.9
Whitfield	0.9
DeKalb	1.1
Bradley	1.1
Jackson	1.2
Marion	1.3
Walker	1.4
Hamilton	2.0
Catoosa	2.2
Dade	2.7

1.3

National = 3.1
Alabama = 1.7
Georgia = 2.3
Tennessee = 2.1

Recreation/Tourism Employment



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 Chickamauga and Chattanooga National Military Park region, the percentage of total sales from arts, entertainment, recreation, and accommodation services (1997) ranges from 0.1% (Dade and Whitfield) to 1.0% (DeKalb).[20]

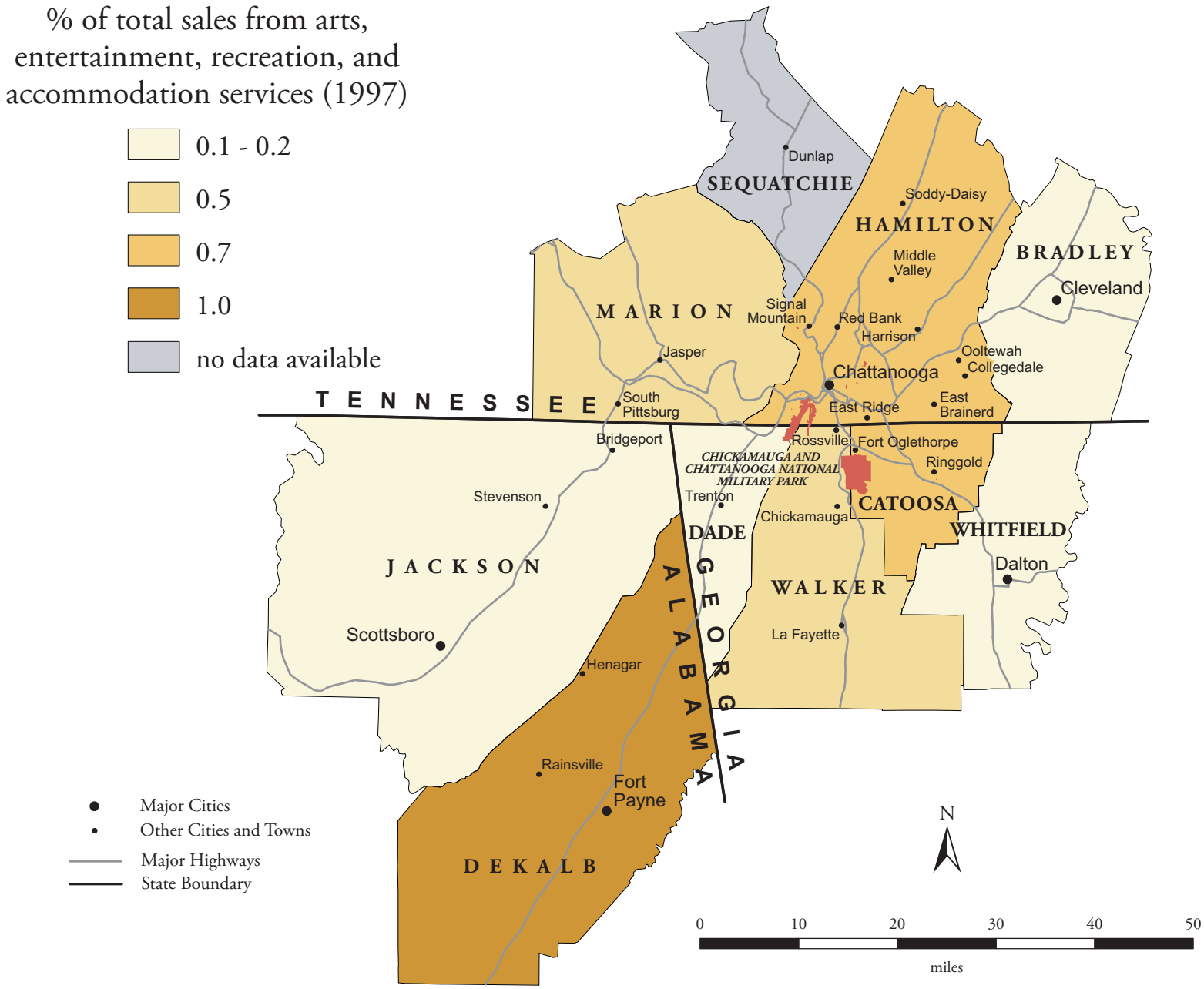
Number Line
showing distribution of data

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

Dade	0.1
Whitfield	0.1
Jackson	0.2
Bradley	0.2
Walker	**0.5**
Marion	**0.5**
Catoosa	0.7
Hamilton	0.7
DeKalb	1.0
Sequatchie	N/A

National = 1.1
Alabama = 0.6
Georgia = 0.8
Tennessee = 1.0

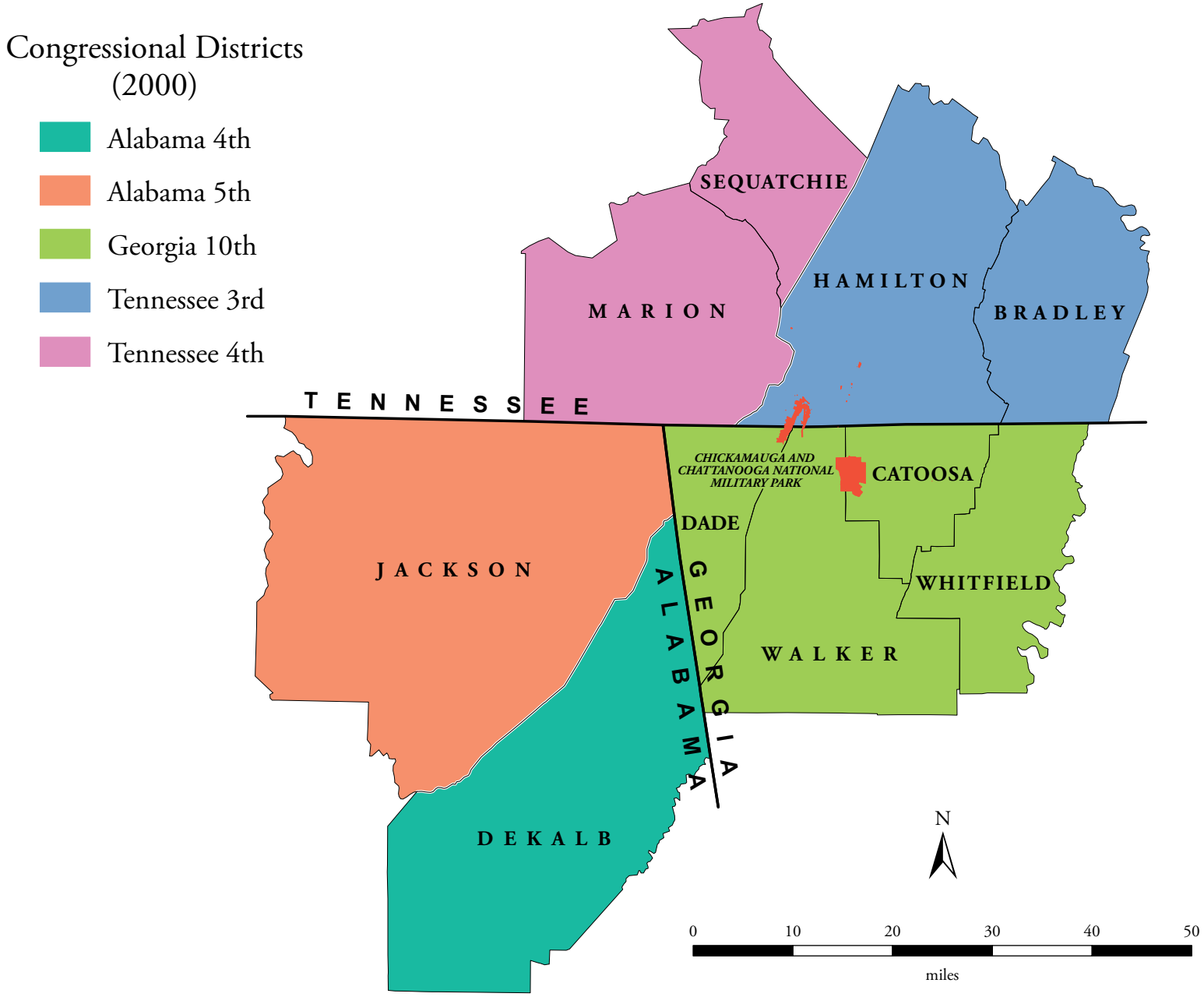
Recreation/Tourism Revenue



Congressional Districts

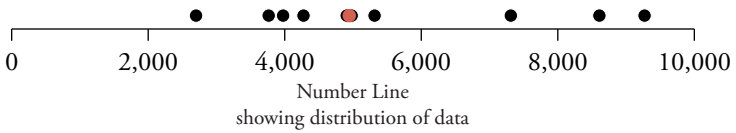
Congressional districts form a key layer in the political structure of a region of interest for a park. These districts, roughly equivalent in population, are defined by state legislatures based on the national census and redrawn every ten years. Members of Congress are key points of access for citizens seeking to influence federal-level policies and programs, including those related to federal lands such as national parks and national forests. The Chickamauga and Chattanooga National Military Park region includes all or portions of five Congressional districts: two in Alabama, two in Tennessee, and one in Georgia. The districts for the 108th Congress 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 Chickamauga and Chattanooga National Military Park region, federal expenditures per person (2002) range from $2,701 (Catoosa) to $9,271 (Jackson).[21]



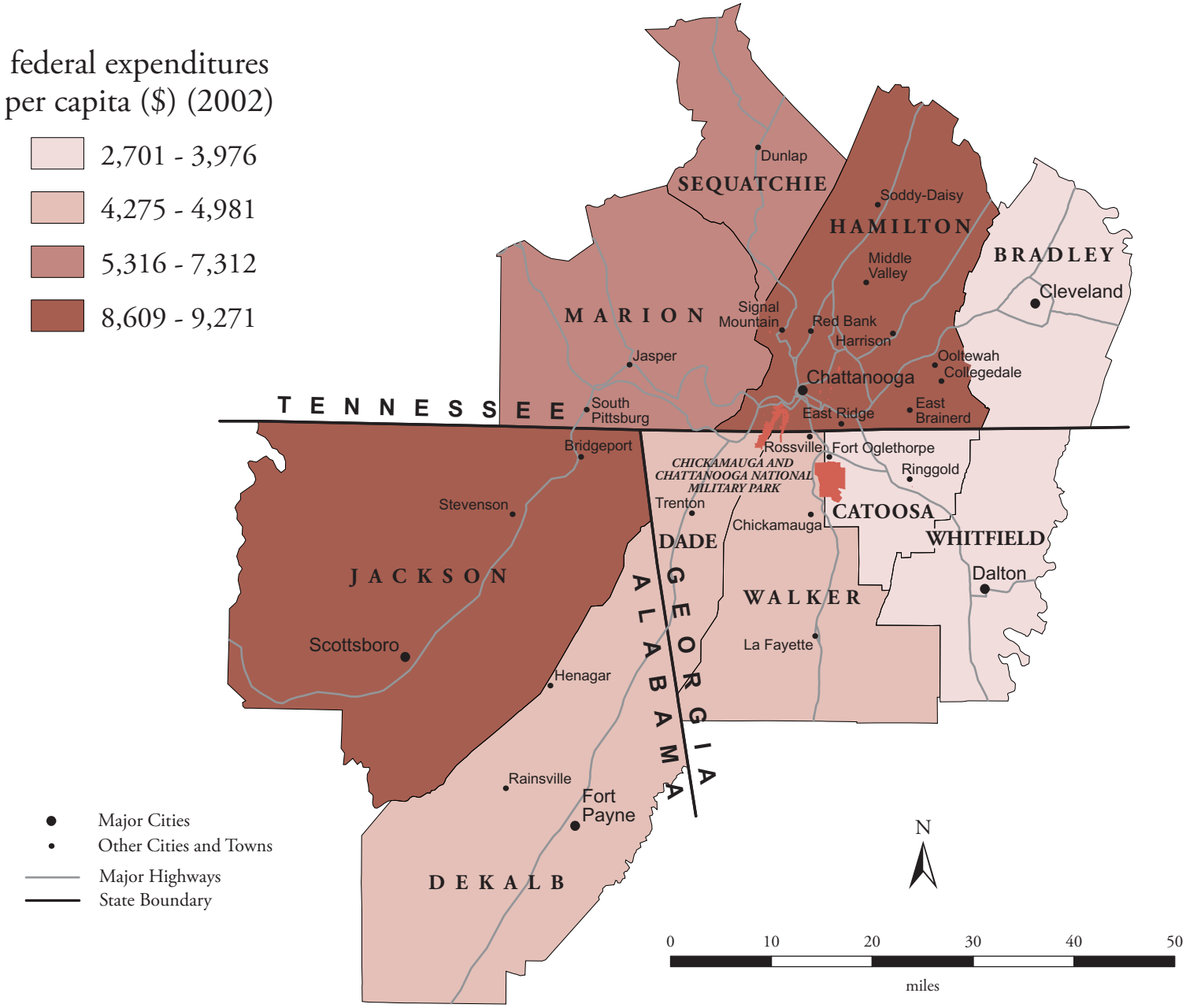
federal expenditures per capita ($) (2002)

Catoosa	2,701
Whitfield	3,765
Bradley	3,976
DeKalb	4,275
Walker	4,908
Dade	4,981
Marion	5,316
Sequatchie	7,312
Hamilton	8,609
Jackson	9,271

4,945

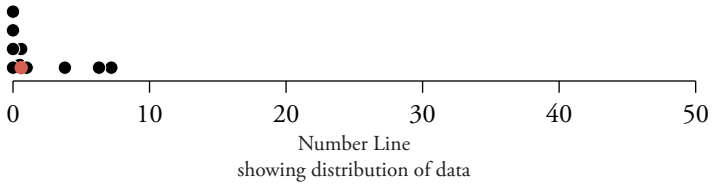
National = 6,650
Alabama = 7,643
Georgia = 5,997
Tennessee = 6,775

Federal Expenditures



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 Chickamauga and Chattanooga National Military Park region, land under federal management (2003) ranges from 0.0% (four counties) to 7.2% (Walker).[22]



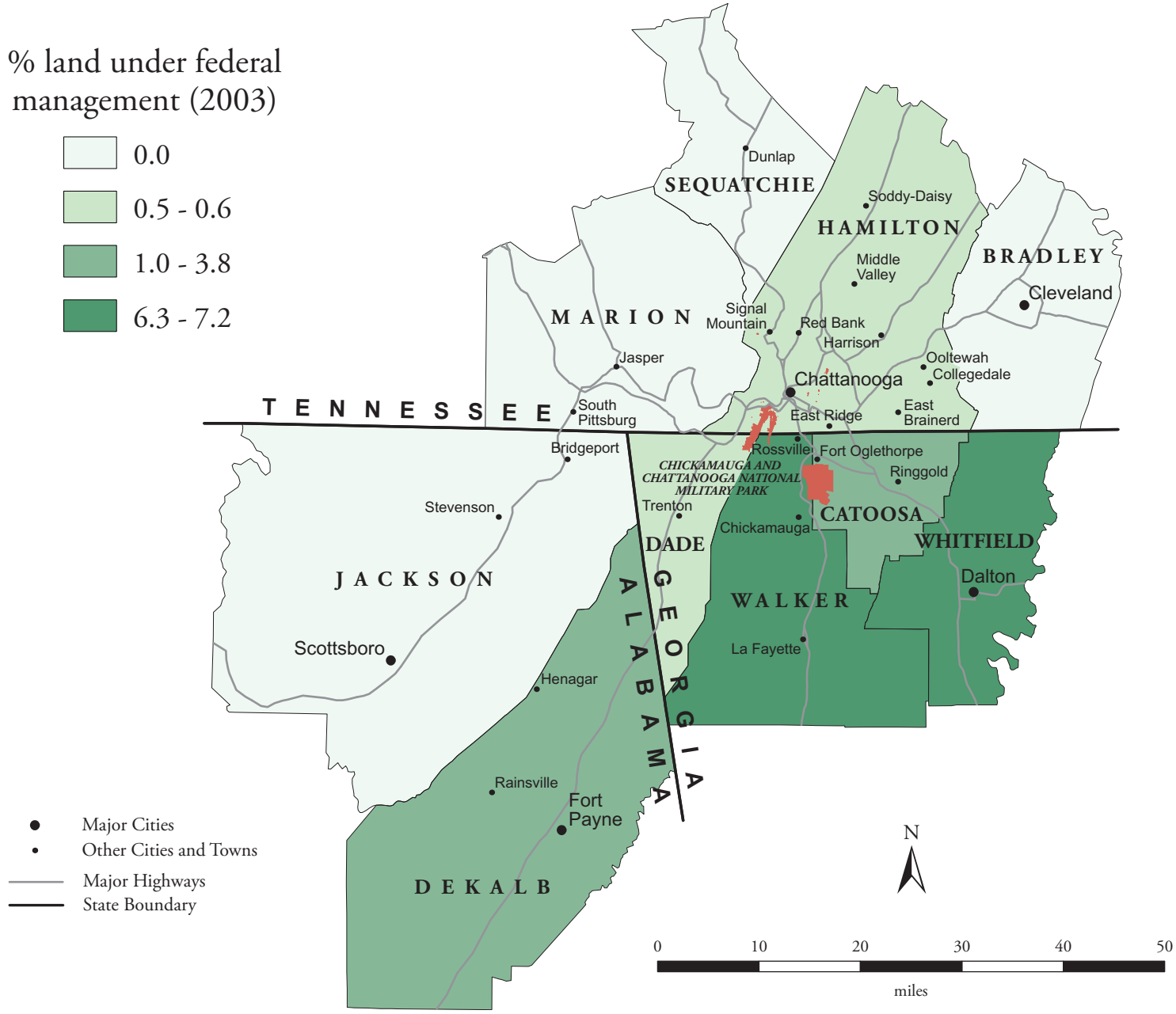
% land under federal management (2003)

Bradley	0.0
Marion	0.0
Sequatchie	0.0
Jackson	0.0
Hamilton	0.5
Dade	0.6
DeKalb	1.0
Catoosa	3.8
Whitfield	6.3
Walker	7.2

0.6

National = 27.2
Alabama = 2.5
Georgia = 3.5
Tennessee = 4.8

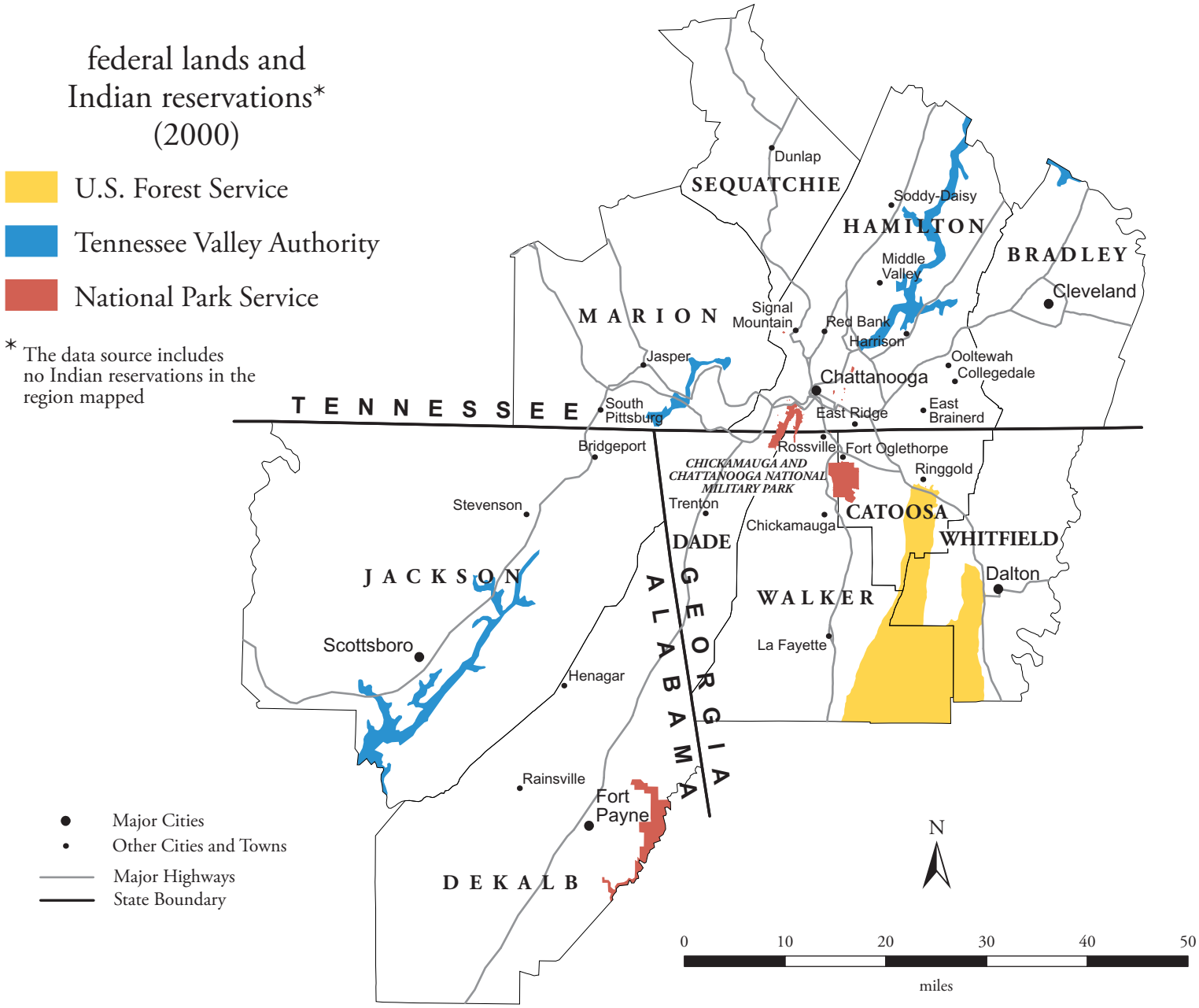
Federal Land Management



Federal Lands and Indian Reservations

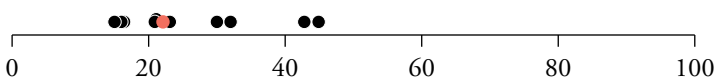
National park units, administered by the National Park Service, are part of a larger system of public lands. Other federal agencies that administer public lands include the Bureau of Land Management, Bureau of Reclamation, Department of Defense, U.S. Fish and Wildlife Service, and U.S. Forest Service. 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.[23]

Federal Lands and Indian Reservations



Farmland

The relative importance of farming within a county can be indicated by the percentage of the county's total land area that is classified as farmland. Farming includes crop cultivation as well as pasturing and grazing of livestock. Because damaged or degraded natural resources present a long-term threat to the health and profitability of farming, farm operators are potentially key partners in local and regional resource protection issues. Park management can require close coordination with area farmers on many issues, such as control of non-native species, species reintroduction, preservation of scenic values, allocation of scarce water supplies, or management of agricultural runoff. Within the Chickamauga and Chattanooga National Military Park region, the percentage of total county land area classified as farmland (1997) ranges from 15.0% (Sequatchie) to 44.9% (DeKalb).[24]



Number Line
showing distribution of data

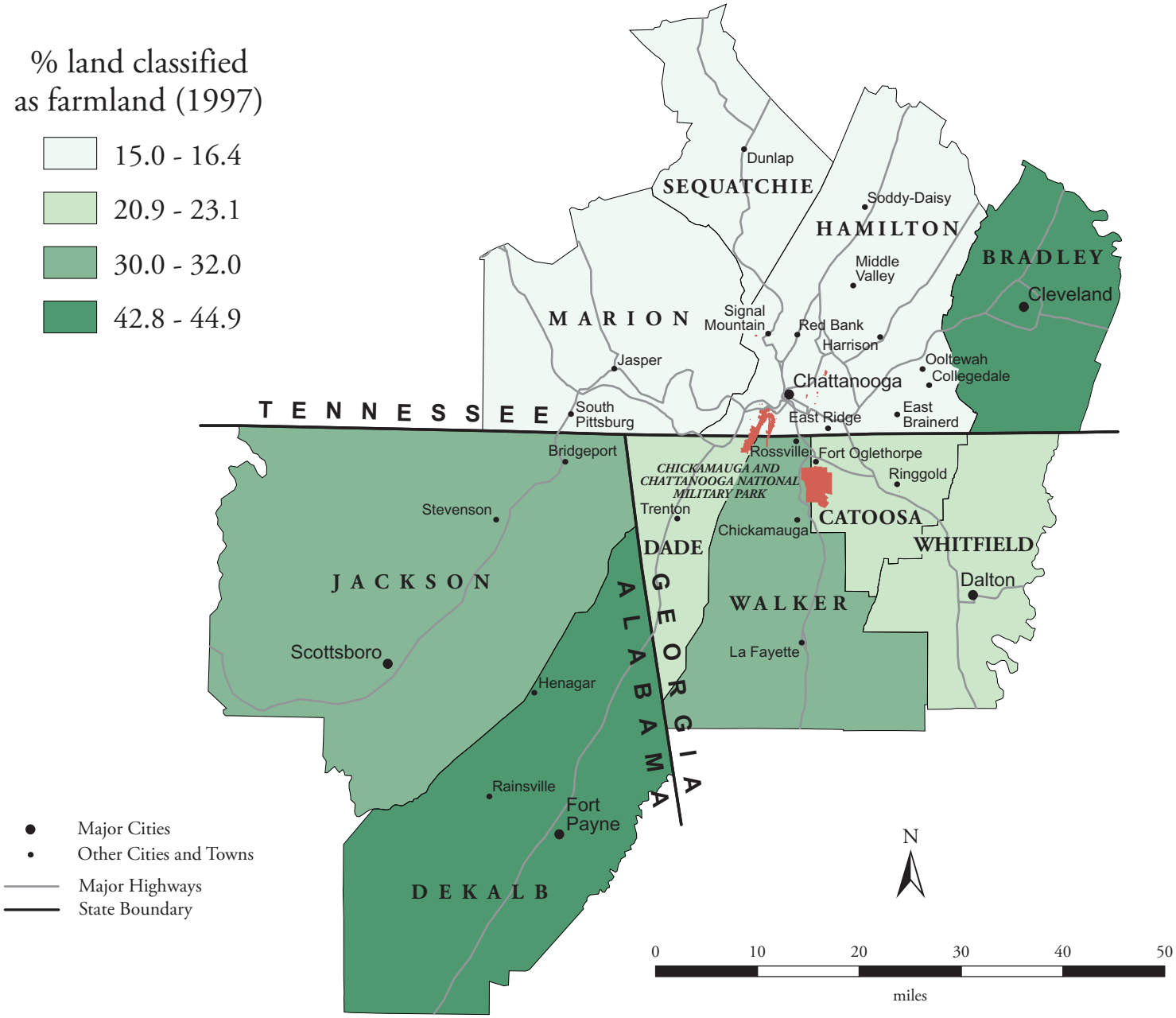
% land classified as farmland (1997)

Sequatchie	15.0
Marion	16.0
Hamilton	16.4
Whitfield	20.9
Catoosa	21.1
Dade	23.1
Walker	30.0
Jackson	32.0
Bradley	42.8
DeKalb	44.9

22.1

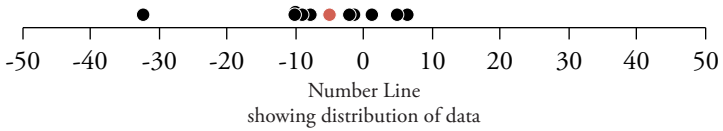
National = 41.2
Alabama = 26.8
Georgia = 28.8
Tennessee = 42.2

Farmland


% land classified as farmland (1997)
15.0 - 16.4
20.9 - 23.1
30.0 - 32.0
42.8 - 44.9
Major Cities
Other Cities and Towns
Major Highways
State Boundary
TENNESSEE
ALABAMA
GEORGIA
SEQUATCHIE
MARION
HAMILTON
BRADLEY
JACKSON
DADE
WALKER
CATOOSA
WHITFIELD
DEKALB
Dunlap
Soddy-Daisy
Middle Valley
Cleveland
Signal Mountain
Red Bank
Harrison
Jasper
Ooltewah
Collegedale
Chattanooga
South Pittsburg
East Ridge
East Brainerd
Bridgeport
Rossville
Fort Oglethorpe
Ringgold
CHICKAMAUGA AND CHATTANOOGA NATIONAL MILITARY PARK
Stevenson
Trenton
Chickamauga
Dalton
Scottsboro
La Fayette
Henagar
Rainsville
Fort Payne
N
0 10 20 30 40 50
miles

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 Chickamauga and Chattanooga National Military Park region (1987 - 1997), the amount of farmland decreased in all counties except three. The change ranged from a decrease of 32.4% (Catoosa) to an increase of 6.3% (Jackson).[25]



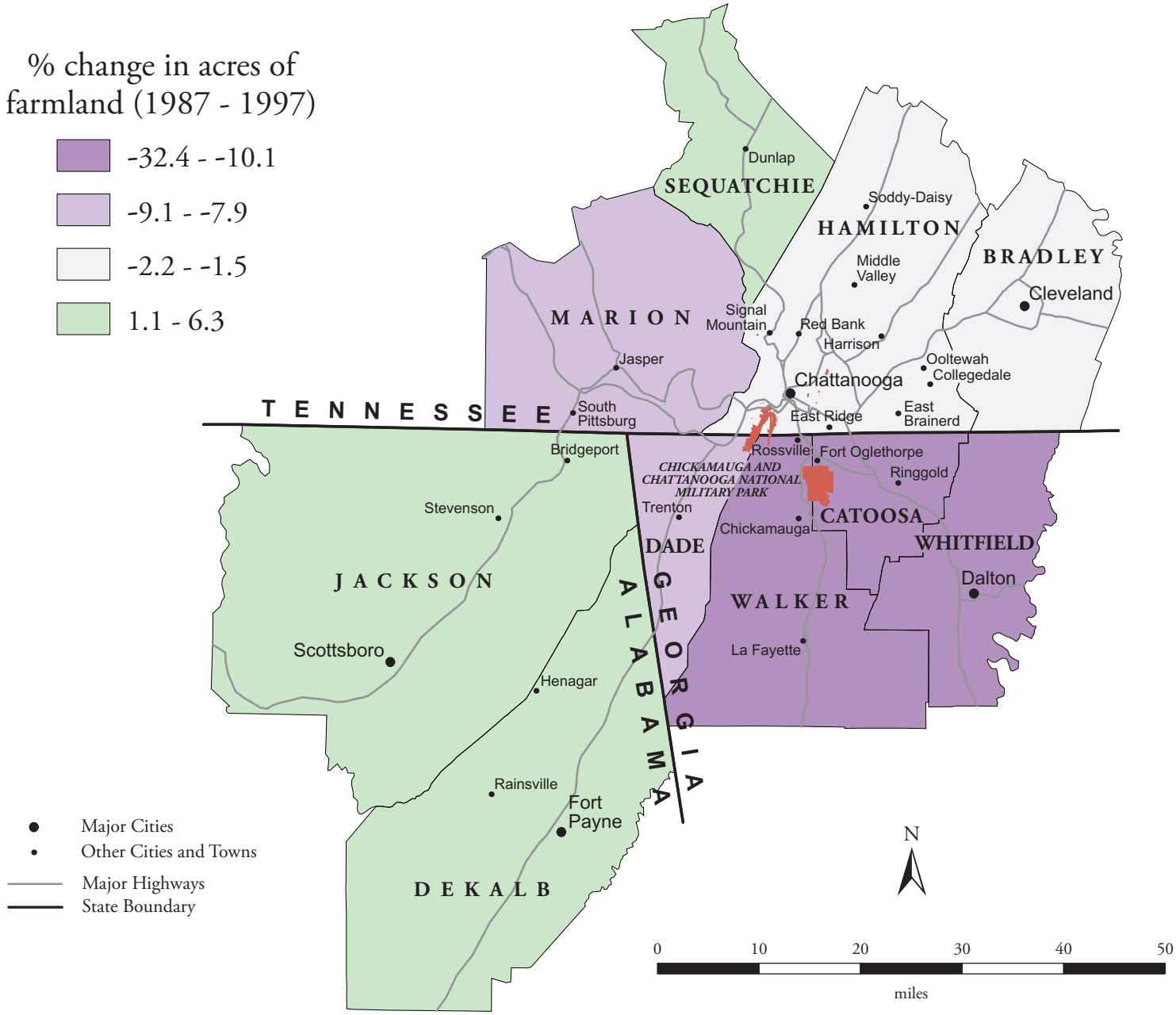
% change in acres of farmland (1987 - 1997)

Catoosa	-32.4
Whitfield	-10.2
Walker	-10.1
Marion	-9.1
Dade	-7.9
Bradley	-2.2
Hamilton	-1.5
Sequatchie	1.1
DeKalb	4.8
Jackson	6.3

-5.1

National = -3.4
Alabama = -4.8
Georgia = -0.7
Tennessee = -5.2

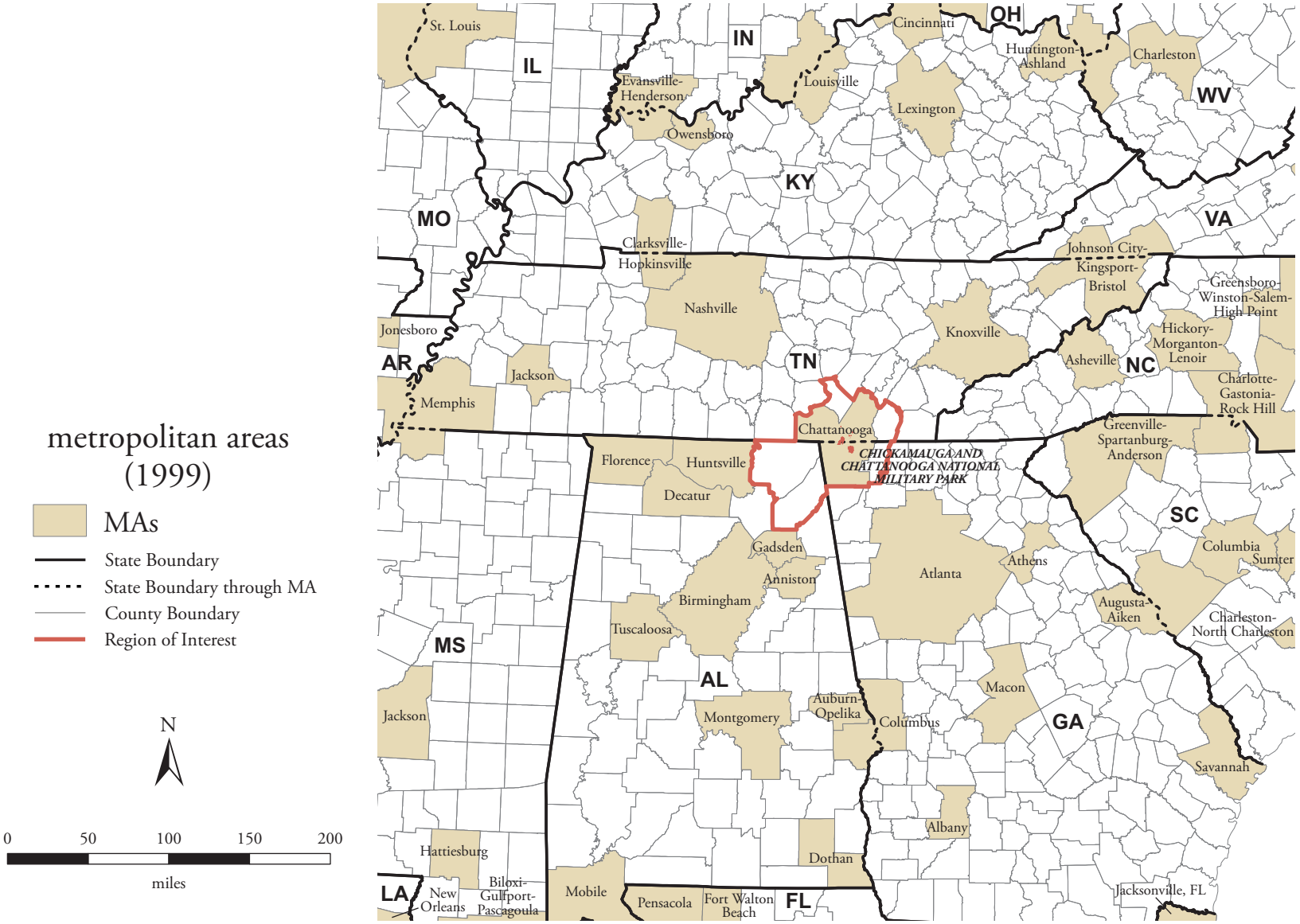
Change in Farmland



Metropolitan Areas

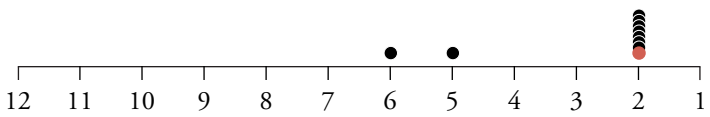
Maps of metropolitan areas show park managers densely populated urban areas that are near national park units. The Census Bureau defines a metropolitan area (MA) as having a large population nucleus, together with adjacent communities that have a high degree of economic and social integration with that 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 Chickamauga and Chattanooga National Military Park is provided to show the extent of nearby MAs.[26]

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 Chickamauga and Chattanooga National Military Park region (2003), eight counties are classified as metropolitan.[27]

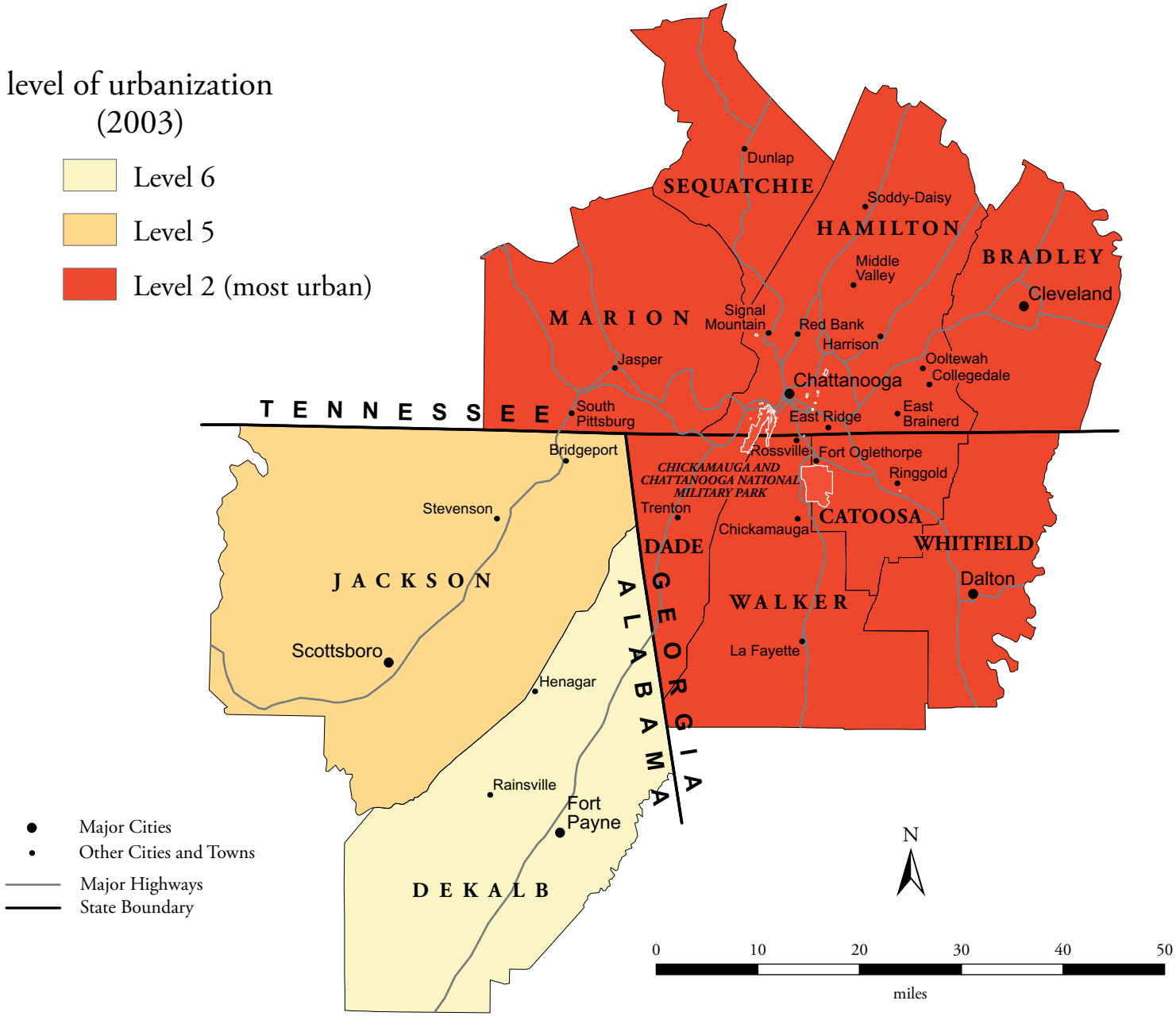


Number Line
showing distribution of data

level of urbanization (2003)

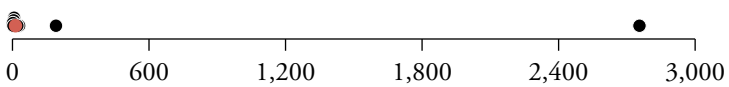
DeKalb	6
Jackson	5
Catoosa	**2**
Dade	**2**
Walker	**2**
Whitfield	**2**
Bradley	**2**
Hamilton	**2**
Marion	**2**
Sequatchie	**2**

Urbanization



Change in Building Permits

One indicator of growth in a local economy is the annual change in the number of building permits issued for new privately-owned housing units. Growth in the number of building permits directly implies an accelerating 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. Rapid 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 Chickamauga and Chattanooga National Military Park region, the average change in the number of building permits issued annually (1992 - 2002) ranges from 1.8% (Hamilton) to 2,755.3% (Catoosa). The rate for Jackson county could not be calculated because no permits were issued in three years.[28]



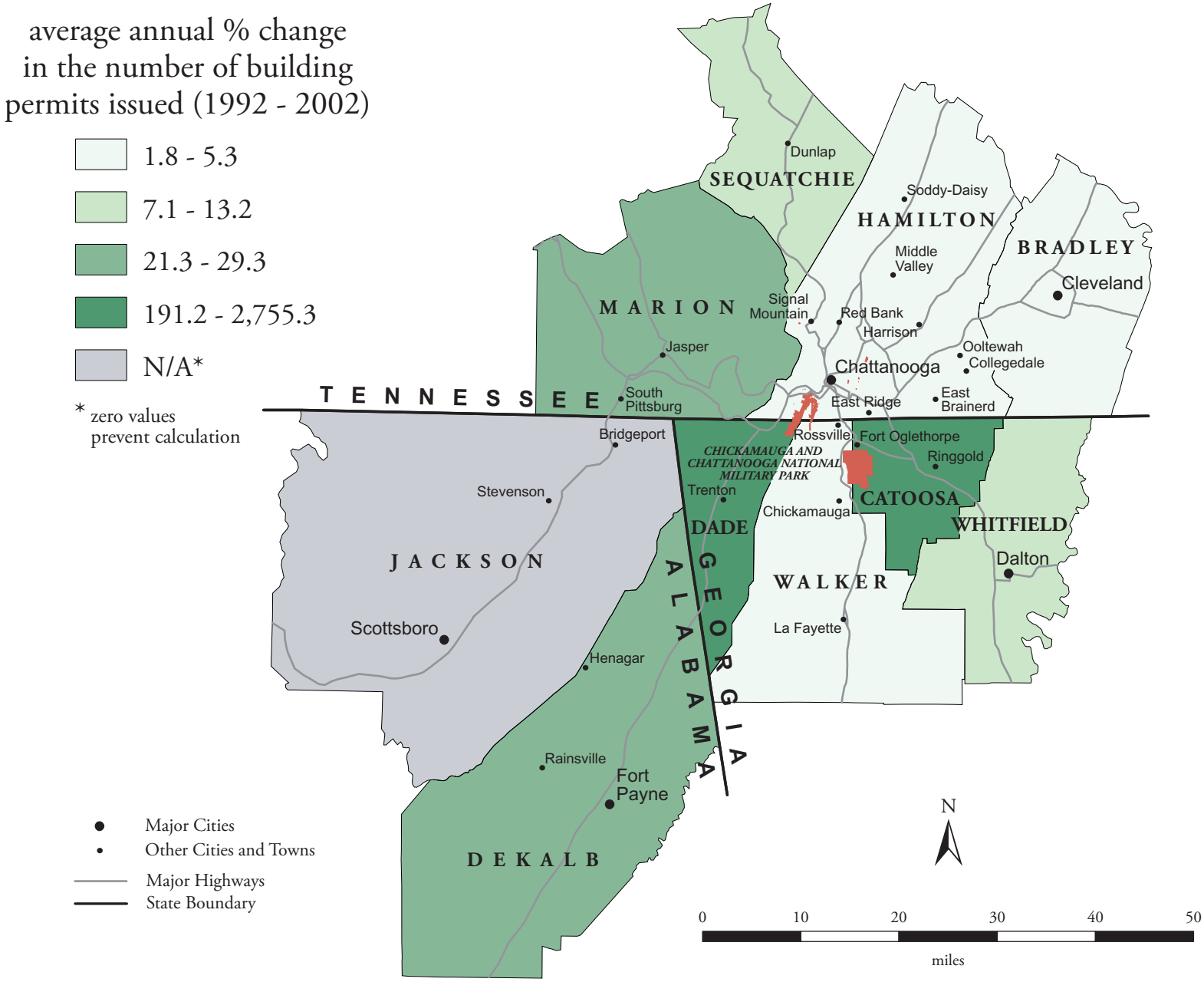
Number Line
showing distribution of data

average annual % change in the number of building permits issued (1992 - 2002)

Hamilton	1.8
Walker	4.3
Bradley	5.3
Whitfield	7.1
Sequatchie	**13.2**
Marion	21.3
DeKalb	29.3
Dade	191.2
Catoosa	2,755.3
Jackson	N/A

National = 4.6
Alabama = 2.1
Georgia = 7.2
Tennessee = 3.6

Change in 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 Chickamauga and Chattanooga National Military Park. 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 Chickamauga and Chattanooga National Military Park.

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.

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
Population Density	average number of people per square mile (2000)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/population/cen2000/atlas/all_00.xls
Population Density Change	% change in average number of people per square mile (1980 - 2000)	1) U.S. Department of Commerce, Census Bureau. USA Counties 1998, http://censtats.census.gov/cgi-bin/usac/usasel.pl *(1980 population density)* 2) U.S. Department of Commerce, Census Bureau, http://www.census.gov/population/cen2000/atlas/all_00.xls *(2000 population density)*

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
Projected Population Density	projected average number of people per square mile (2020)	1) U.S. Department of Commerce, Census Bureau, http://www.census.gov/population/cen2000/atlas/all_00.xls *(county square mile data)* 2) 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 *(2020 projected population)*
Urban Population	% total population living in urban areas (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Table P2
Rural Population	% 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
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
Change in Earnings by Industry	% change in total earnings 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
*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

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
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
Projected Change in Employment by Industry	projected % change in employment 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
*Poverty	% total population in poverty (1999)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/hhes/poverty/2000census/poppvstat00.html
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
English Language Ability	% total population 5 years old and over that does not speak English or does not speak it well (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 3 (SF3) Sample Data, Table P19
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

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
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 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
*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
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
Land Use		
*Federal Land Management	% land under federal management (2003)	1) U.S. Department of the Interior, Bureau of Land Management. Payment in Lieu of Taxes, Fiscal Year 2003. 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

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
Farmland	% land classified as farmland (1997)	U.S. Department of Agriculture, National Agricultural Statistics Service, http://www.nass.usda.gov/census/
*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/
Change in Building Permits	average annual % change in the 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 thirteen counties would be divided into groups of 4, 3, 3, and 3, with the last group of 3 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:

- About North Georgia;
  http://ngeorgia.com/tenn/chattanooga.html
- Catoosa County Chamber of Commerce;
  http://www.gatewaytogeorgia.com/index/index.php
- Chickamauga and Chattanooga National Military Park;
  http://www.nps.gov/chch/index.htm
- Dade County, Georgia Magazine;
  http://georgiamagazine.com/counties/dade
- EPodunk;
  http://www.epodunk.com
- Hamilton County, Tennessee;
  http://www.hamiltontn.gov

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] **Population density** is measured as the average number of people per square mile. This number is calculated by dividing the total number of people by the total area per county. In counties with federal lands, excluding these areas from the calculation of population density would result in a higher population density.

[4] See note above on population density.

[5] See note above on population density.

[6] **Urban population** is measured as the percentage of the total population living in urban areas. An urban area includes all territory, population, and housing units in urbanized areas and in places of 2,500 or more persons outside urbanized areas. An urbanized area has a population concentration of

at least 50,000 inhabitants, and generally consists of a central city and the surrounding, closely settled, contiguous territory having a density of at least 1,000 persons per square mile. The complete criteria are available from the U.S. Census website at http://factfinder.census.gov/servlet/MetadataBrowserServlet?type=subject&id=URSF1&dsspName=DEC_2000_SF1&back=update&_lang=en.

[7] **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 (see above) are classified as rural.

[8] 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.

[9] See note above on industry categories.

[10] See note above on industry categories.

[11] See note above on industry categories.

[12] See note above on industry categories.

[13] **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.

[14] **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 respectively). 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.

[15] **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.

[16] For the census, persons are classified according to the highest level of school completed or the highest degree received.

[17] These data represent the person's own perception of his or her ability to speak English or, because Census questionnaires are usually completed by one household member, the responses may represent the perception of another household member. Persons 5 years old and over who reported that they spoke a language other than English were also asked to indicate their ability to speak English based on one of the following four categories: "not at all," "not well," "well," and "very well."

[18] **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.

[19] See note above on recreation/tourism.

[20] See note above on recreation/tourism.

[21] **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.

[22] **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.

[23] 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.

[24] **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.

[25] See note above on farmland.

[26] Certain **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.

[27] 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

[28] 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 the average annual change in the number 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.

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Final Version Date: 1/2005

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