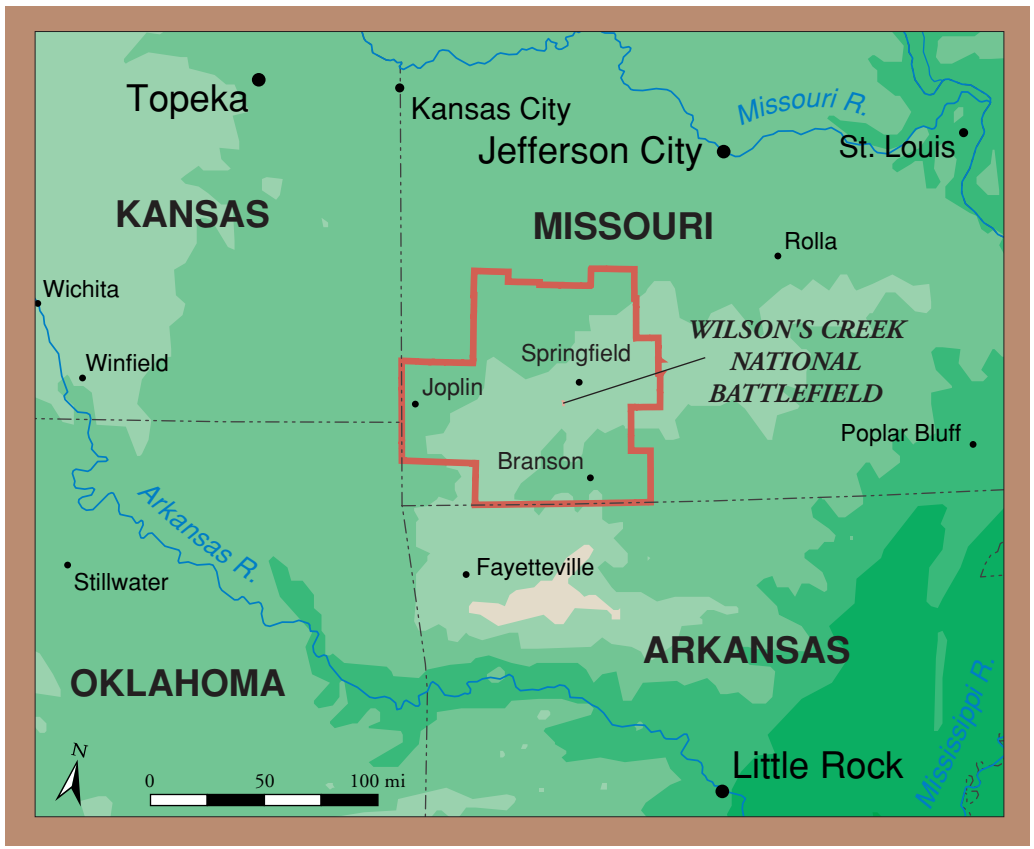
A Socioeconomic Atlas for



Wilson's Creek National Battlefield and its Region

2001

A Socioeconomic Atlas for Wilson's Creek National Battlefield and its Region

by

Jean E. McKendry

Kimberly L. Treadway

Adam J. Novak

Gary E. Machlis

Roger B. Schlegel

2001

Acknowledgments

We would like to express our appreciation to the staff of Wilson's Creek National Battlefield, especially Richard A. Lusardi and Gary Sullivan, for their continued enthusiasm and support throughout this pilot project. Steve Cinnamon and Sandra Washington in the Midwest Regional Office have also been very supportive. Nina Chambers was instrumental in developing the project: she obtained data, organized and calculated data sets, and compiled other needed information. Brendan Clarke prepared and carried out the initial design of the base maps. He also helped compute data sets and did much of the initial GIS work.

About this Atlas

This atlas is one of a series of four pilot atlases produced by the National Park Service Social Science Program. The objective of this project is to demonstrate the feasibility and usefulness of such atlases for units of the National Park System. The other three atlases depict socioeconomic indicators for the regions surrounding Harpers Ferry National Historical Park, Joshua Tree National Park, and Mount Rainier National Park. For more information about the atlas series, contact: Dr. Jean McKendry, National Park Service, Social Science Program, 1849 C Street NW (3127), Washington DC 20240 (jeanm@uidaho.edu).

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. This atlas, part of a pilot project, 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 Wilson's Creek National Battlefield. 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 a training tool, as an aid to management and planning, 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 Chief Social Scientist
National Park Service

Table of Contents

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 Wilson's Creek National Battlefield. Change in human activities and socioeconomic conditions 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 boundaries, roads, and key towns) with *thematic* information (such as demographic or economic statistics) displayed at the county level. 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 to orient 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's 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 the Wilson's Creek National Battlefield 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, family size, 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 with 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 85 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 pilot series. The core indicators provide information relevant 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. Wilson's Creek NB staff chose additional indicators from the menu described above. Park staff selected these indicators to customize the atlas so that it would include information specific to their particular management needs. Figure 1 shows the six general categories and the indicators included in this 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 that provide additional information on the measurement of selected indicators.

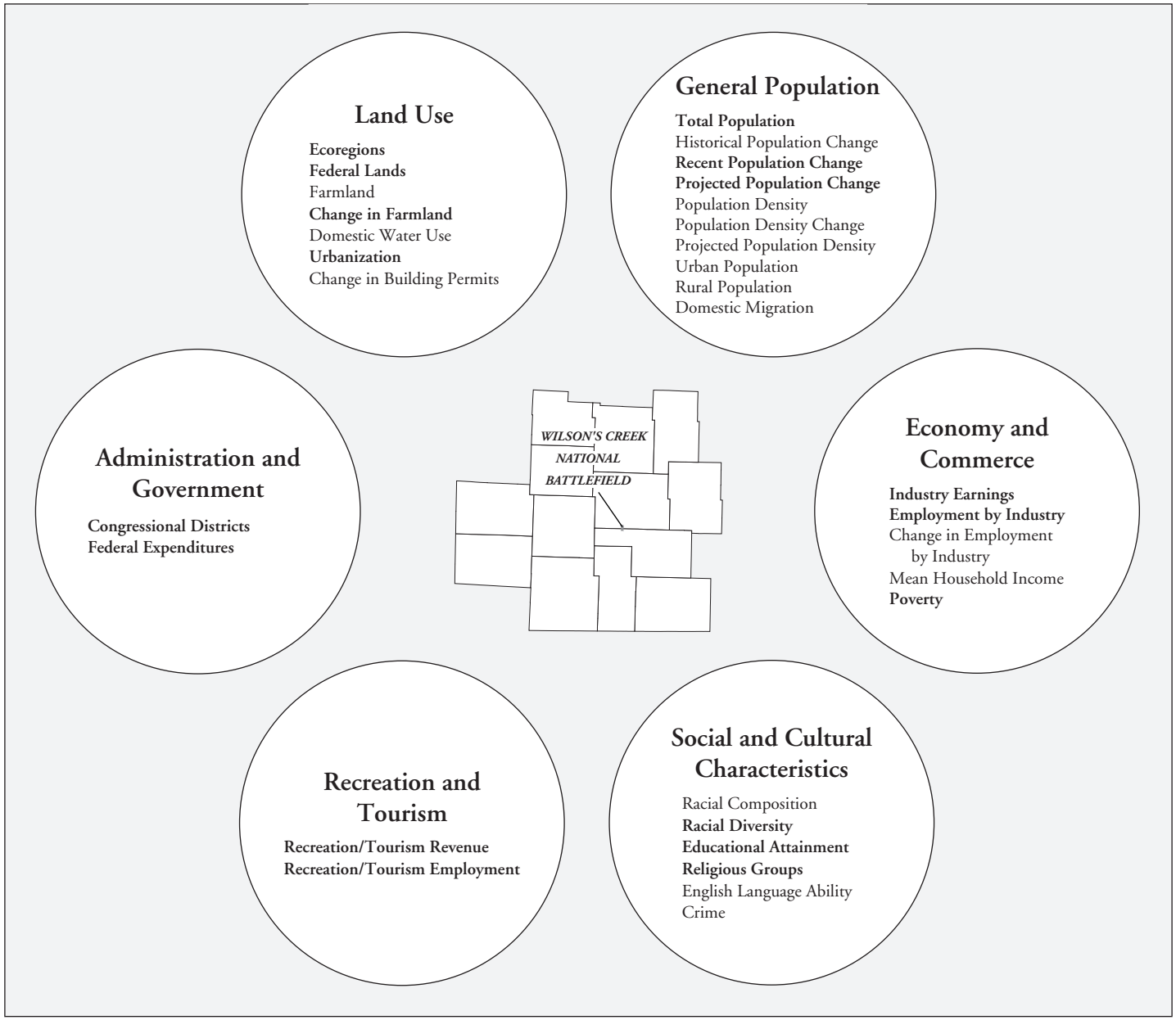


Figure 1. Indicators Included in this Atlas

core indicator additional indicator

The Region

In selecting the boundaries of the region of interest covered by this atlas, Wilson's Creek NB 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 thirteen counties in southwestern Missouri. The map on the facing page depicts the region in its larger context.

Wilson's Creek National Battlefield is located on the border of Greene and Christian counties, 10 miles southwest of Springfield. Kansas City is 184 miles to the northwest, St. Louis is 218 miles to the northeast, and Little Rock, Arkansas is 215 miles south. The character of the Wilson's Creek NB region is strongly influenced by three factors: the diverse economies of the cities of Springfield and Joplin; good soil and moderate rainfall, which have placed several regional counties among Missouri's largest agricultural producers; and the presence of the Ozark Mountains, which have made the southern part of the region attractive as a recreation and retirement destination.

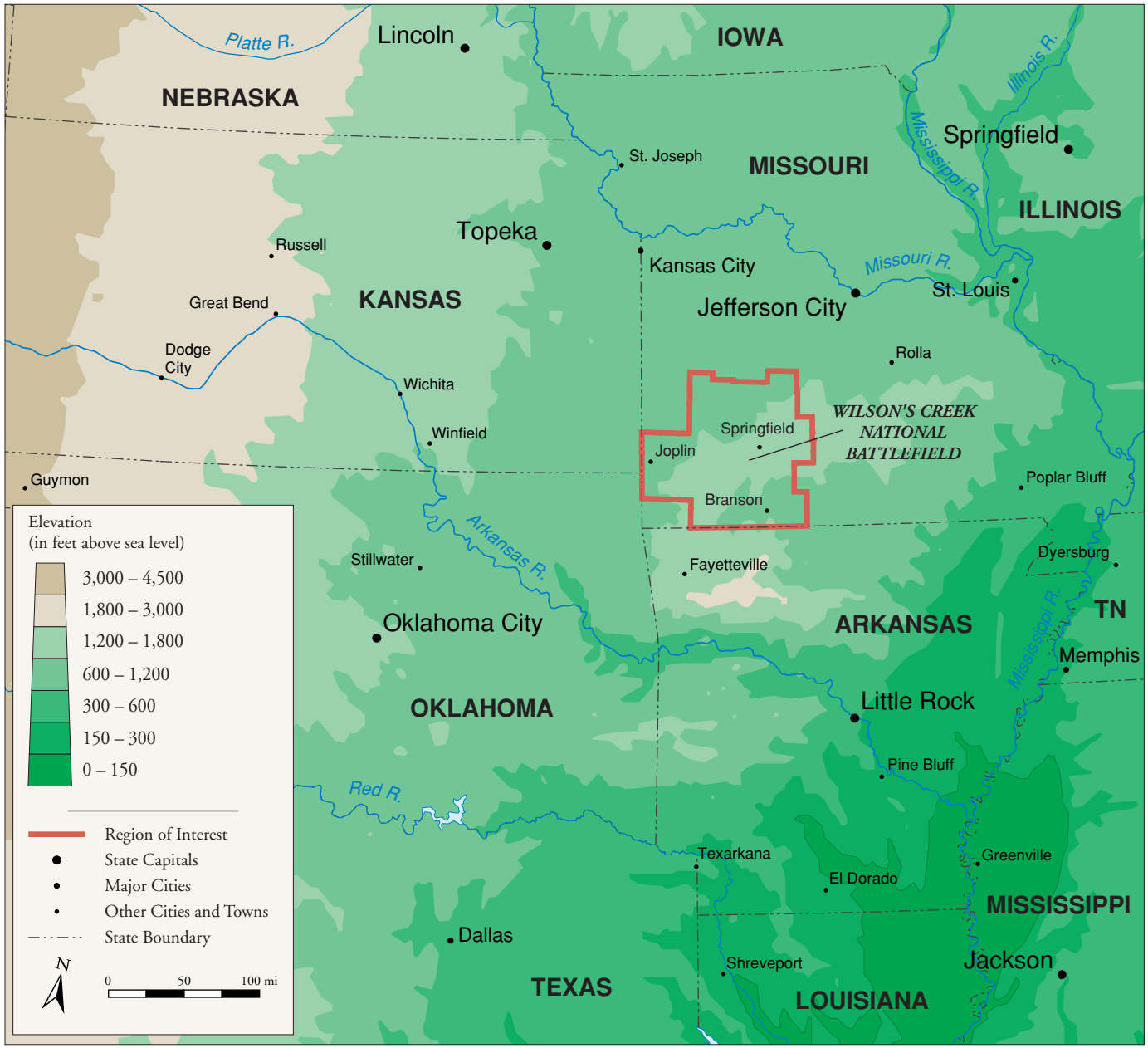
Springfield, in Greene County, is the region's dominant city. It serves as a hub for transportation and services, and is home to a major regional university. Springfield's recent growth has fueled suburbanization in Christian County to the south. Joplin, in Jasper county, is the region's second largest city. Once known for nearby lead mines, Joplin now serves as a regional transportation and manufacturing center.

Agriculture continues to be important, particularly in the north. Although the number of active farms has decreased, there has been an increase in poultry and swine production in recent years. Rural population declined overall through the twentieth century, but many people now are staying on family farms and commuting to work in the cities.

Rapid growth in the southern part of the region is centered on the town of Branson in Taney County, which is one of the fastest-growing entertainment destinations in the United States. The area, which contains several manmade lakes, scenic rivers, and national forest land, has become popular with retirees migrating from elsewhere, who have contributed to growth in industries such as recreation, health care and construction.

In addition to Wilson's Creek NB, the broader region contains George Washington Carver NM and the Trail of Tears National Historic Trail. Just south, in Arkansas, is Pea Ridge NMP.

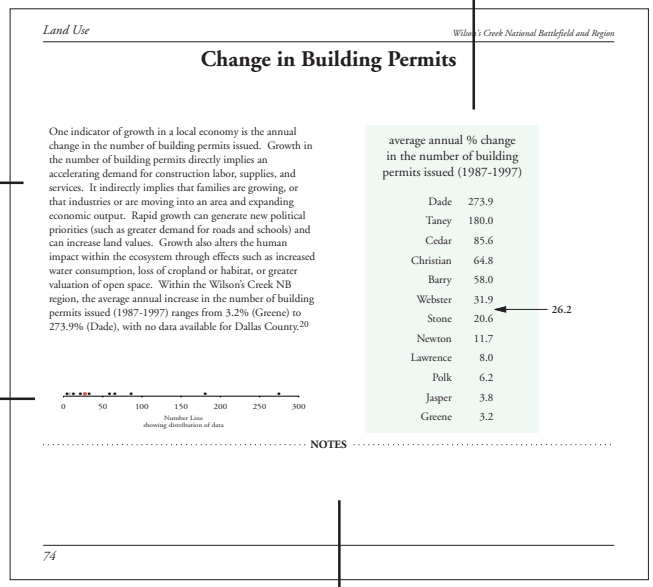
Wilson's Creek National Battlefield and its Region



Using the Socioeconomic Indicators and Maps

The socioeconomic indicators for the Wilson's Creek National Battlefield region of interest are presented in a series of maps. The best available county-level data are presented for each indicator. The following information is provided for each indicator:

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



Land Use *Wilson's Creek National Battlefield and Region*

Change in Building Permits

One indicator of growth in a local economy is the annual change in the number of building permits issued. 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, or that industries or are moving into an area 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 Wilson's Creek NB region, the average annual increase in the number of building permits issued (1987-1997) ranges from 3.2% (Greene) to 273.9% (Dade), with no data available for Dallas County.[20]

0 50 100 150 200 250 300

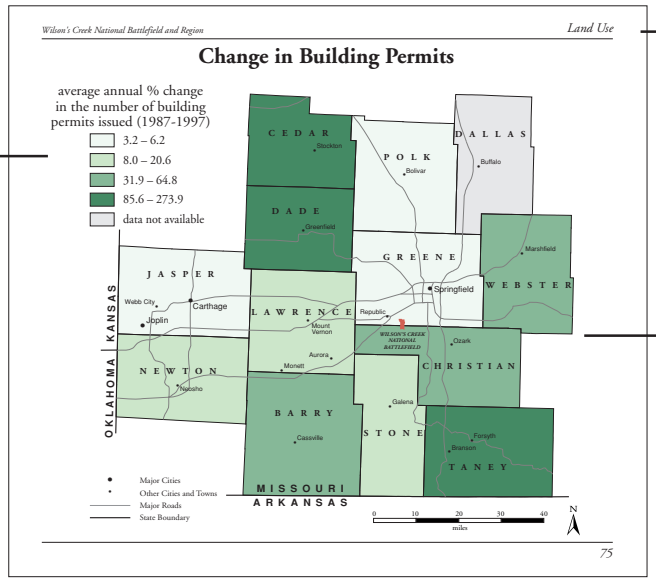
Number Line showing distribution of data

average annual % change in the number of building permits issued (1987-1997)	
Dade	273.9
Taney	180.0
Cedar	85.6
Christian	64.8
Barry	58.0
Webster	31.9
Stone	20.6
Newton	11.7
Lawrence	8.0
Polk	6.2
Jasper	3.8
Greene	3.2

26.2

NOTES

74



Wilson's Creek National Battlefield and Region *Land Use*

Change in Building Permits

average annual % change in the number of building permits issued (1987-1997)

- 3.2 – 6.2
- 8.0 – 20.6
- 31.9 – 64.8
- 85.6 – 273.9
- data not available

CEDAR, DALLAS, POLK, DADE, GREENE, JASPER, WEBSTER, LAWRENCE, NEWTON, CHRISTIAN, BARRY, STONE, TANEY, KANSAS, OKLAHOMA, MISSOURI, ARKANSAS

Stockton, Buffalo, Bolivar, Greenfield, Marshfield, Springfield, Webb City, Carthage, Joplin, Republic, Mount Vernon, Aurora, Monett, Neosho, Ozark, Galena, Cassville, Forsyth, Branson

WILSON'S CREEK NATIONAL BATTLEFIELD

Major Cities
Other Cities and Towns
Major Roads
State Boundary

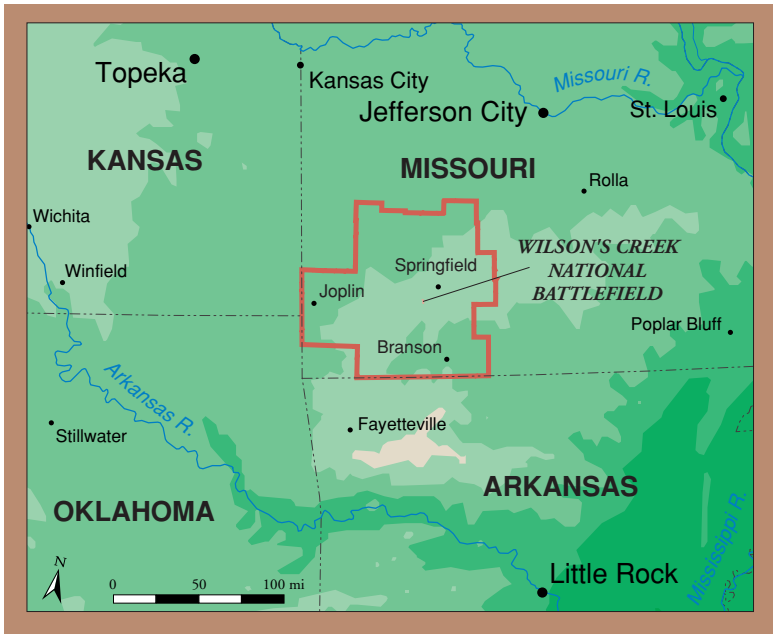
0 10 20 30 40 miles

N

75

- 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 for notes. Atlas users can add their own observations about each indicator, and note questions for further analysis.
- a map that displays general trends 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 82.

The Socioeconomic Indicators



Total Population

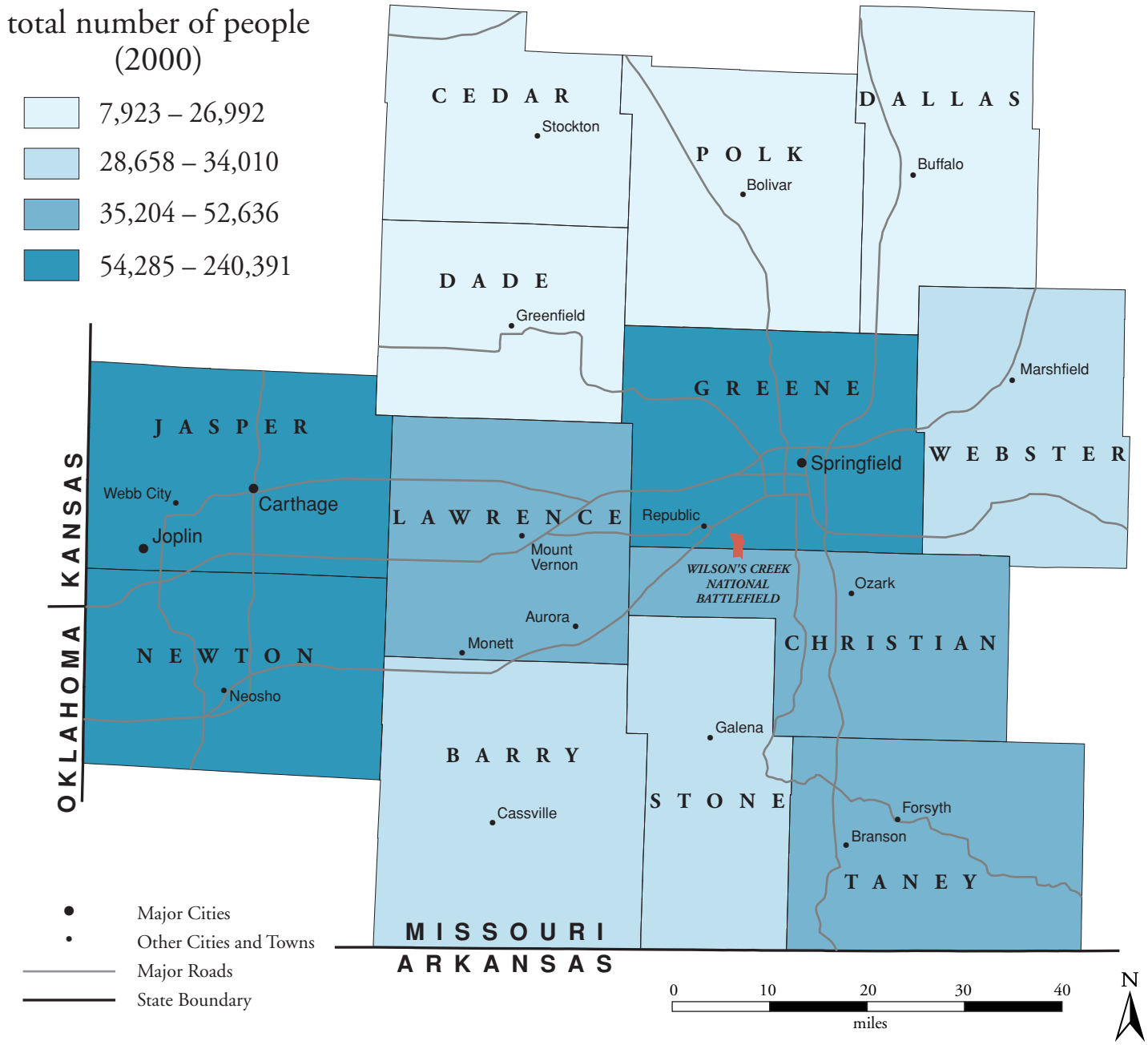
Population size is one of the most important influences on the character of human activities in a place, and a key influence on resource use. People bring labor, knowledge, and economic activity to a place. At the same time, they generate demand for natural resources, goods and services ranging from food to recreational opportunities. Within the Wilson's Creek NB region, county population (2000) ranges from 7,923 (Dade) to 240,391 (Greene).

Number Line
showing distribution of data

total number of people (2000)	
Greene	240,391
Jasper	104,686
Newton	54,285
Christian	52,636
Taney	39,703
Lawrence	35,204
Barry	**34,010**
Webster	31,045
Stone	28,658
Polk	26,992
Dallas	15,661
Cedar	13,733
Dade	7,923

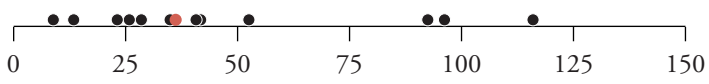
NOTES

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 Wilson's Creek NB region, county growth rates (1970-1990) ranged from 8.7% (Dade) to 115.8% (Christian).

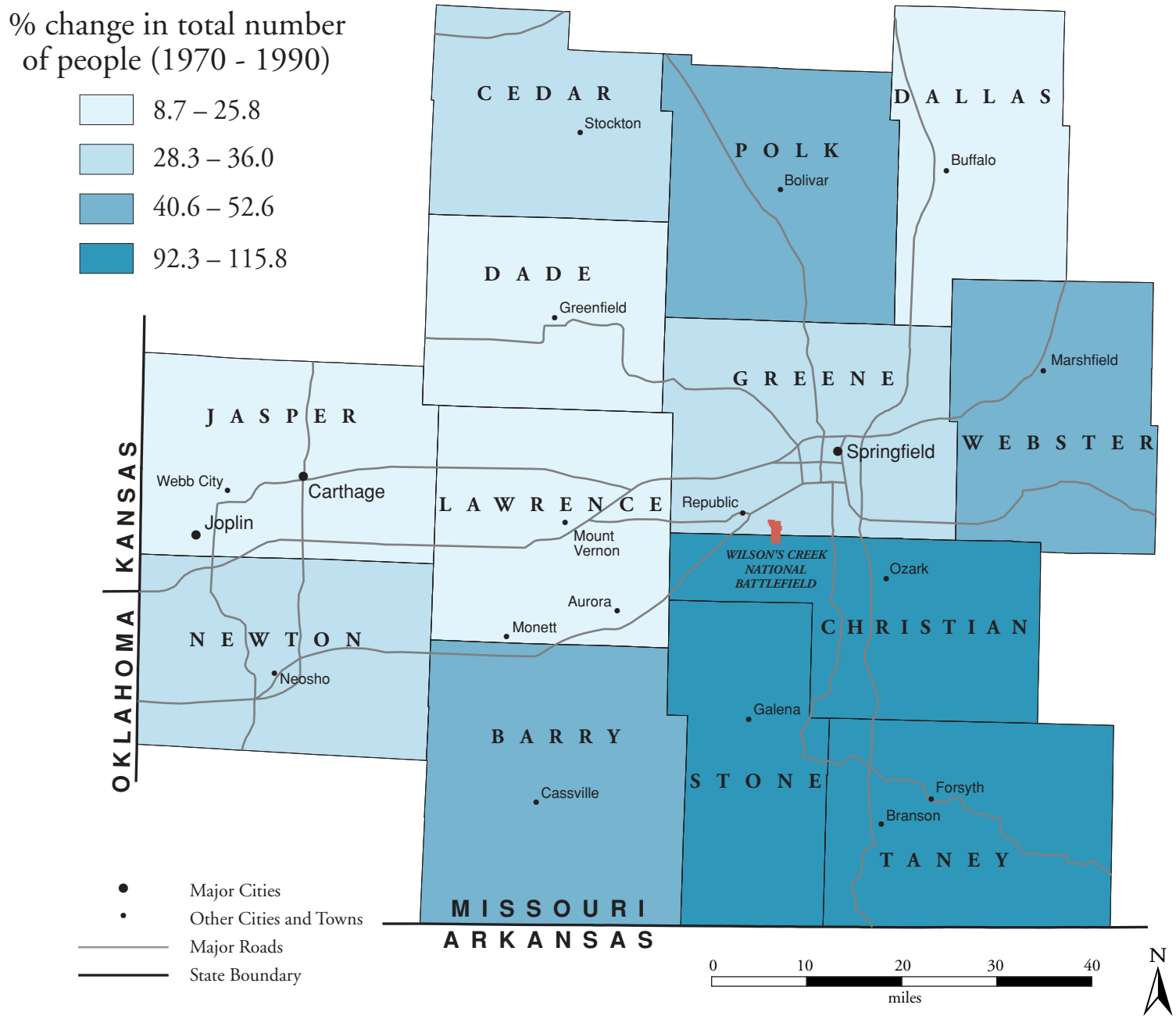


Number Line
showing distribution of data

% change in total number of people (1970 - 1990)	
Christian	115.8
Taney	96.3
Stone	92.3
Webster	52.6
Polk	41.6
Barry	40.6
Greene	**36.0**
Newton	34.8
Cedar	28.3
Dallas	25.8
Lawrence	23.0
Jasper	13.3
Dade	8.7

NOTES

Historical Population Change



Recent Population Change

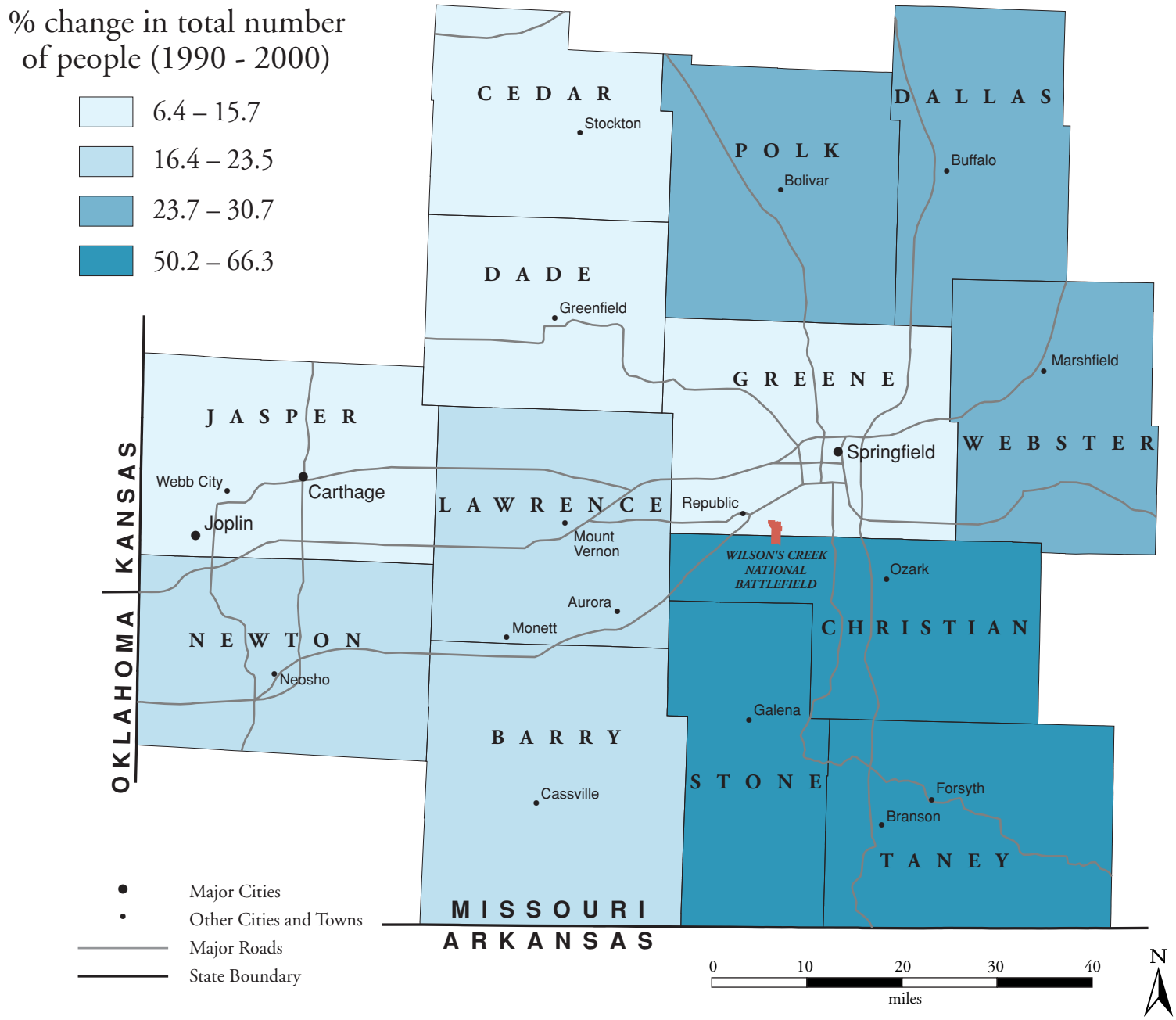
Measuring recent population change provides an indication of the extent to which population change is influencing current local or regional priorities. For example, population growth changes the tax base, adds new voters, and can increase demand for services ranging from schools to transportation to outdoor recreation. Within the Wilson's Creek NB region, the recent increase in county population (1990-2000) ranges from 6.4% (Dade) to 66.3% (Christian).

Number Line
showing distribution of data

% change in total number of people (1990 - 2000)	
Christian	66.3
Taney	55.3
Stone	50.2
Webster	30.7
Dallas	23.8
Polk	23.7
Barry	**23.5**
Newton	18.4
Lawrence	16.4
Jasper	15.7
Greene	15.6
Cedar	13.6
Dade	6.4

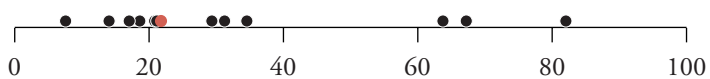
NOTES

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 Wilson's Creek NB region, the projected increase in county population by the year 2020 ranges from 7.6% (Cedar) to 82% (Christian).



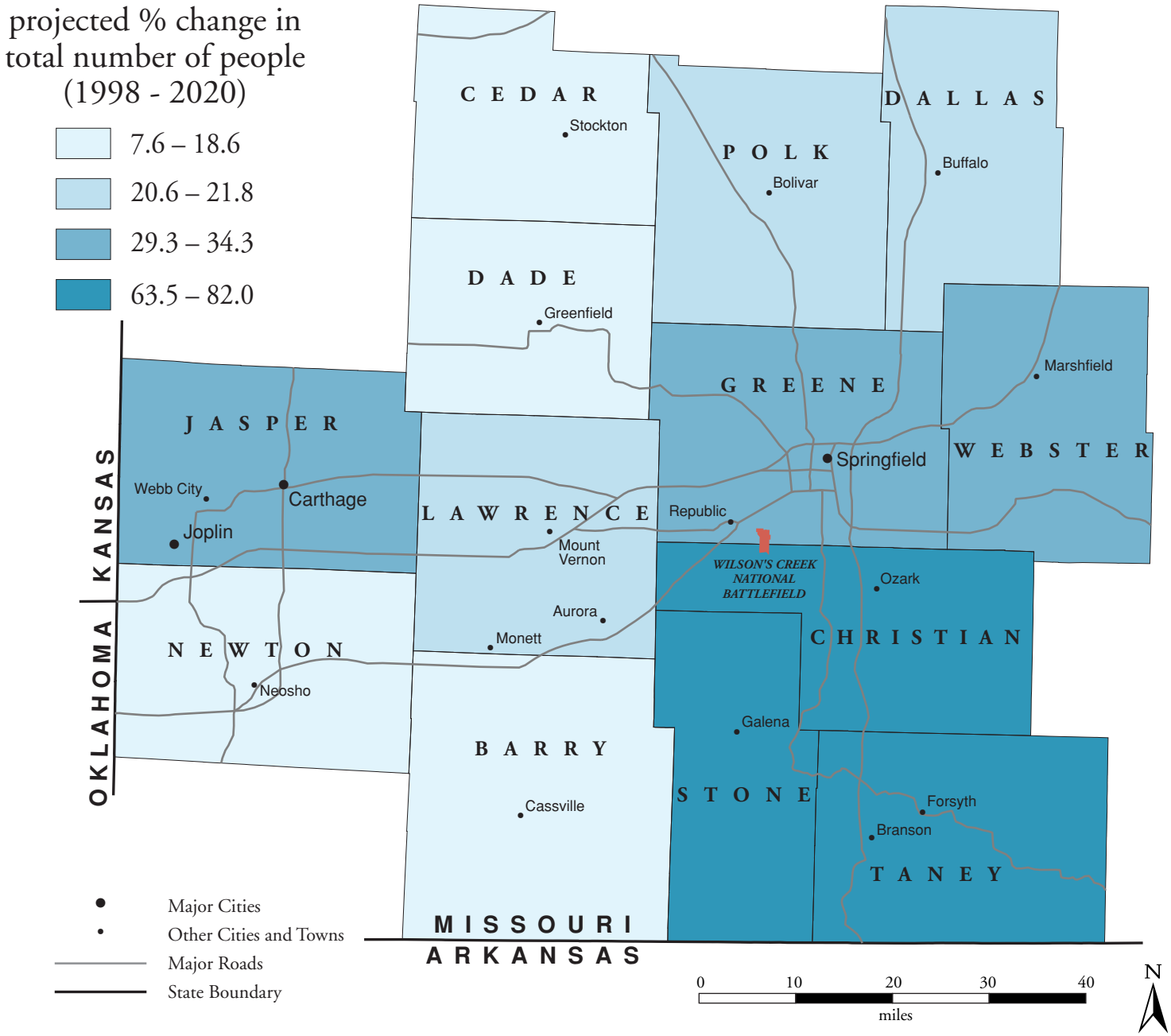
Number Line
showing distribution of data

projected % change in total number of people (1998 - 2020)

Christian	82.0
Taney	67.0
Stone	63.5
Webster	34.3
Greene	31.0
Jasper	29.3
Dallas	**21.8**
Lawrence	21.0
Polk	20.6
Barry	18.6
Dade	17.1
Newton	14.2
Cedar	7.6

NOTES

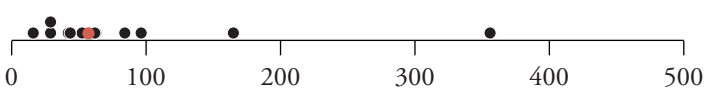
Projected Population Change



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 changes in population density can be an important way to detect potential stresses and impacts on natural resources in the park region. Within the Wilson's Creek NB region, county population density (2000) ranges from 16.2 people per square mile (Dade) to 356.1 people per square mile (Greene).[1]

The map displays census tract level data for Greene and Christian counties only. Census tracts, ranging in number from 1 to 9999, are statistically derived county subdivisions encompassing approximately 4,000 people each.

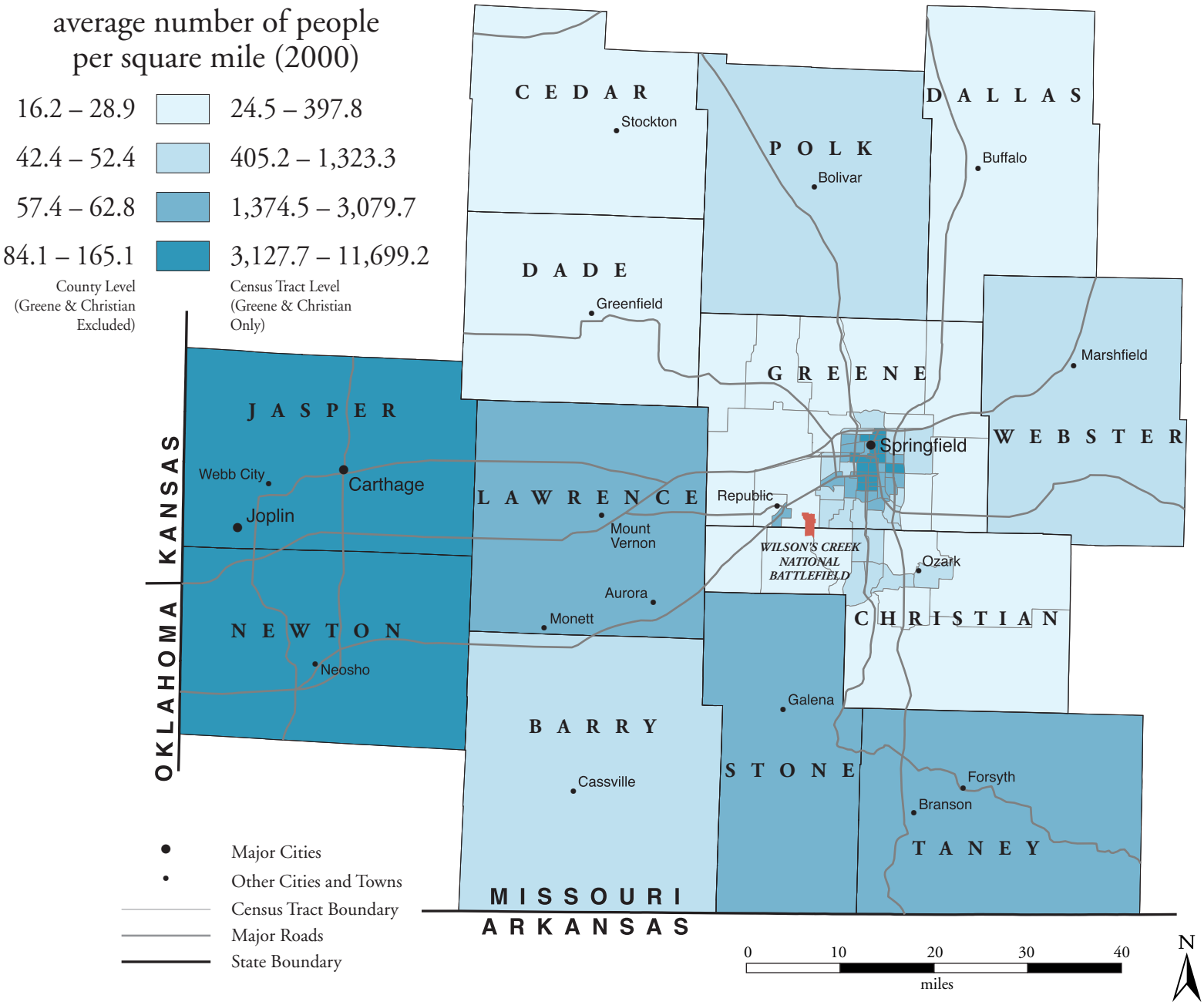


Number Line
showing distribution of data

average number of people per square mile (2000)	
Greene	356.1
Jasper	165.1
Christian	96.4
Newton	84.1
Taney	62.8
Stone	61.9
Lawrence	**57.4**
Webster	52.4
Barry	43.7
Polk	42.4
Cedar	28.9
Dallas	28.9
Dade	16.2

NOTES

Population Density



Population Density Change

Population density change is an alternate means of stating the rate of population growth or decline. Population density change depicted here over a mid-range period of time (1980-2000) can be compared with recent population change (1990-2000), as depicted on pages 16 - 17, to determine whether the rate of change has remained steady, decreased, or increased in recent years. Steady or decelerating population growth can allow government and institutions to anticipate and plan for needs in advance. Accelerating population growth can place stress on government and institutions, which must to respond rapidly to changes in civic life, industry, infrastructure, and the use of land and resources. Within the Wilson's Creek NB region, the change in county population density (1980-2000) ranges from 7.3% (Dade) to 142.3% (Christian).[2]

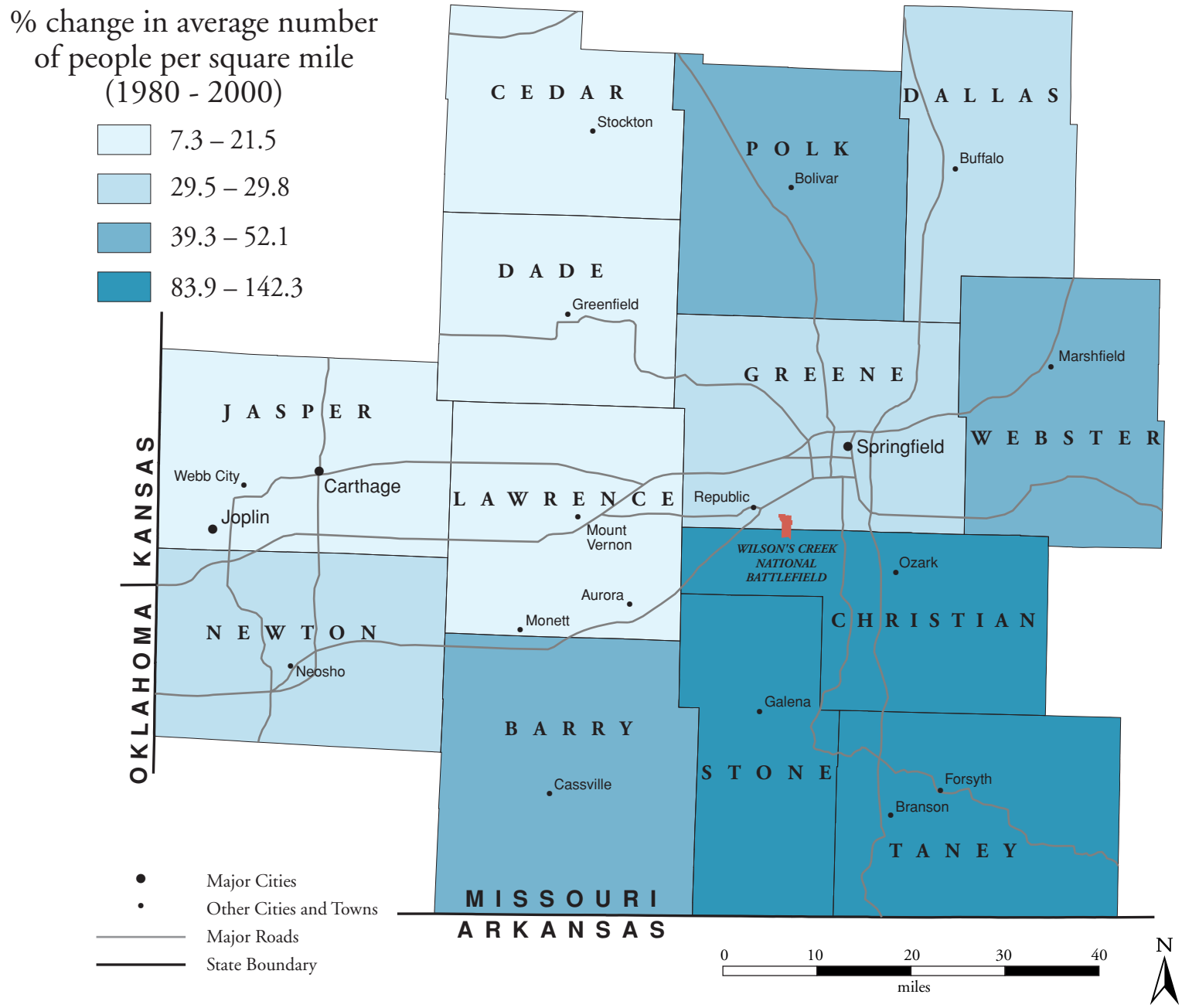
Number Line
showing distribution of data

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

Christian	142.3
Taney	94.0
Stone	83.9
Webster	52.1
Polk	43.4
Barry	39.3
Newton	**29.8**
Greene	29.7
Dallas	29.5
Lawrence	21.5
Jasper	20.4
Cedar	15.5
Dade	7.3

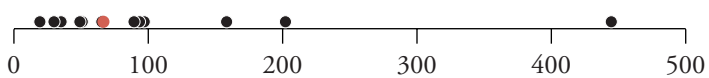
NOTES

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 Wilson's Creek NB region, projected county population density for the year 2020 ranges from 19.1 people per square mile (Dade) to 444 people per square mile (Greene).[3]



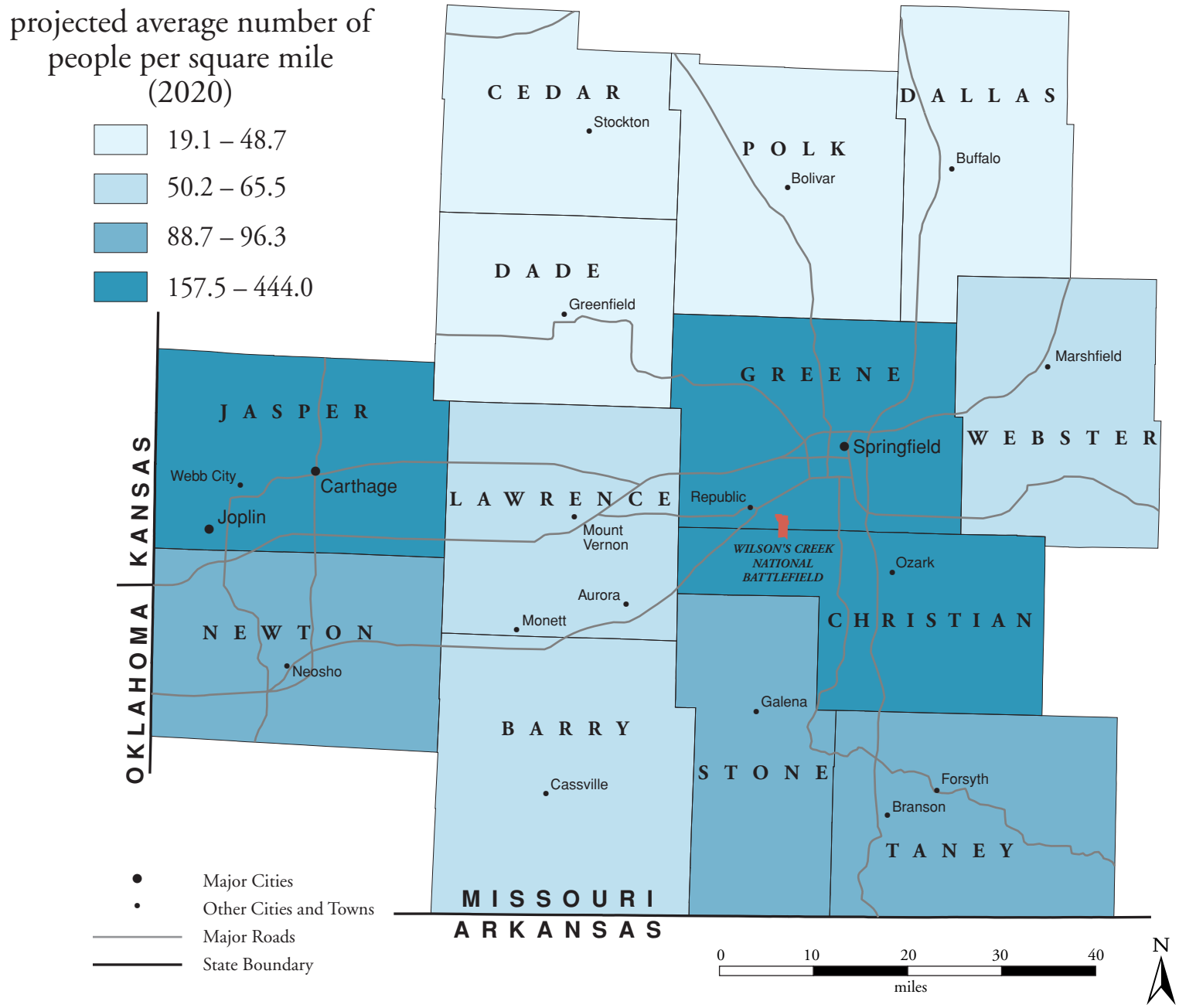
Number Line
showing distribution of data

projected average number of people per square mile (2020)

Greene	444.0
Jasper	202.4
Christian	157.5
Stone	96.3
Taney	92.6
Newton	88.7
Lawrence	**65.5**
Webster	65.4
Barry	50.2
Polk	48.7
Dallas	34.4
Cedar	29.6
Dade	19.1

NOTES

Projected Population Density



Urban Population

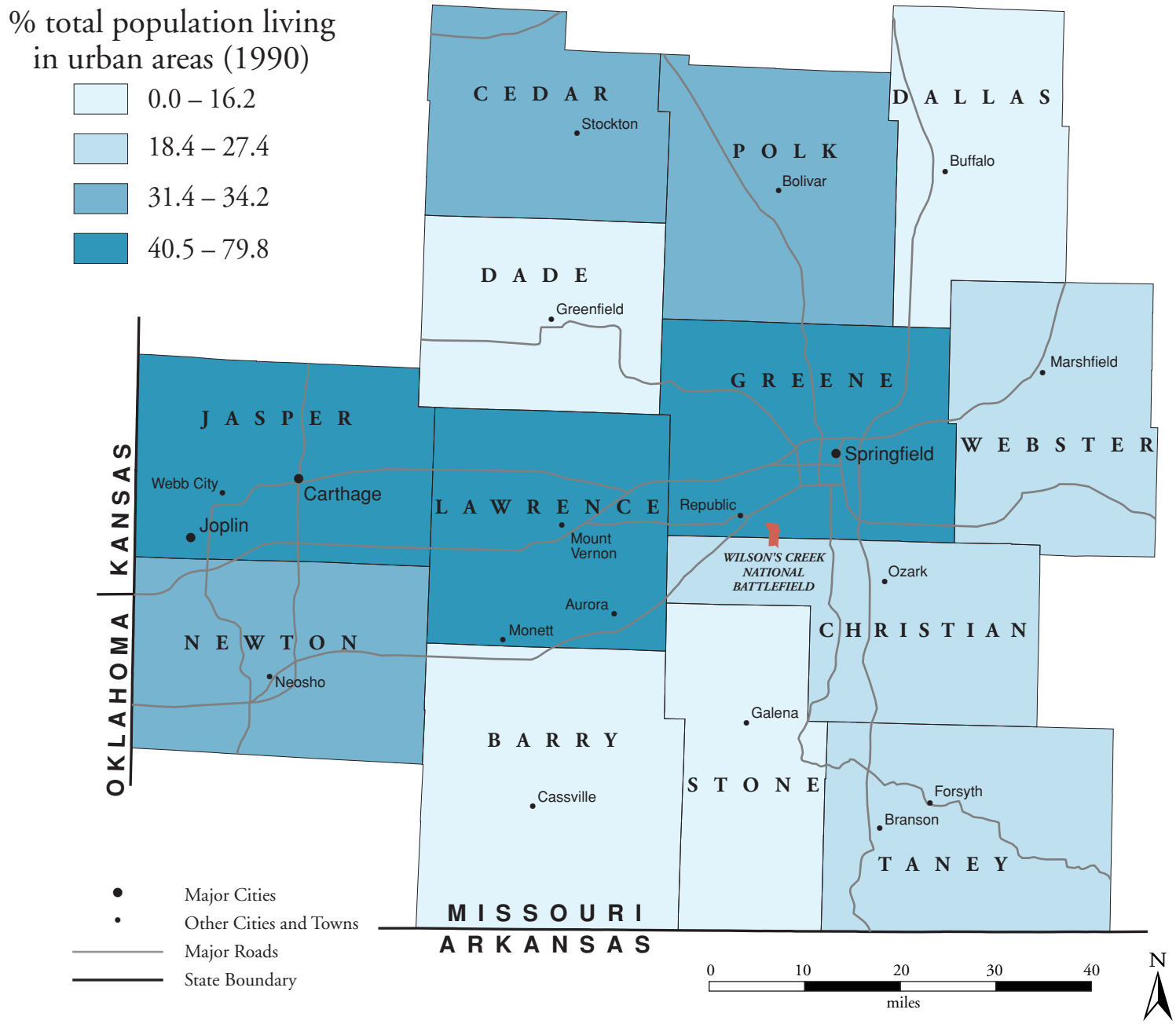
The relative proportion of urban dwellers within counties in the park region can be significant in addressing regional issues related to park management. Urban dwellers may have easier access to schools, stores, and medical service. They may also benefit from a greater array of public services such as water utilities and municipal police protection. These and many other differences can tend to generate varying urban and rural strategies for dealing with issues such as taxation, development, and environmental protection. Within the Wilson's Creek NB region, the percent of the county population living in urban areas (1990) ranges from 0% (Dade, Dallas, and Stone) to 79.8% (Greene).[4]

Number Line
showing distribution of data

% total population living in urban areas (1990)	
Greene	79.8
Jasper	71.5
Lawrence	40.5
Newton	34.2
Cedar	31.7
Polk	31.4
Christian	**27.4**
Taney	24.8
Webster	18.4
Barry	16.2
Dade	0.0
Dallas	0.0
Stone	0.0

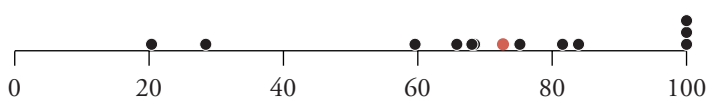
NOTES

Urban Population



Rural Population

The rural population of a county consists of all those who live outside of urban areas. Rural dwellers may have to invest more time or money than urban dwellers to reach services such as schools, stores, and medical attention. Rural dwellers may be less dependent on government for services such as water supply and police protection, and may be accustomed to greater autonomy with regard to choices about land use. These differences can tend to generate varying priorities among rural and urban dwellers with regard to issues such as taxation, development, and environmental protection. These differences can be important considerations in addressing regional issues such as growth and resource protection. Within the Wilson's Creek NB region, the percent of the county population living in rural areas (1990) ranges from 20.2% (Greene) to 100% (Dade, Dallas, and Stone).[5]

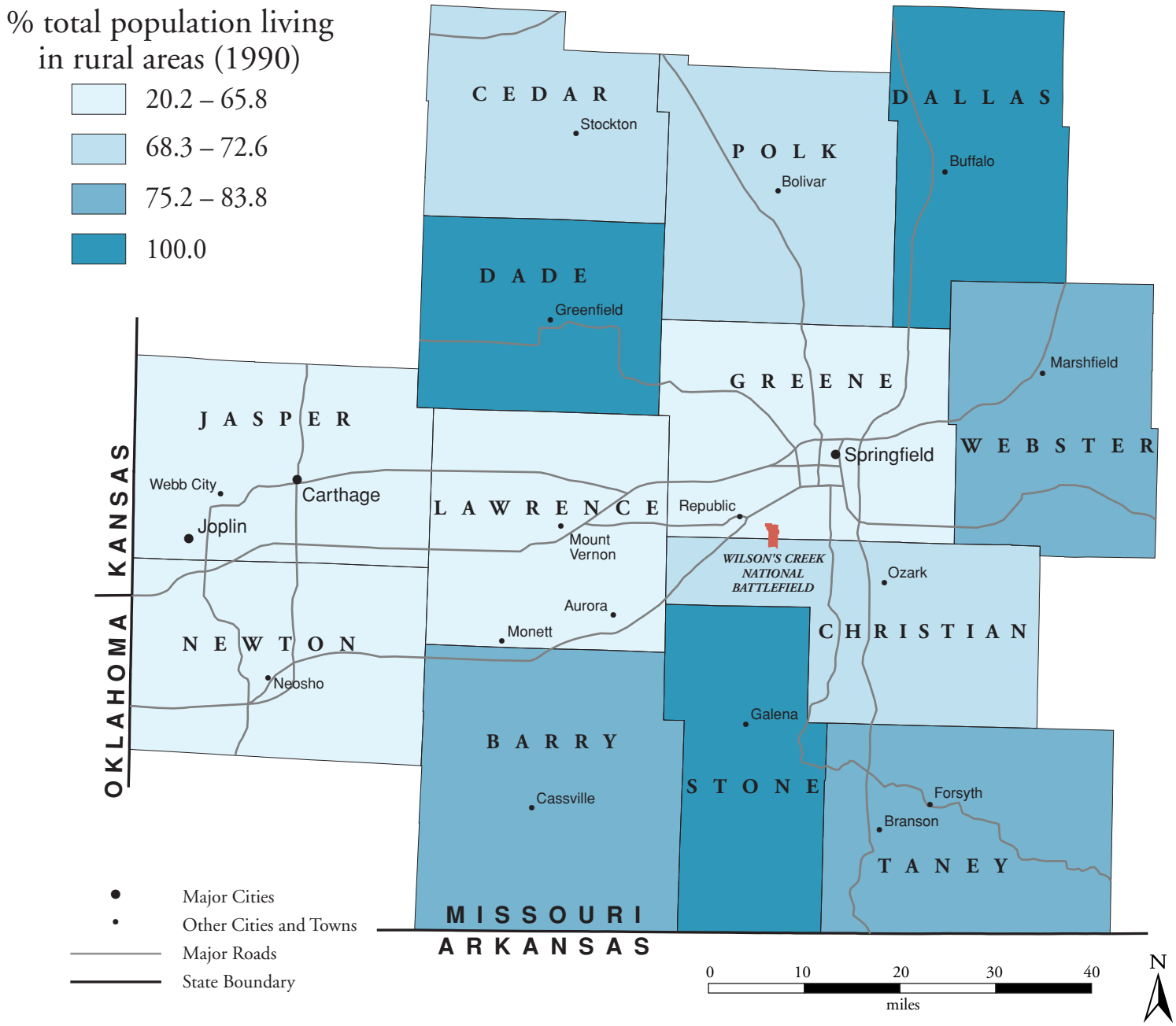


Number Line
showing distribution of data

% total population living in rural areas (1990)	
Dade	100.0
Dallas	100.0
Stone	100.0
Barry	83.8
Webster	81.6
Taney	75.2
Christian	**72.6**
Polk	68.6
Cedar	68.3
Newton	65.8
Lawrence	59.5
Jasper	28.5
Greene	20.2

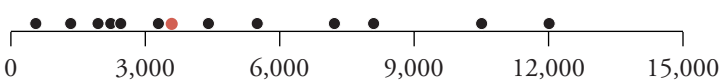
NOTES

Rural Population



Domestic Migration

Domestic migration measures the net movement of U.S. residents into or out of a county. These indicators provide a way of monitoring whether a county is attracting new residents or losing current residents. Factors that can encourage migration into a county include new industry, recreation or retirement offerings, and suburban development. Domestic migration into the park region can have significant impacts for park management, such as increased visitor use, development pressure on adjacent lands, and new challenges for protecting thematically-related cultural landmarks or natural resources in the park region. Within the Wilson's Creek NB region (1990-1997), all counties experienced net in-migration, with gains ranging from 555 people (Dade) to 12,018 people (Greene).[6]



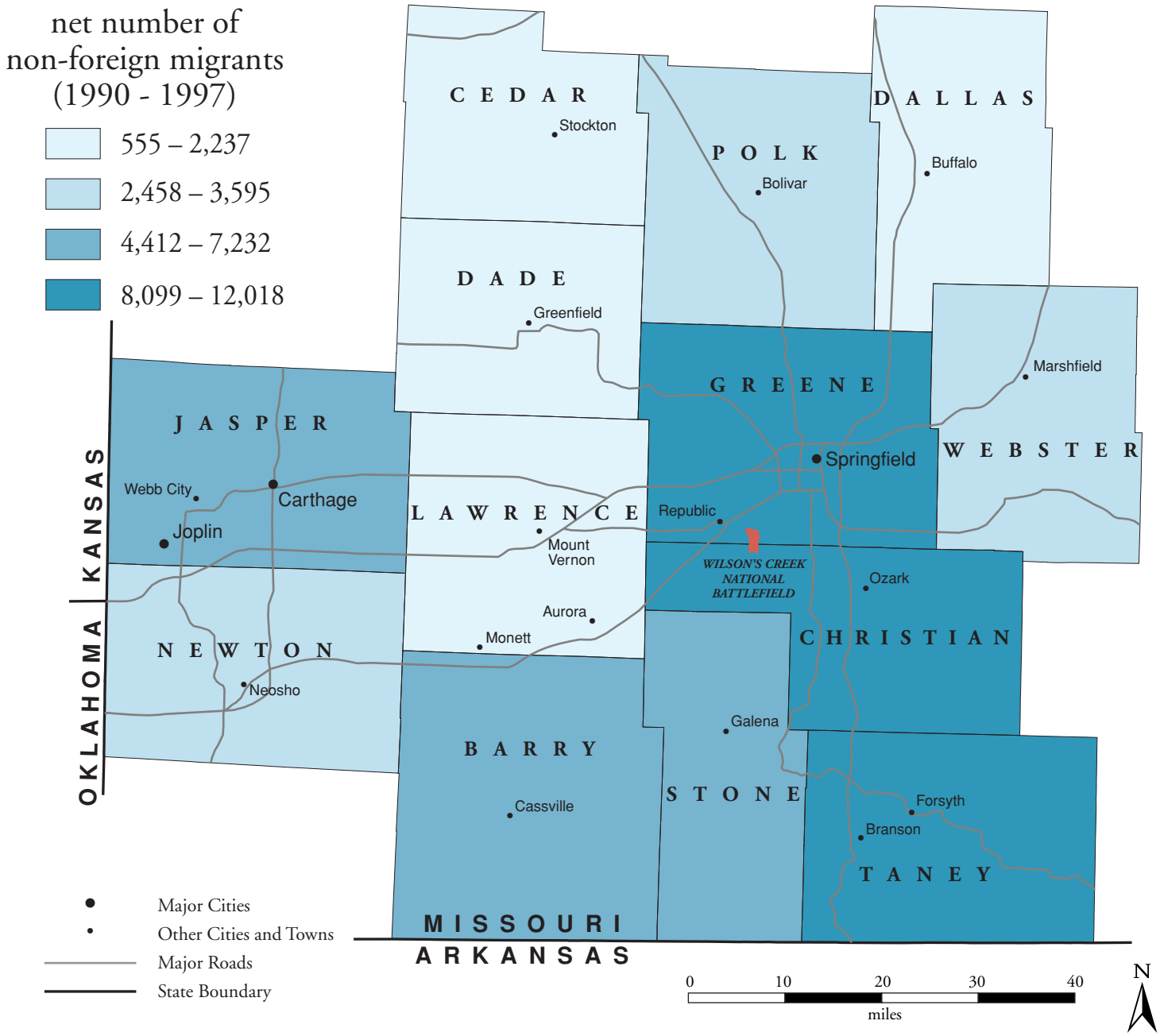
Number Line
showing distribution of data

net number of non-foreign migrants (1990 - 1997)

Christian	12,018
Greene	10,509
Taney	8,099
Stone	7,232
Jasper	5,504
Barry	4,412
Webster	**3,595**
Polk	3,295
Newton	2,458
Dallas	2,237
Lawrence	1,951
Cedar	1,333
Dade	555

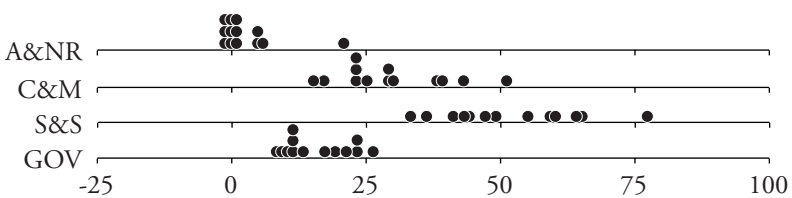
NOTES

Domestic Migration



Industry Earnings

Industry earnings 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 Wilson's Creek NB region (1996), the leading sector in eleven of the thirteen counties is sales/services. In Barry and Newton counties, the leading sector is construction/manufacturing.[7]



Number Line
showing distribution of data

% total earnings by industrial category (1996)

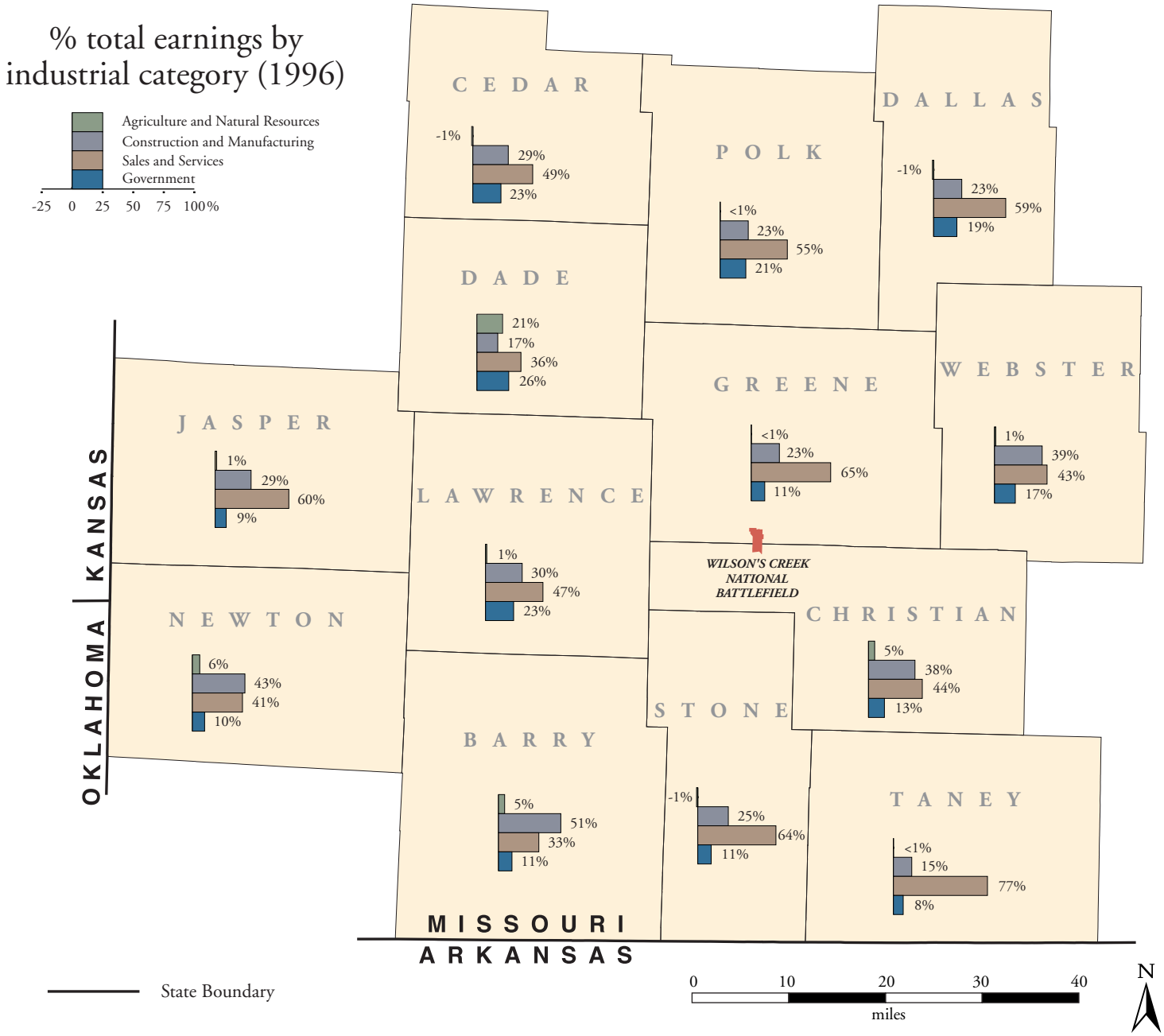
	A&NR	C&M	S&S	GOV
Barry	5	51	33	11
Cedar	-1	29	49	23
Christian	5	38	44	13
Dade	21	17	36	26
Dallas	-1	23	59	19
Greene	0	23	65	11
Jasper	1	29	60	9
Lawrence	1	30	47	23
Newton	6	43	41	10
Polk	0	23	55	21
Stone	-1	25	64	11
Taney	0	15	77	8
Webster	1	39	43	17

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

Percentages may not add to one hundred due to rounding.

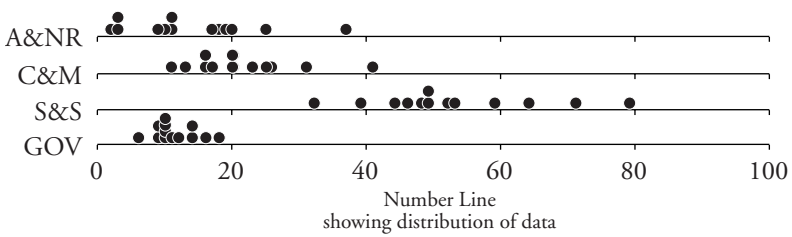
NOTES

Industry Earnings



Employment by Industry

One indicator of how a county's job market is structured is the percent of workers employed in each of the four major industrial sectors. This distribution of employment 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 Wilson's Creek NB region (1996), the leading sector of employment in eleven of the thirteen counties is sales/services. The leading sectors in Barry and Dade counties are, respectively, construction/manufacturing and agriculture/natural resources.[8]



% employment by industrial category (1996)

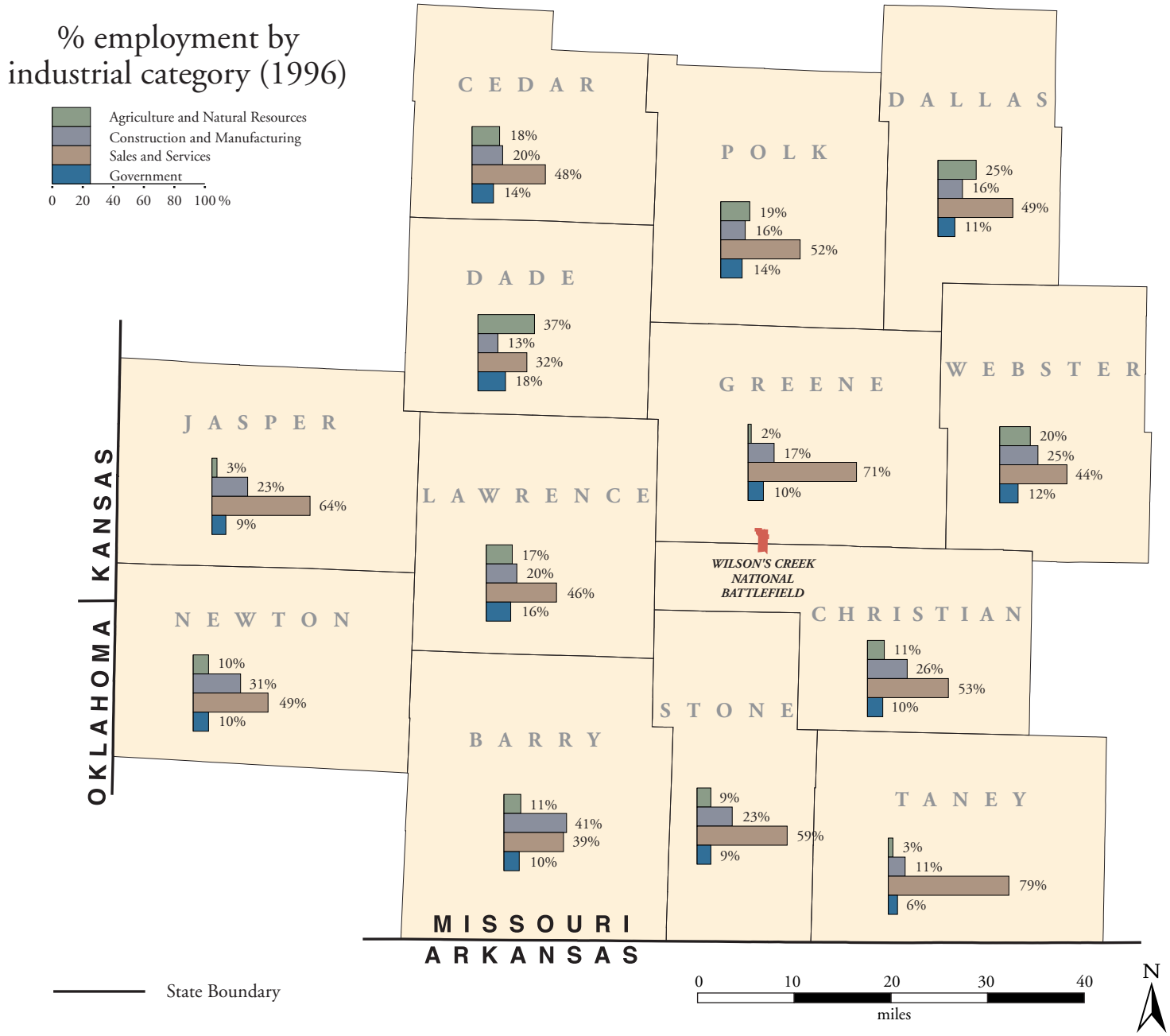
	A&NR	C&M	S&S	GOV
Barry	11	41	39	10
Cedar	18	20	48	14
Christian	11	26	53	10
Dade	37	13	32	18
Dallas	25	16	49	11
Greene	2	17	71	10
Jasper	3	23	64	9
Lawrence	17	20	46	16
Newton	10	31	49	10
Polk	19	16	52	14
Stone	9	23	59	9
Taney	3	11	79	6
Webster	20	25	44	12

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.

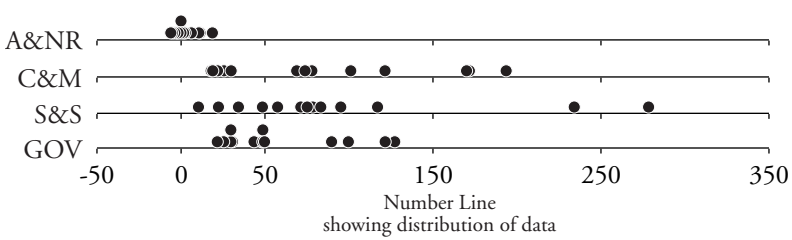
NOTES

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 Wilson's Creek NB region (1980-1996), the fastest growing employment sector was sales/services in eight counties, construction/manufacturing in three counties, and government in two counties.[9]



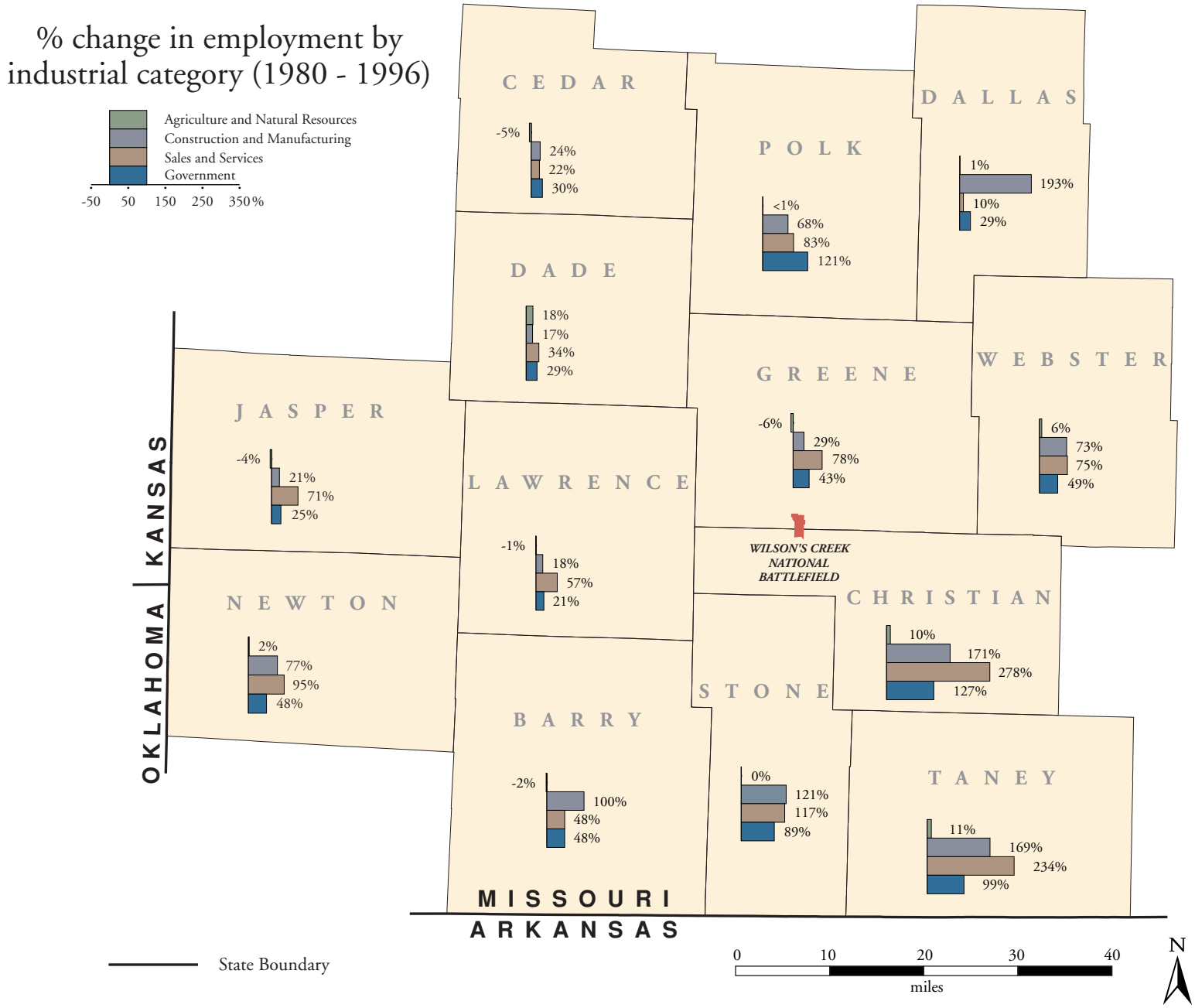
% change in employment by industrial category (1980 - 1996)

	A&NR	C&M	S&S	GOV
Barry	-2	100	48	48
Cedar	-5	24	22	30
Christian	10	171	278	127
Dade	18	17	34	29
Dallas	1	193	10	29
Greene	-6	29	78	43
Jasper	-4	21	71	25
Lawrence	-1	18	57	21
Newton	2	77	95	48
Polk	0	68	83	121
Stone	0	121	117	89
Taney	11	169	234	99
Webster	6	73	75	49

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

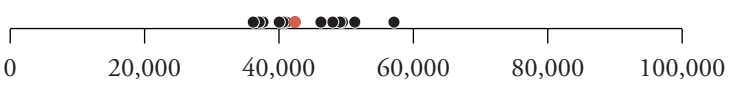
NOTES

Change in Employment by Industry



Mean Household Income

Mean household income is indicative of the general level of income among households in a county. It is calculated by dividing the county's total personal income by its number of households. General income measures can provide insights into the opportunities and time available for recreation in the park region. Within the Wilson's Creek NB region, mean household income (1996) ranges from $35,985 (Cedar) to $56,990 (Greene).

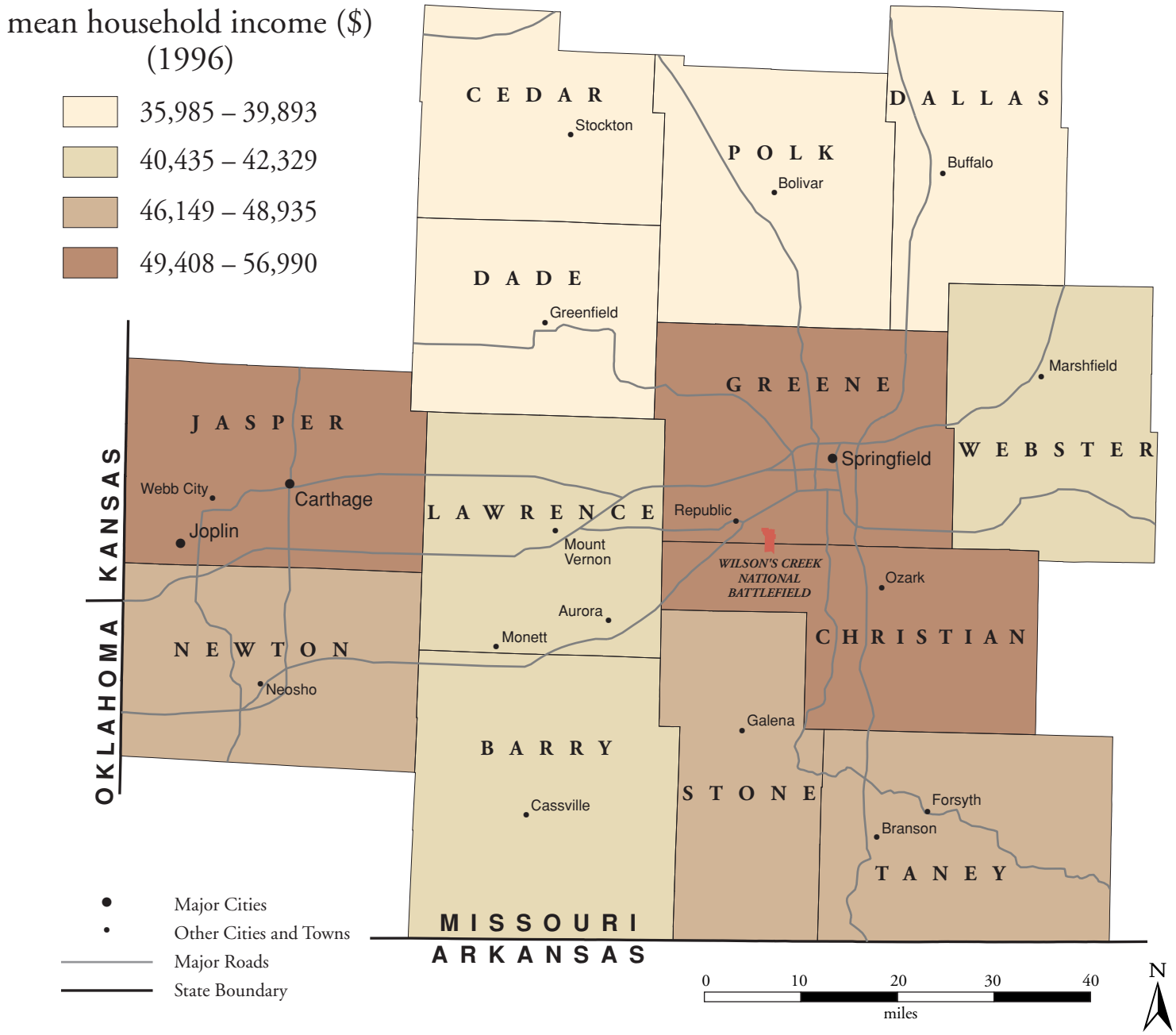


Number Line
showing distribution of data

mean household income ($) (1996)	
Greene	56,990
Jasper	51,178
Christian	49,408
Newton	48,935
Taney	47,886
Stone	46,149
Webster	**42,329**
Barry	40,992
Lawrence	40,435
Polk	39,893
Dade	37,544
Dallas	36,938
Cedar	35,985

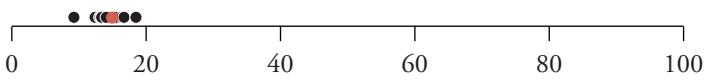
NOTES

Mean Household Income



Poverty

Poverty is officially defined as the condition of living in a household with income below the federally-determined poverty threshold ($16,400 in 1997). The extent of poverty can be measured as the percent 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 Wilson's Creek NB region, the level of poverty (1997) ranges from 9.1% (Christian) to 18.3% (Cedar).[10]

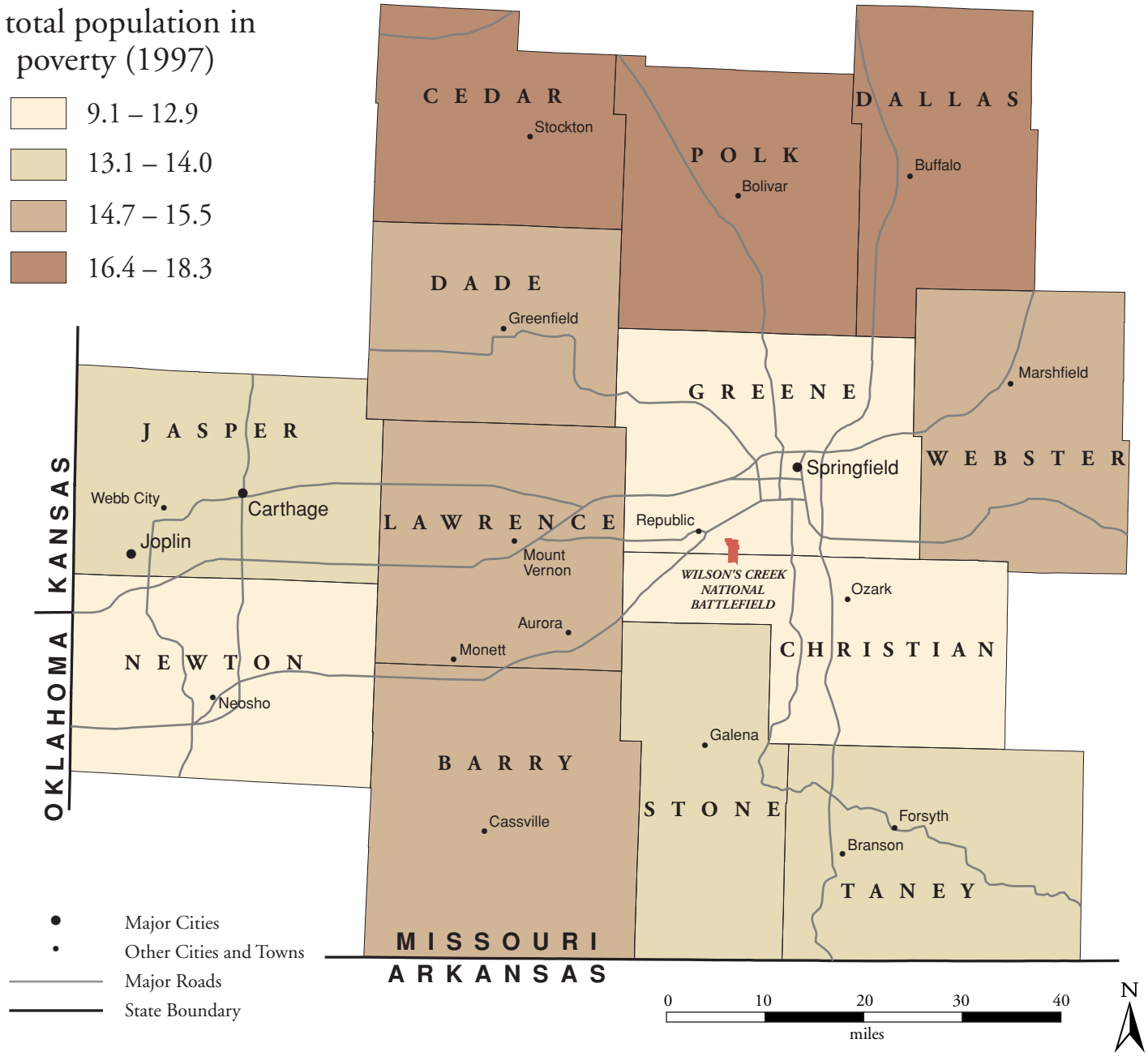


Number Line
showing distribution of data

% total population in poverty (1997)	
Cedar	18.3
Polk	16.6
Dallas	16.4
Barry	15.5
Dade	15.5
Webster	15.5
Lawrence	**14.7**
Jasper	14.0
Stone	13.1
Taney	13.1
Newton	12.9
Greene	12.2
Christian	9.1

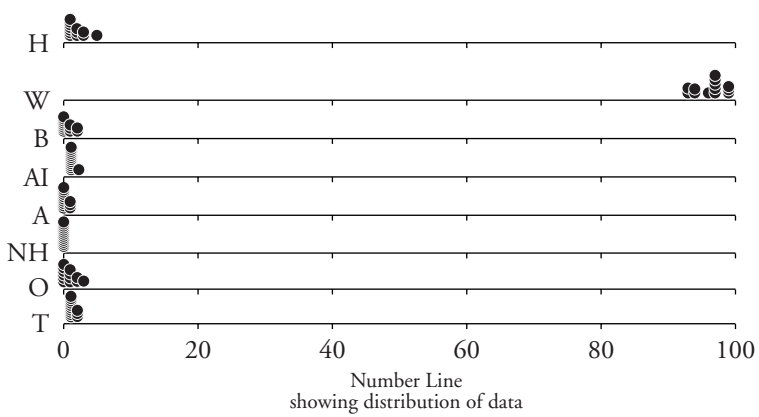
NOTES

Poverty


% total population in poverty (1997)
9.1 – 12.9
13.1 – 14.0
14.7 – 15.5
16.4 – 18.3
CEDAR
Stockton
POLK
Bolivar
DALLAS
Buffalo
DADE
Greenfield
GREENE
Springfield
Marshfield
WEBSTER
JASPER
Webb City
Carthage
Joplin
LAWRENCE
Mount Vernon
Republic
WILSON'S CREEK NATIONAL BATTLEFIELD
Ozark
CHRISTIAN
Aurora
Monett
NEWTON
Neosho
KANSAS
OKLAHOMA
BARRY
Cassville
Galena
STONE
Forsyth
Branson
TANEY
MISSOURI
ARKANSAS
Major Cities
Other Cities and Towns
Major Roads
State Boundary
0 10 20 30 40
miles
N

Racial Composition

Race/ethnicity indicators express the size of each race/ethnicity group in a given geographic area. Racial composition can be indicated in broad terms by measuring the relative size of each of the major racial groups and separate ethnicity category as classified by the U.S. Census Bureau. In a diverse society, racial composition can have many impacts. Within the Wilson's Creek NB region (2000), whites constitute the largest racial group in all counties. Barry county has the largest percentage of persons of Hispanic/Latino origin.[11]



% total population in each of the following racial/ethnic categories (2000)

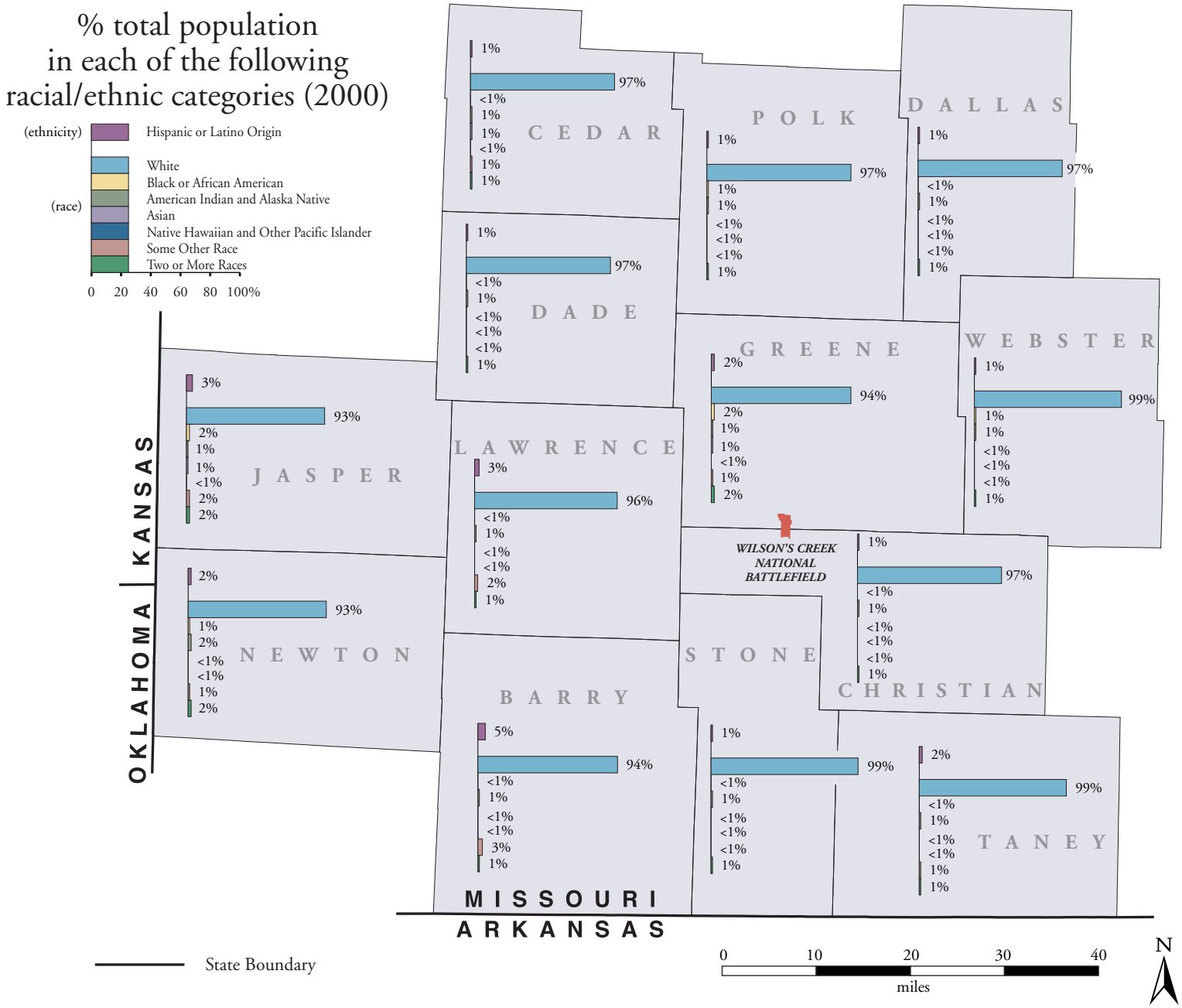
	H	W	B	AI	A	NH	O	T
Barry	5	94	0	1	0	0	3	1
Cedar	1	97	0	1	1	0	1	1
Christian	1	97	0	1	0	0	0	1
Dade	1	97	0	1	0	0	0	1
Dallas	1	97	0	1	0	0	0	1
Greene	2	94	2	1	1	0	1	2
Jasper	3	93	2	1	1	0	2	2
Lawrence	3	96	0	1	0	0	2	1
Newton	2	93	1	2	0	0	1	2
Polk	1	97	1	1	0	0	0	1
Stone	1	99	0	1	0	0	0	1
Taney	2	99	0	1	0	0	1	1
Webster	1	99	1	1	0	0	0	1

H = Hispanic or Latino Origin
W = White
B = Black or African American
AI = American Indian or Alaska Native
A = Asian
NH = Native Hawaiian or Other Pacific Islander
O = Some Other Race
T = Two or More Races

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

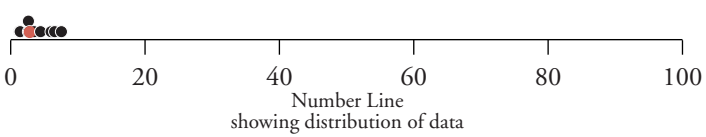
NOTES

Racial Composition



Racial Diversity

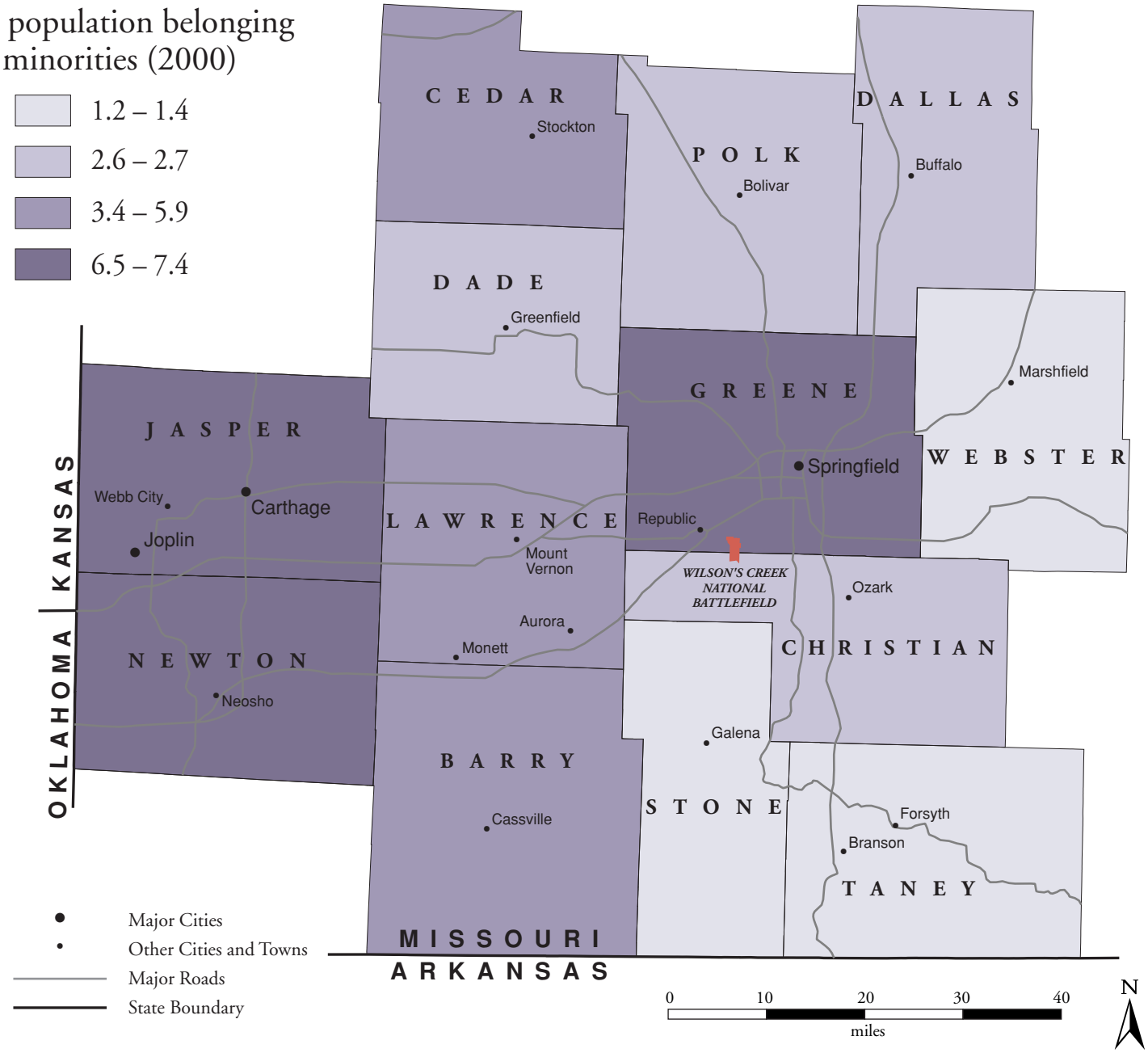
Racial diversity is measured as the percentage of the population who identify themselves as belonging to minorities. In the current U.S. context, "minority" is defined as non-white (Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other 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 Wilson's Creek NB region, the percent of minorities (2000) ranges from 1.2% (Stone) to 7.4% (Jasper).[12]



% total population belonging to minorities (2000)	
Jasper	7.4
Newton	6.7
Greene	6.5
Barry	5.9
Lawrence	4.3
Cedar	3.4
Polk	**2.7**
Christian	2.7
Dade	2.6
Dallas	2.6
Taney	1.4
Webster	1.4
Stone	1.2

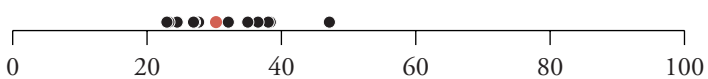
NOTES

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 percent 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 marketing, public participation processes, and the design of interpretive programs. Within the Wilson's Creek NB region, the percent of adults with some college education (1990) ranges from 23% (Cedar) to 47.2% (Greene).

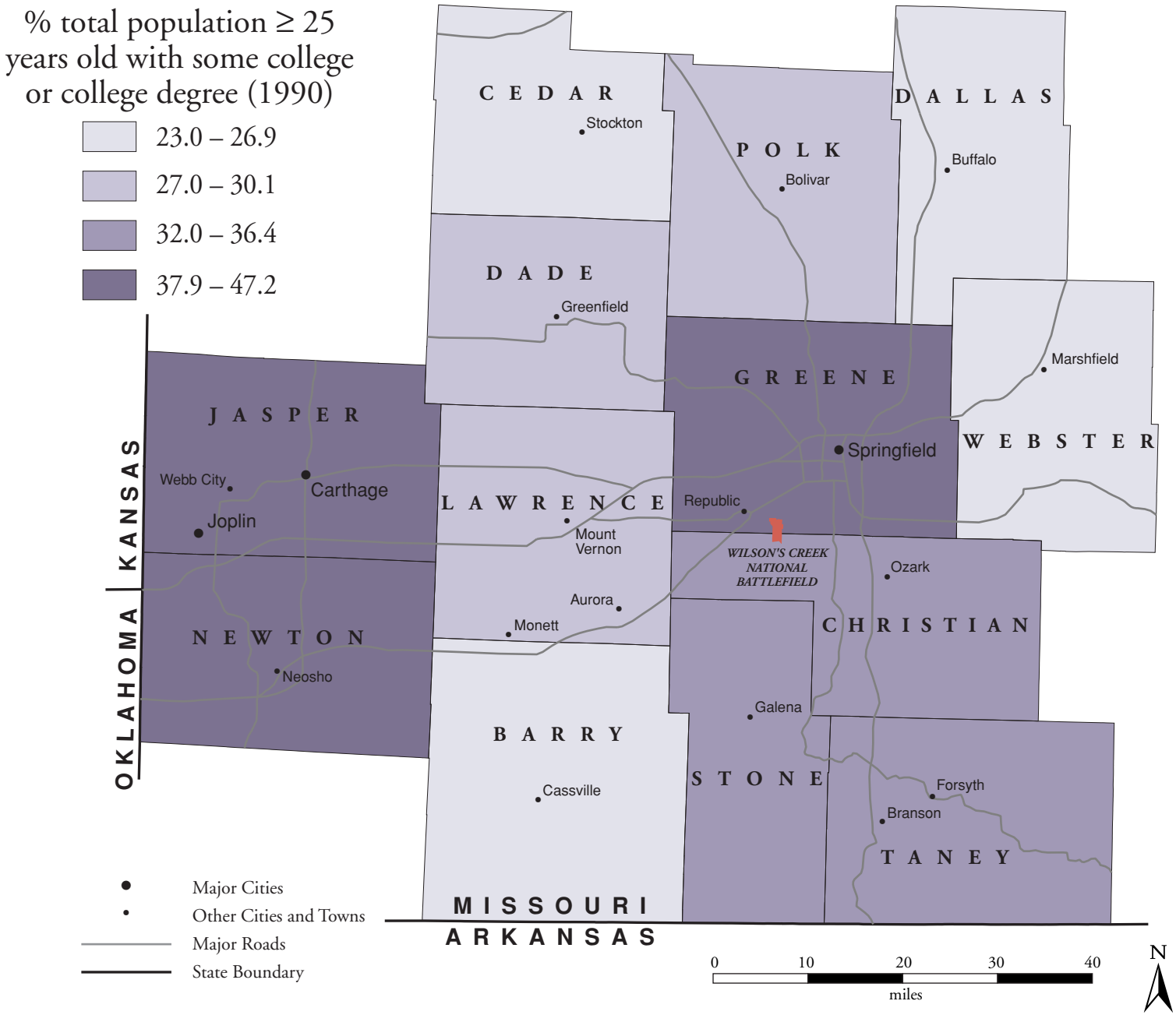


Number Line
showing distribution of data

% total population ≥ 25 years old with some college or college degree (1990)	
Greene	47.2
Newton	38.3
Jasper	37.9
Christian	36.4
Taney	35.0
Stone	32.0
Polk	**30.1**
Lawrence	27.6
Dade	27.0
Webster	26.9
Barry	24.3
Dallas	23.3
Cedar	23.0

NOTES

Educational Attainment



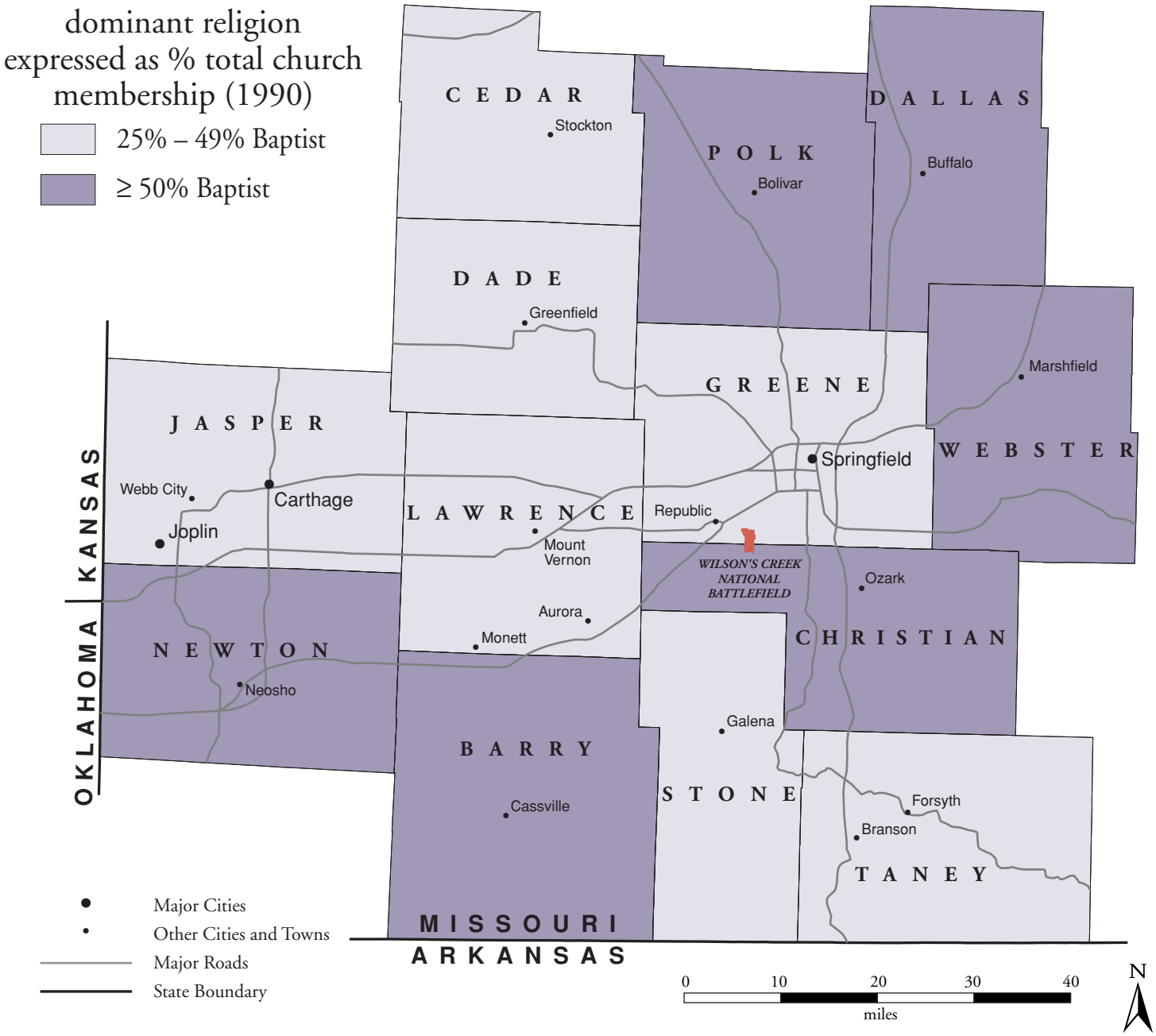
Religious Groups

Indicators of religious affiliation measure the prevalence of various religious beliefs and practices, including membership in formal religious groups. One key indicator of religious participation is the presence of a relatively dominant religious group within a county (a group to which at least 25% of total church membership belongs). Membership in religious groups is an important social force in many ways, not only because it influences individual and group behavior (religious holidays, for example), but also because religious groups are often important community organizations. Formal religious groups create networks for sharing information and ideas, and they can also exert influence on issues ranging from environmental protection to advocacy for social change. Within the Wilson's Creek NB region (1990), six counties have a Baptist majority; in the seven remaining counties, Baptists constitute at least 25% of total church membership.

dominant religion expressed as % total church membership (1990)	
Barry	50+
Christian	50+
Dallas	50+
Newton	50+
Polk	50+
Webster	50+
Cedar	25-49
Dade	25-49
Greene	25-49
Jasper	25-49
Lawrence	25-49
Stone	25-49
Taney	25-49

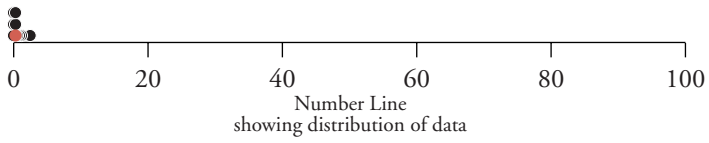
NOTES

Religious Groups



English Language Ability

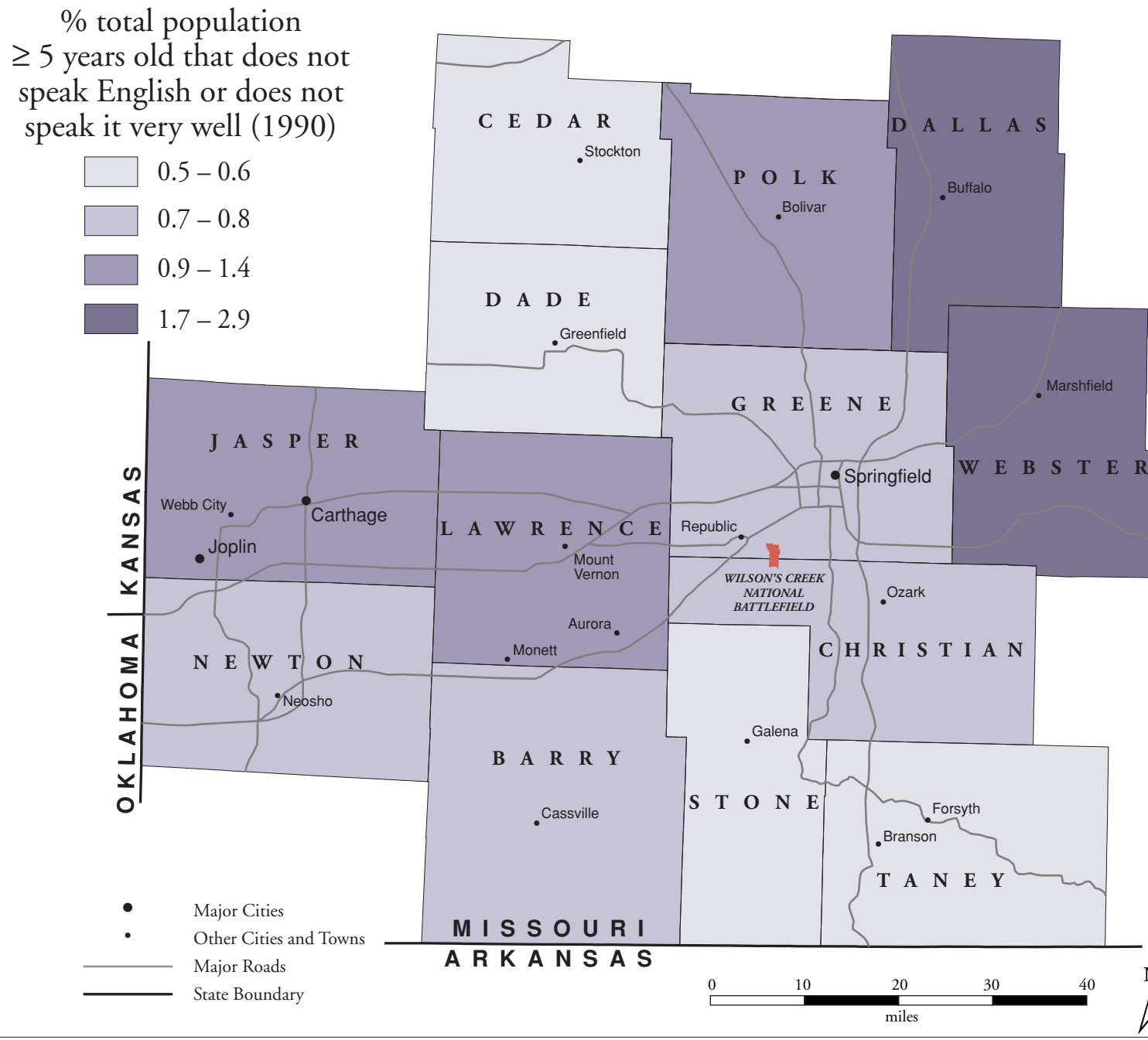
Indicators of English language ability measure how familiar people in an area are with either spoken or written English. One indicator of English language ability is the percent of the total county population over age 5 who report that they do not speak English, or do not speak it very well. Knowledge 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 Wilson's Creek NB region, the percent of people lacking in English language ability (1990) ranges from 0.5% (Taney) to 2.9% (Dallas).



% total population ≥ 5 years old that does not speak English or does not speak it very well (1990)	
Dallas	2.9
Webster	1.7
Polk	1.4
Lawrence	1.0
Jasper	0.9
Christian	0.8
Greene	**0.8**
Newton	0.8
Barry	0.7
Stone	0.6
Cedar	0.5
Dade	0.5
Taney	0.5

NOTES

English Language Ability

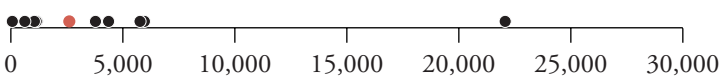


Crime

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 Wilson's Creek NB region, the number of serious crimes reported per 100,000 people (1993) ranges from 41 (Webster) to 22,041 (Taney).

number of serious crimes per 100,000 people (1993)

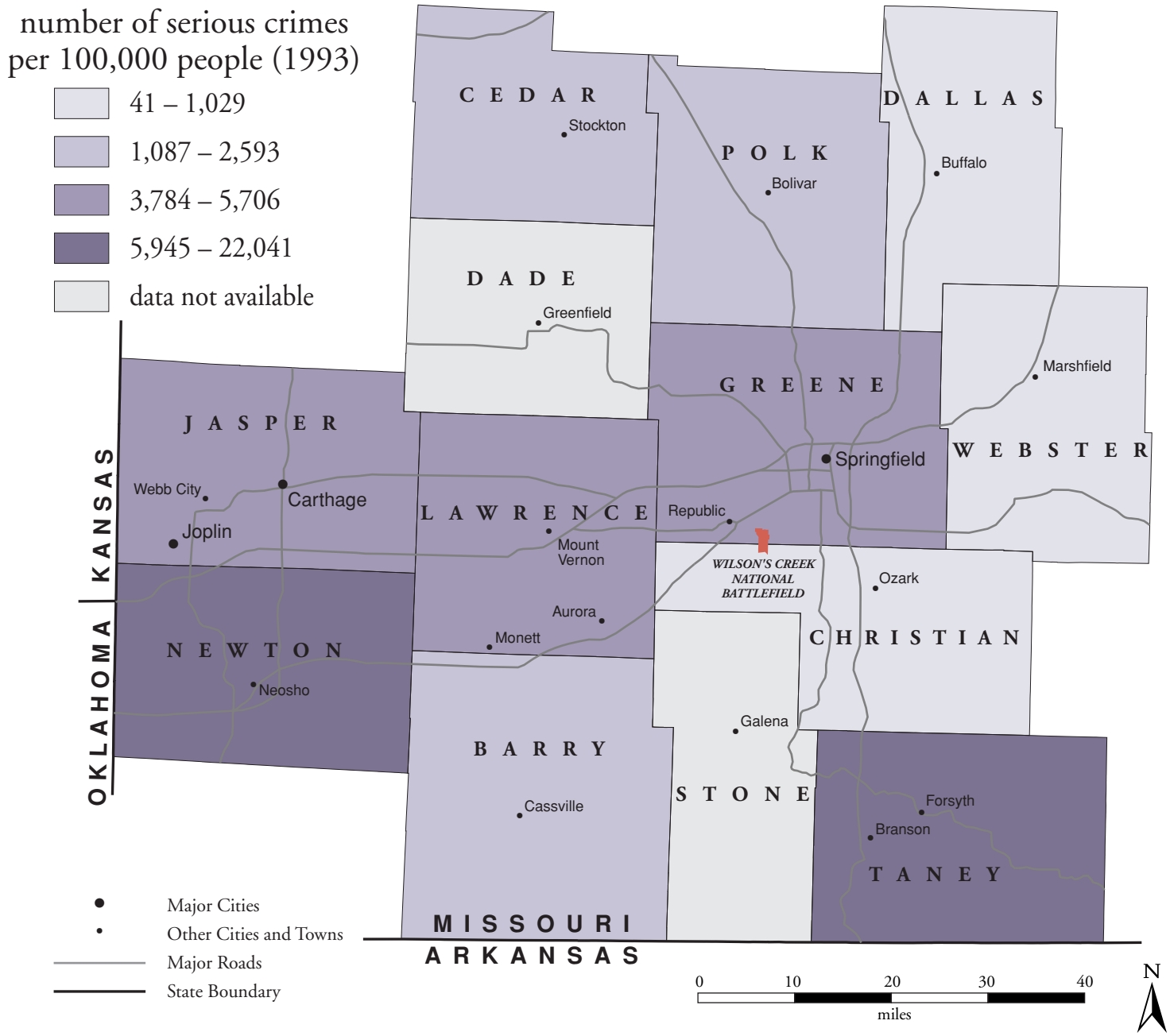
Taney	22,041
Newton	5,945
Greene	5,706
Jasper	4,308
Lawrence	3,784
Polk	**2,593**
Barry	1,164
Cedar	1,087
Christian	1,029
Dallas	624
Webster	41



Number Line
showing distribution of data

NOTES

Crime


number of serious crimes per 100,000 people (1993)
41 – 1,029
1,087 – 2,593
3,784 – 5,706
5,945 – 22,041
data not available
CEDAR
Stockton
POLK
Bolivar
DALLAS
Buffalo
DADE
Greenfield
GREENE
Springfield
Marshfield
WEBSTER
JASPER
Webb City
Carthage
Joplin
LAWRENCE
Mount Vernon
Republic
WILSON'S CREEK NATIONAL BATTLEFIELD
Ozark
CHRISTIAN
KANSAS
OKLAHOMA
NEWTON
Neosho
Aurora
Monett
BARRY
Cassville
Galena
STONE
Forsyth
Branson
TANEY
MISSOURI
ARKANSAS
Major Cities
Other Cities and Towns
Major Roads
State Boundary
0
10
20
30
40
miles
N

Recreation/Tourism Revenue

Recreation/tourism revenue is a key indicator of the economic importance of recreation/tourism to a county. Recreation/tourism revenue can be expressed as a proportion of total sales/service receipts. Recreation/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 Wilson's Creek NB region, the recreation/tourism share of total sales/service receipts (1992) ranges from 0% (Dade) to 77.6% (Taney).[13]

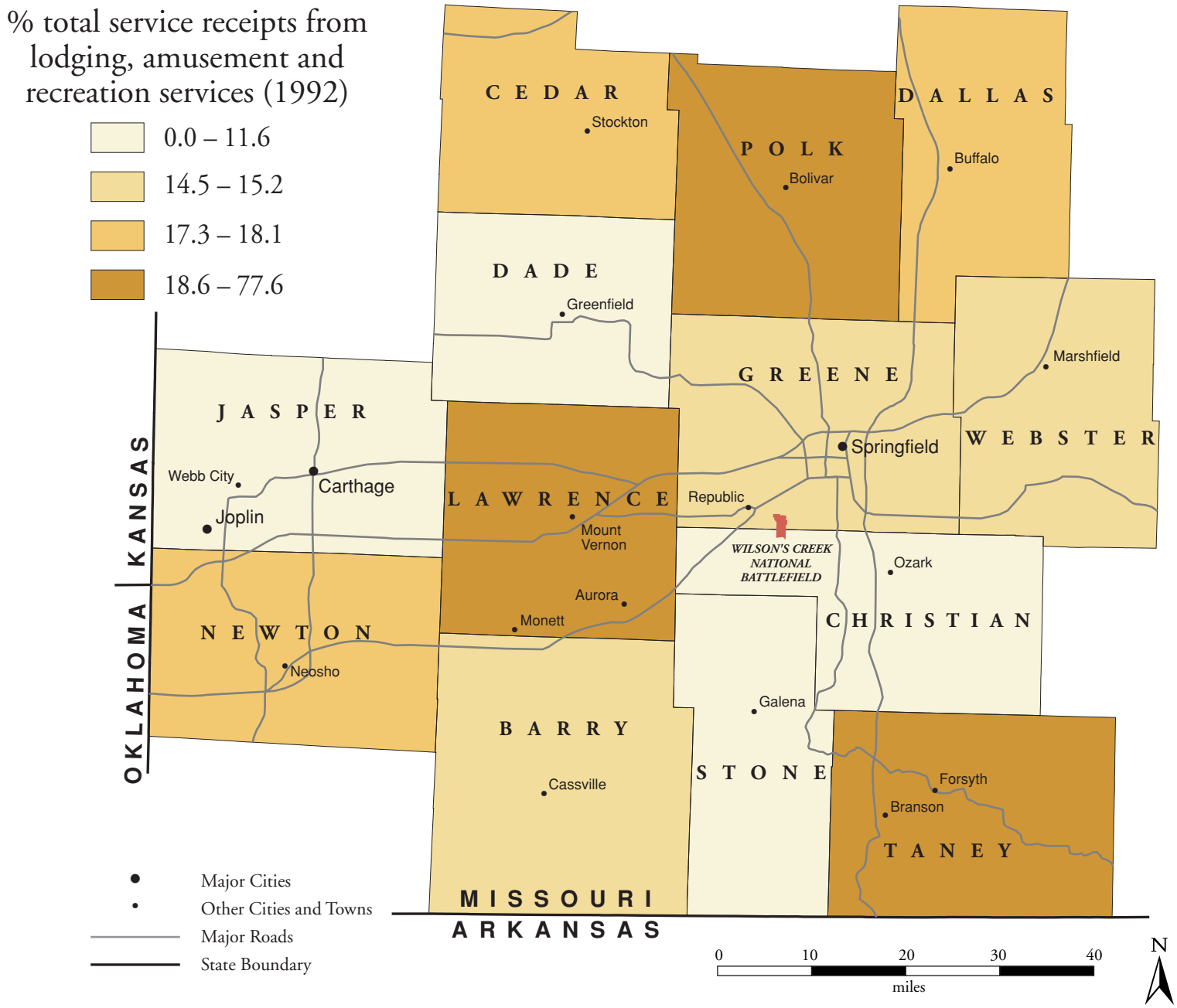
Number Line
showing distribution of data

% total service receipts from lodging, amusement and recreation services (1992)

Taney	77.6
Lawrence	19.3
Polk	18.6
Cedar	18.1
Newton	17.9
Dallas	17.3
Greene	**15.2**
Barry	14.5
Webster	14.5
Jasper	11.6
Stone	8.3
Christian	7.8
Dade	0.0

NOTES

Recreation/Tourism Revenue



Recreation/Tourism Employment

The significance of the recreation/tourism industry to a county economy can be indicated by the percent of county workers that it employs. Workers counted as recreation and tourism employees include art gallery docents, blackjack dealers, campground employees, fishing guides, hairstylists, motel attendants, and other providers of personal 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 Wilson's Creek NB region, the percent of the civilian labor force employed in recreation/tourism (1990) ranges from 2.1% (Cedar) to 15.1% (Taney).[14]

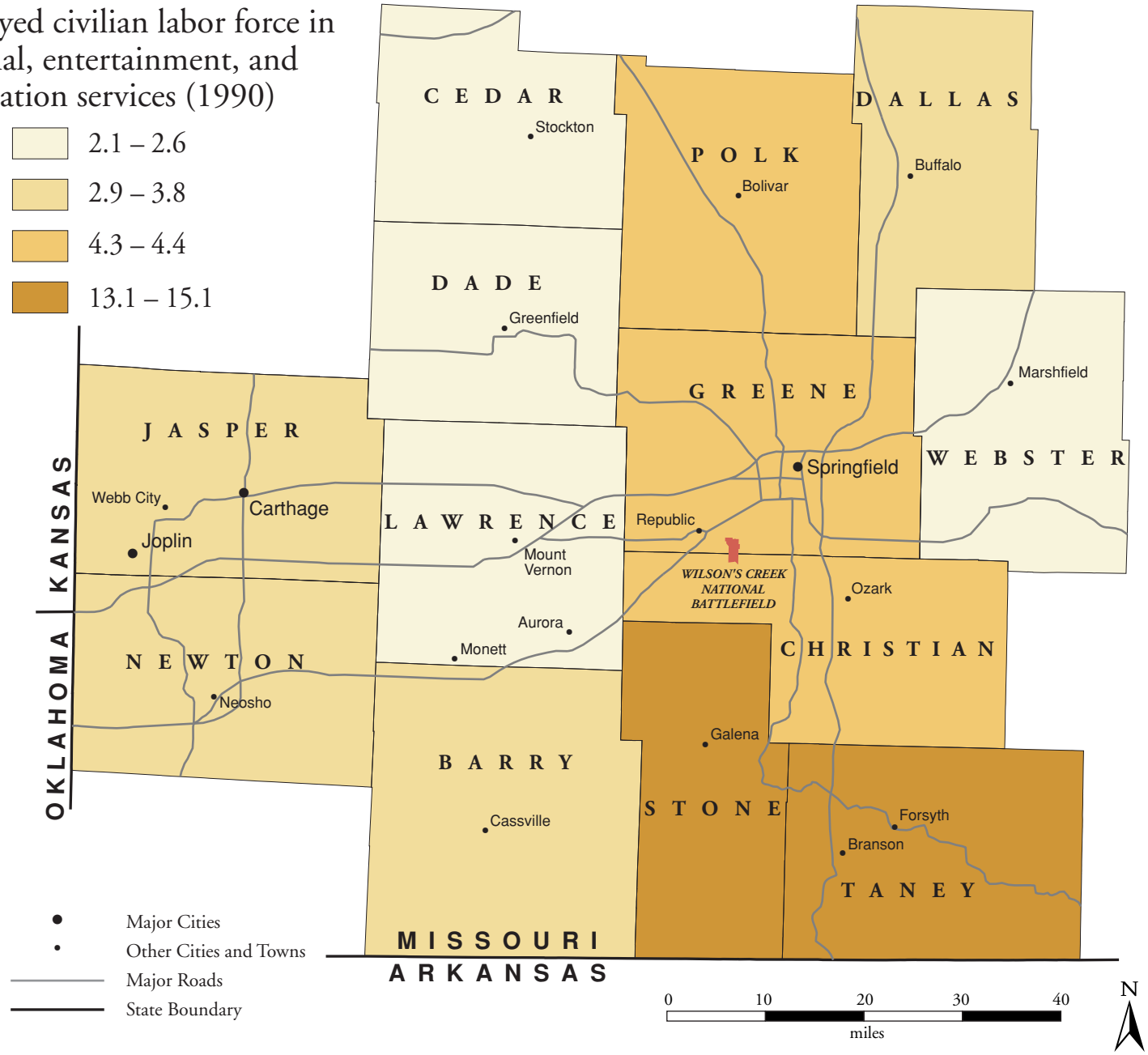
Number Line
showing distribution of data

% employed civilian labor force in personal, entertainment, and recreation services (1990)

Taney	15.1
Stone	13.1
Greene	4.4
Christian	4.4
Polk	4.3
Jasper	3.8
Newton	**3.4**
Barry	3.3
Dallas	2.9
Lawrence	2.6
Dade	2.5
Webster	2.5
Cedar	2.1

NOTES

Recreation/Tourism Employment

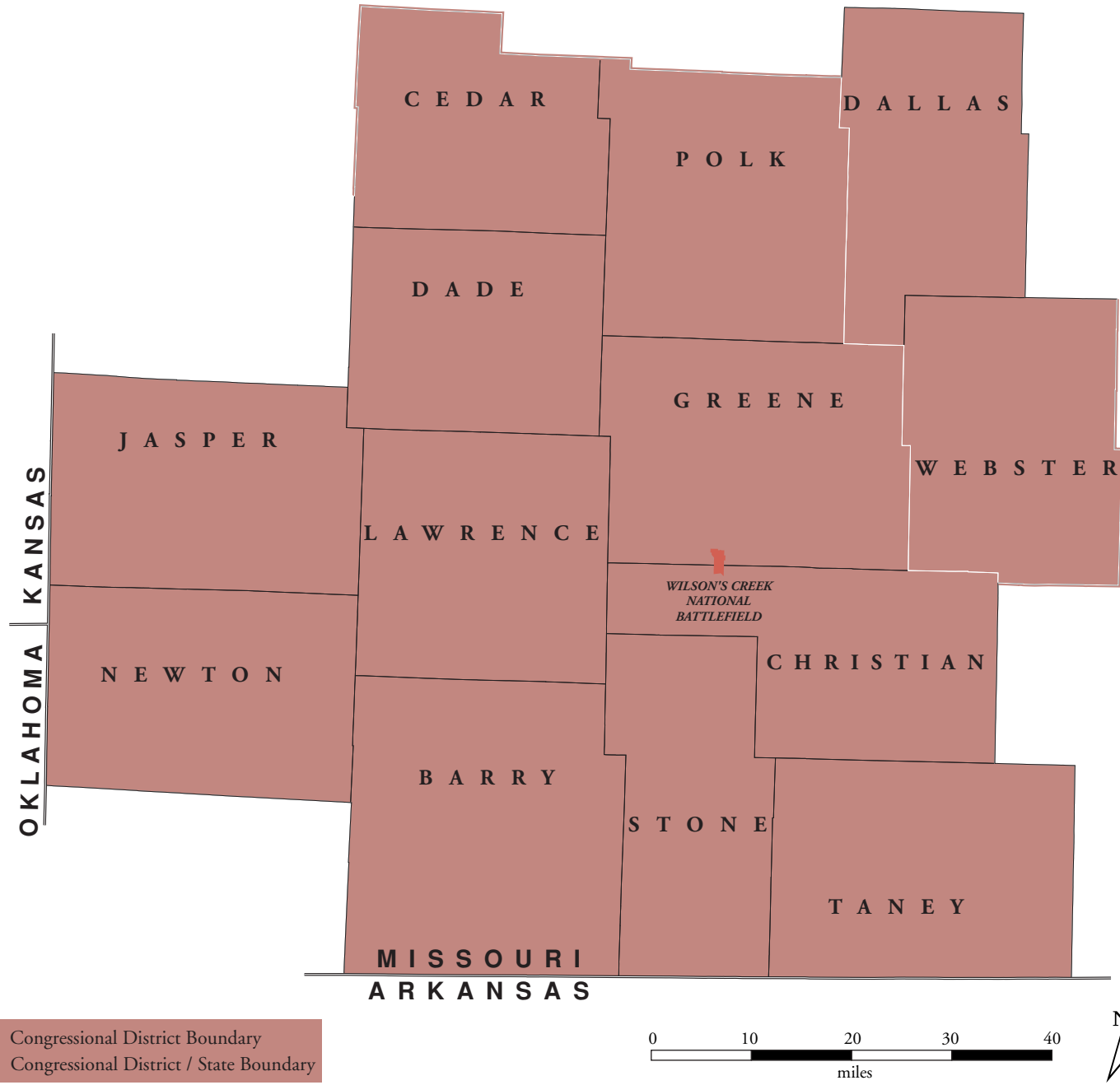


Congressional Districts

Congressional districts form a key layer in the political structure of the Wilson's Creek NB region. 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 Wilson's Creek NB region includes eleven counties in the 7th Congressional District and two counties (Dallas and Webster) in the 4th Congressional District, based on the 1990 Census.

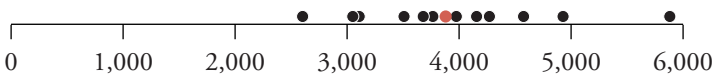
NOTES

Congressional Districts



Federal Expenditures

The importance of the federal government to a county economy can be indicated by the amount of federal expenditures in the county. 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 Wilson's Creek NB region, federal expenditures per person (1998) range from $2,609 (Christian) to $5,864 (Jasper).[15]

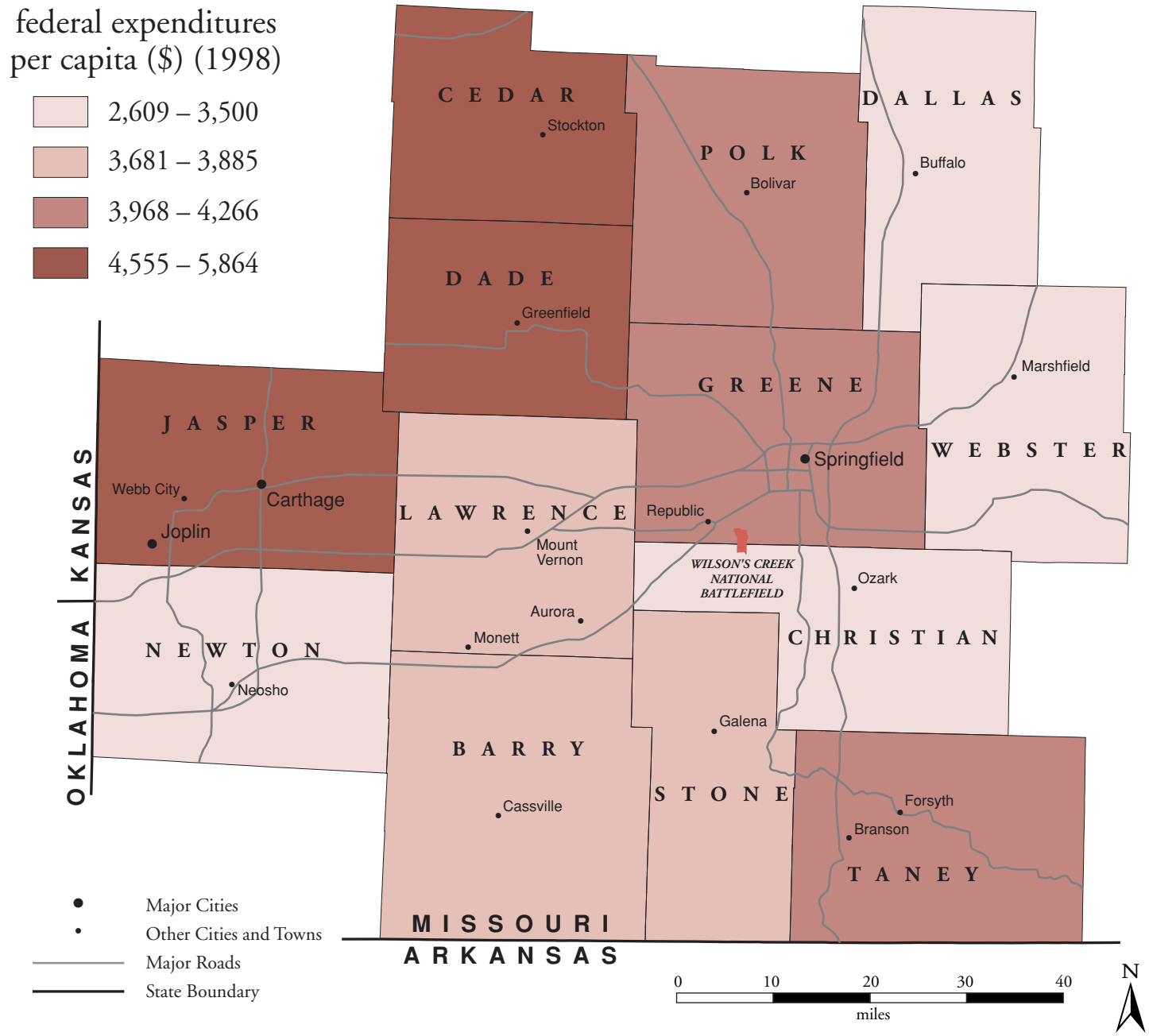


Number Line
showing distribution of data

federal expenditures per capita ($) (1998)	
Jasper	5,864
Cedar	4,918
Dade	4,555
Taney	4,266
Greene	4,144
Polk	3,968
Barry	**3,885**
Stone	3,775
Lawrence	3,681
Dallas	3,500
Webster	3,120
Newton	3,055
Christian	2,609

NOTES

Federal Expenditures



Ecoregions

Ecoregions are areas in which similar climate, landforms, and soil exist and support similar communities of vegetation and animals. People affect natural systems within an ecoregion through such activities as agriculture, development, the creation of protected areas, hunting, and the introduction of non-native species. Natural resource protection efforts throughout an ecoregion may share many of the same approaches and techniques, since these efforts often focus on maintaining or restoring similar communities of indigenous animals and plants. Hence, many challenges of resource protection can be fruitfully addressed at the ecoregional level. Most of the Wilson's Creek NB region is classified as part of the Hot Continental division. In the northwest, portions of four counties (Cedar, Dade, Jasper, and Newton) are classified as part of the Prairie division.

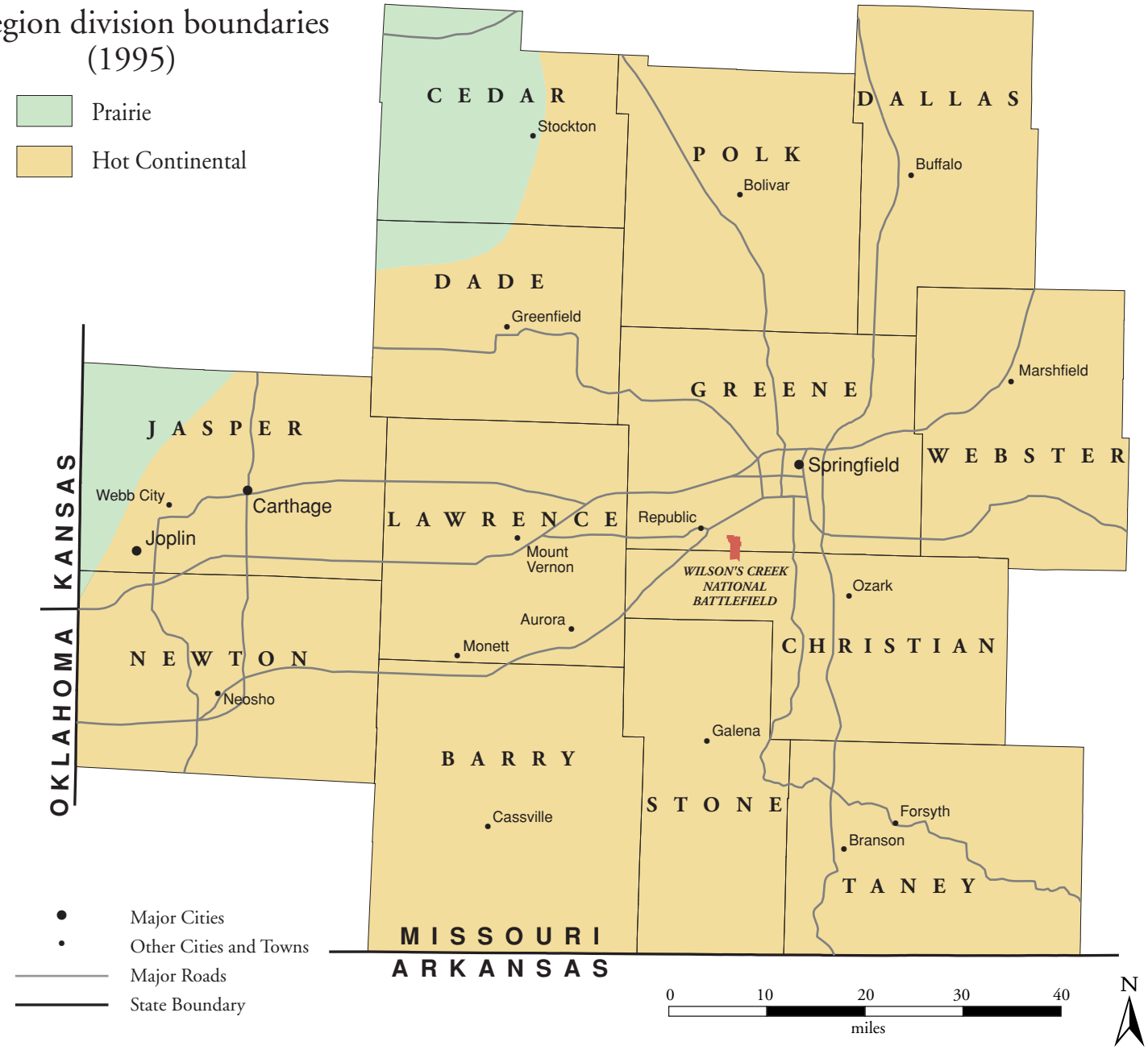
Bailey's Ecoregions

Ecoregions are ecosystems of regional extent, differentiated according to a hierarchical scheme which uses climate and vegetation as indicators of the extent of each unit. Ecoregional classifications were developed by Robert Bailey of the U.S. Forest Service, U.S. Department of Agriculture (Bailey, Robert G. 1995. Description of the ecoregions of the United States (2nd edition). Misc. Pub. No. 1391, Map scale 1:7,500,000. USDA Forest Service, 108 pp.). Following are abridged descriptions of the two ecoregions which overlay the Wilson's Creek NB region.

Hot Continental – hot summers and cold winters, with most precipitation taking place during the growing season. Decreasing precipitation as one moves inland through the province. Typically composed of broadleaf deciduous forest, with a greater abundance of drought-resistant oak-hickory associations than in broadleaf forests of the east coast.

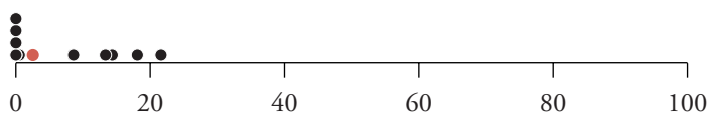
Prairie – hot summers and cold winters, with winter relatively mild compared to more northerly areas of the plains. Average annual precipitation of 20 to 40 inches, falling mainly during the growing season. Typically composed of intermingled prairie, grove, and strips of deciduous trees. The most prevalent type of grassland is bluestem prairie, although little original vegetation remains because most of the original grasslands are now cultivated. Upland forest is typically oak-hickory forest as in the Hot Continental. On floodplains and moist hillsides, the deciduous forest is richer.

Ecoregions


ecoregion division boundaries (1995)
Prairie
Hot Continental
CEDAR
Stockton
POLK
Bolivar
DALLAS
Buffalo
DADE
Greenfield
GREENE
Springfield
Marshfield
WEBSTER
JASPER
Webb City
Carthage
Joplin
LAWRENCE
Mount Vernon
Republic
WILSON'S CREEK NATIONAL BATTLEFIELD
Ozark
CHRISTIAN
Aurora
Monett
NEWTON
Neosho
Galena
BARRY
Cassville
STONE
Forsyth
Branson
TANEY
KANSAS
OKLAHOMA
MISSOURI
ARKANSAS
Major Cities
Other Cities and Towns
Major Roads
State Boundary
0 10 20 30 40
miles
N

Federal Lands

One indicator of the federal government's role in regional resource management is the amount of land in federal ownership. 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 Wilson's Creek NB region, federal land ownership (1998) ranges from 0% (Dallas, Jasper, Lawrence, and Webster) to 21.4% (Taney).[16]

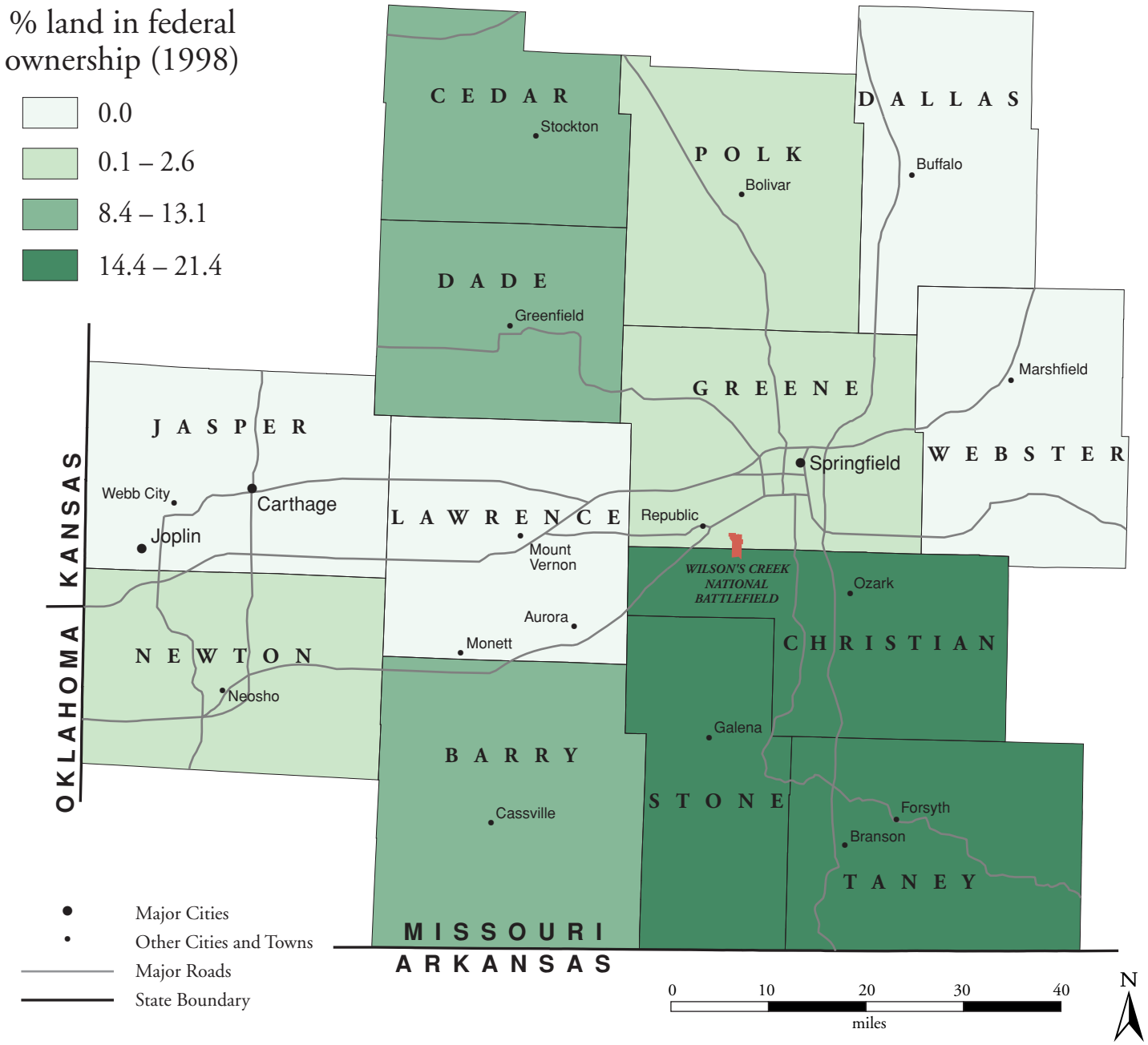


Number Line
showing distribution of data

% land in federal ownership (1998)	
Taney	21.4
Stone	18.2
Christian	14.4
Barry	13.1
Dade	8.7
Cedar	8.4
Polk	**2.6**
Greene	0.3
Newton	0.1
Dallas	0.0
Jasper	0.0
Lawrence	0.0
Webster	0.0

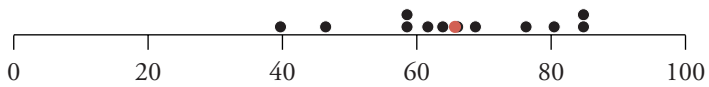
NOTES

Federal Lands



Farmland

The relative importance of farming within a county can be indicated by the percent 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 nonnative species, species reintroduction, preservation of scenic values, allocation of scarce water supplies, or management of agricultural runoff. Within the Wilson's Creek NB region, the percent of total county land area classified as farmland (1992) ranges from 39.7% (Taney) to 84.8% (Lawrence).[17]

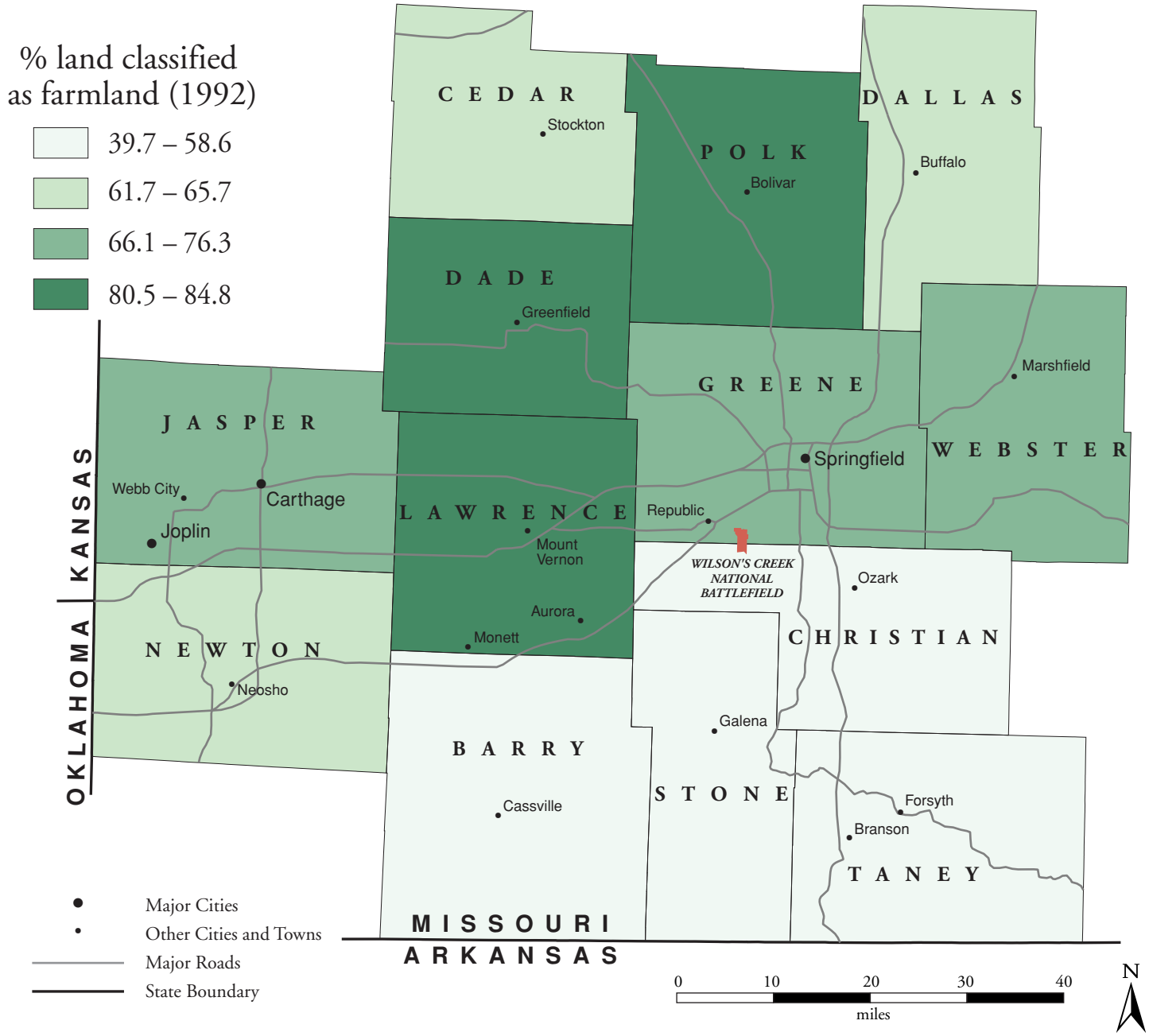


Number Line
showing distribution of data

% land classified as farmland (1992)	
Lawrence	84.8
Polk	84.8
Dade	80.5
Webster	76.3
Jasper	68.7
Greene	66.1
Dallas	**65.7**
Newton	63.9
Cedar	61.7
Barry	58.6
Christian	58.6
Stone	46.5
Taney	39.7

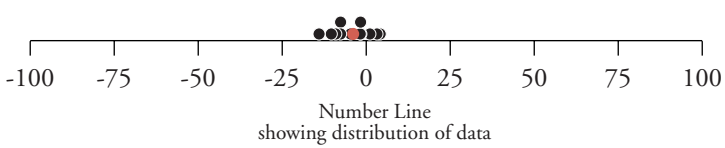
NOTES

Farmland


% land classified as farmland (1992)
39.7 – 58.6
61.7 – 65.7
66.1 – 76.3
80.5 – 84.8
CEDAR
Stockton
POLK
Bolivar
DALLAS
Buffalo
DADE
Greenfield
GREENE
Springfield
Marshfield
WEBSTER
JASPER
Webb City
Carthage
Joplin
LAWRENCE
Mount Vernon
Republic
WILSON'S CREEK NATIONAL BATTLEFIELD
Ozark
CHRISTIAN
Aurora
Monett
NEWTON
Neosho
KANSAS
OKLAHOMA
BARRY
Cassville
Galena
STONE
Forsyth
Branson
TANEY
MISSOURI
ARKANSAS
Major Cities
Other Cities and Towns
Major Roads
State Boundary
0 10 20 30 40
miles
N

Change in Farmland

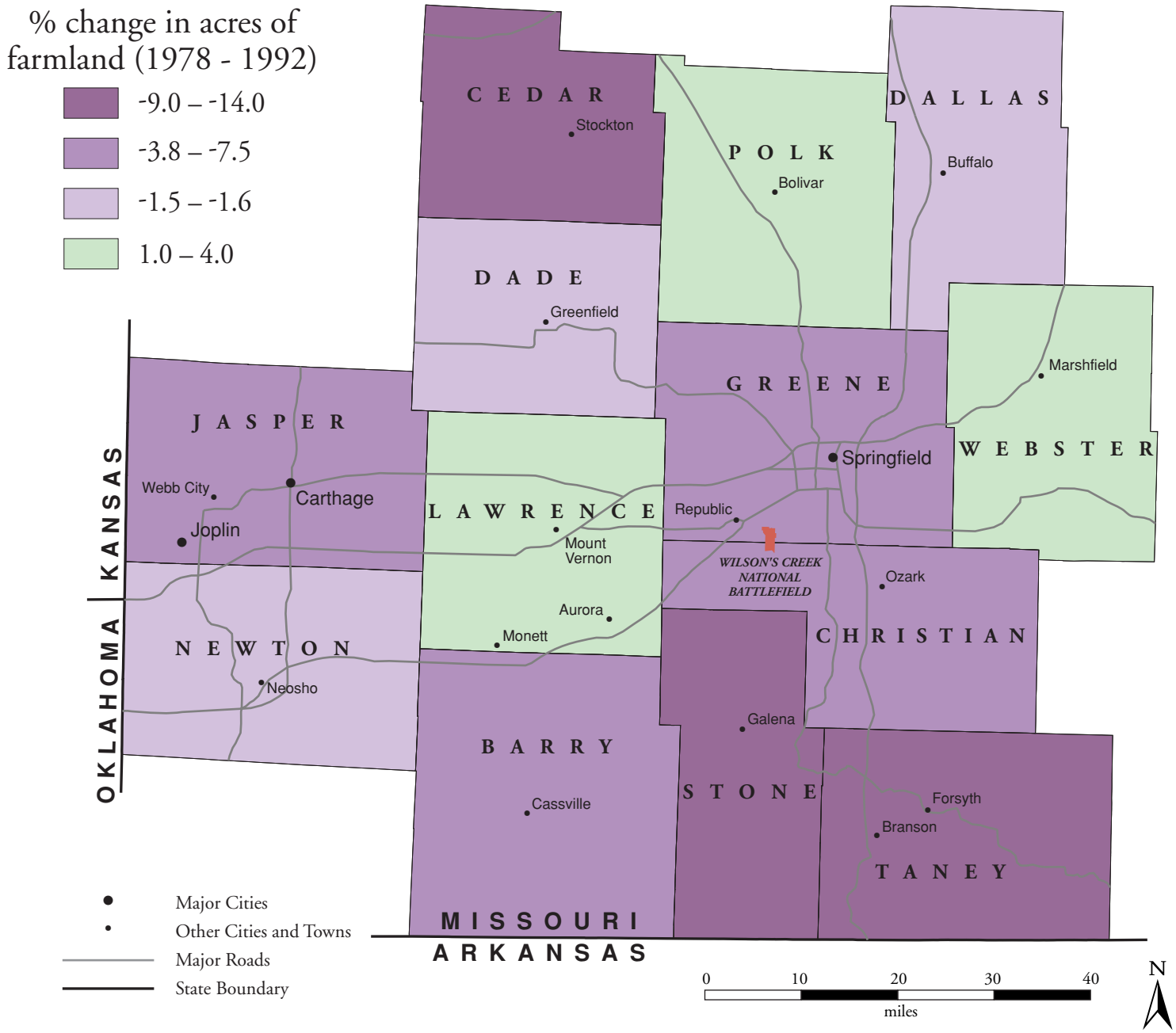
Changes in the amount of farmland provide an indication of economic and land use trends among counties in the park region. Land can be converted to farming because of increased demand for agricultural products or because new technology, business practices, or government programs make farming profitable. Land can be taken out of farming due to soil depletion, competition from other growers elsewhere, loss of labor, or conversion of land to other (often urban) uses. Within the Wilson's Creek NB region, change in farmland (1978-1992) ranges from a decrease of 14% (Stone) to an increase of 4% (Polk).[18]



% change in acres of farmland (1978 - 1992)	
Polk	4.0
Lawrence	3.1
Webster	1.0
Dallas	-1.5
Dade	-1.6
Newton	-1.6
Jasper	**-3.8**
Barry	-4.8
Greene	-7.5
Christian	-7.5
Cedar	-9.0
Taney	-10.4
Stone	-14.0

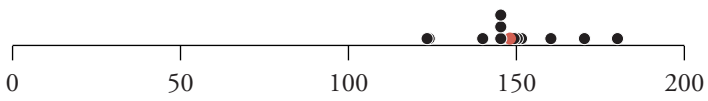
NOTES

Change in Farmland



Domestic Water Use

Domestic water use can be measured in gallons per day per person. The rate of domestic water consumption can be indicative of local consumption patterns, attitudes toward conservation, the cost of water, or the amount of regulatory control over water use. Higher rates of domestic water use may be associated with a more active tourism industry or with a greater prevalence of water-intensive landscaping, swimming pools, and so forth. Relatively low rates of domestic water use may indicate the presence of higher water costs or stricter water conservation guidelines. Among the counties of the Wilson's Creek NB region, domestic water use, per person (1995), ranges from 123 gallons/day (Dade) to 180 gallons/day (Taney).

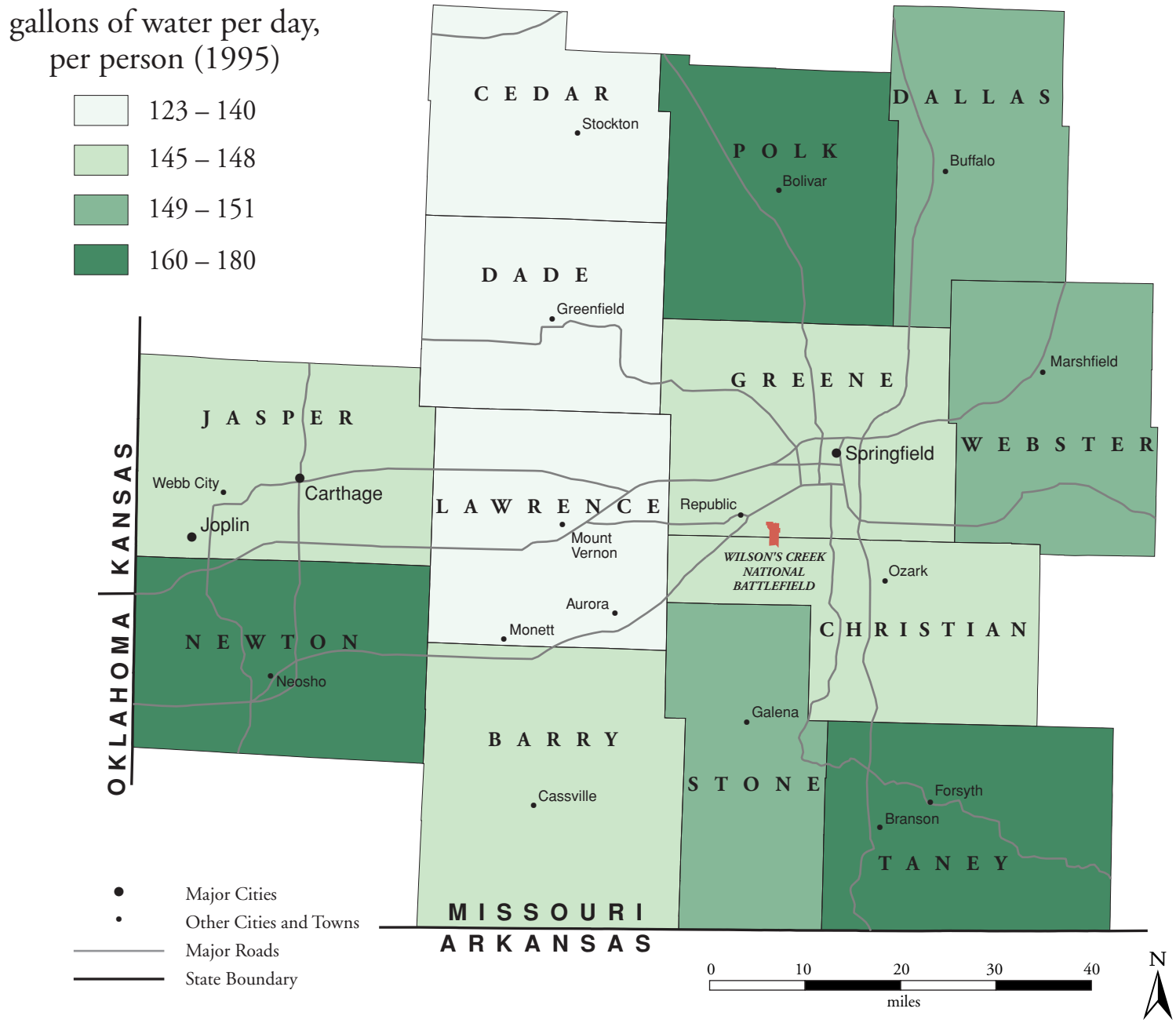


Number Line
showing distribution of data

gallons of water per day, per person (1995)	
Taney	180
Newton	170
Polk	160
Dallas	151
Stone	150
Webster	149
Greene	**148**
Barry	145
Christian	145
Jasper	145
Cedar	140
Lawrence	124
Dade	123

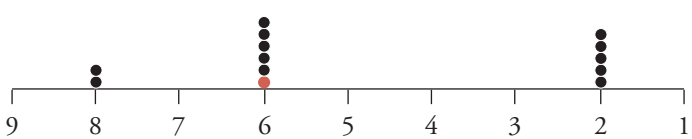
NOTES

Domestic Water Use



Urbanization

Urbanization is a measure of the degree to which land has been developed as towns and cities. 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 to large metropolitan. Within the Wilson's Creek NB region (1997), eight counties do not contain any towns of 10,000 or more residents. The remaining five counties are classified as parts of the "small metropolitan areas" of Joplin and Springfield.[19]



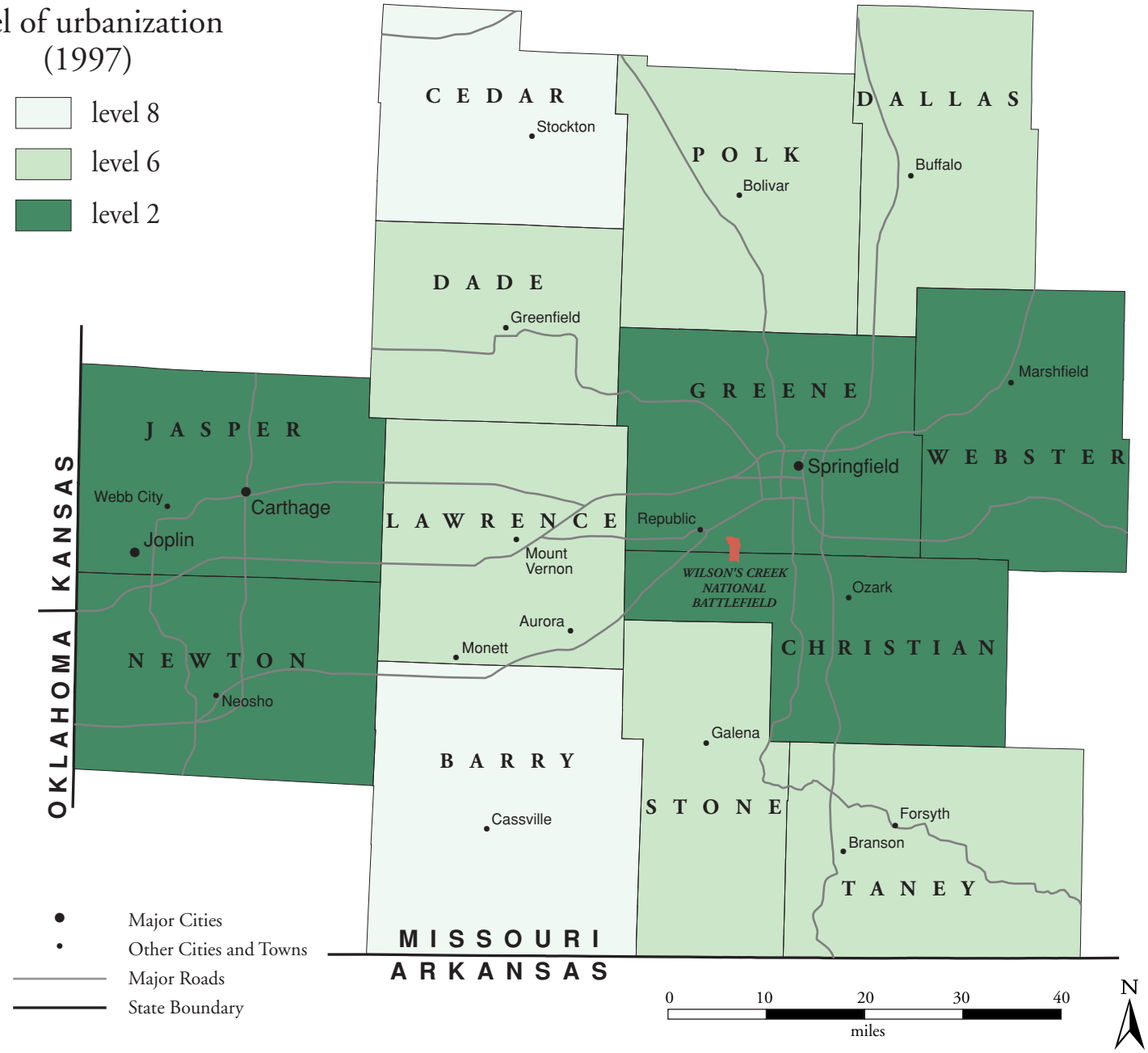
Number Line
showing distribution of data

level of urbanization (1997)	
Christian	2
Greene	2
Jasper	2
Newton	2
Webster	2
Dade	6
Dallas	**6**
Lawrence	6
Polk	6
Stone	6
Taney	6
Barry	8
Cedar	8

2 Part of small metro area of <1 million
6 Adjacent to small metro area, but no town over 9,999
8 Not adjacent to metro area, has town of 2,500 to 9,999

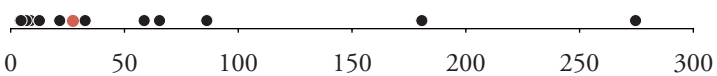
NOTES

Urbanization



Change in Building Permits

One indicator of growth in a local economy is the annual change in the number of building permits issued. 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, or that industries are moving into an area 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 Wilson's Creek NB region, the average annual increase in the number of building permits issued (1987-1997) ranges from 3.2% (Greene) to 273.9% (Dade), with no data available for Dallas County.[20]



Number Line
showing distribution of data

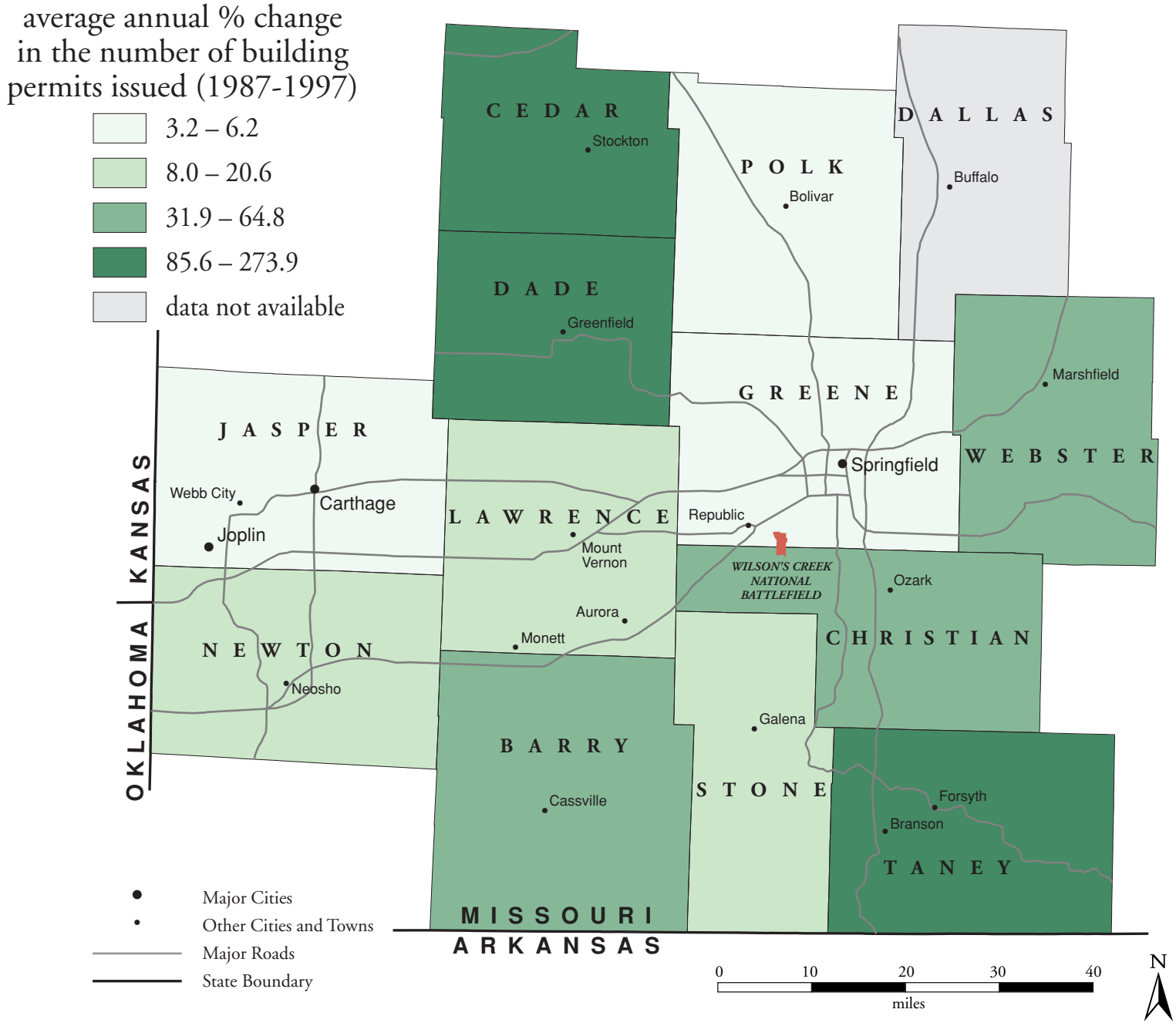
average annual % change in the number of building permits issued (1987-1997)

Dade	273.9
Taney	180.0
Cedar	85.6
Christian	64.8
Barry	58.0
Webster	31.9
Stone	20.6
Newton	11.7
Lawrence	8.0
Polk	6.2
Jasper	3.8
Greene	3.2

26.2

NOTES

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 Wilson's Creek National Battlefield. 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, economic shifts, or changes in the level of poverty. 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 the prevalence of English language ability among regional residents. This information could be important in designing interpretive and public participation programs that can increase access to and advocacy on behalf of the park. 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 Wilson's Creek National Battlefield.

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 the legends used in the maps and the ranked data tables.

INDICATOR	MEASURE	DATA SOURCE
General Population		
*Total Population	total number of people (2000)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/population/www/cen2000/tablist.html
Historical Population Change	% change in total number of people (1970-1990)	U.S. Department of Commerce, Census Bureau. USA Counties 1998 http://tier2.census.gov/usac/index.html
*Recent Population Change	% change in total number of people (1990-2000)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/population/www/cen2000/tablist.html
*Projected Population Change	projected % change in total number of people (1998-2020)	Woods & Poole Economics, Inc. 1999 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://factfinder.census.gov/
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://tier2.census.gov/usac/index.html 2) U.S. Department of Commerce, Census Bureau, http://quickfacts.census.gov/qfd/states/29000.html
Projected Population Density	projected average number of people per square mile (2020)	Woods & Poole Economics, Inc. 1999 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
Urban Population	% total population living in urban areas (1990)	U.S. Department of Commerce, Census Bureau. USA Counties 1998 http://tier2.census.gov/usac/index.html
Rural Population	% total population living in rural areas (1990)	U.S. Department of Commerce, Census Bureau. USA Counties 1998 http://tier2.census.gov/usac/index.html
Domestic Migration	net number of non-foreign migrants (1990-1997)	U.S. Department of Commerce, Census Bureau. USA Counties 1998 http://tier2.census.gov/usac/index.html
Economy and Commerce		
*Industry Earnings	% total earnings by industrial category (1996)	Woods & Poole Economics, Inc. 1999 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 (1996)	Woods & Poole Economics, Inc. 1999 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
Change in Employment by Industry	% change in employment by industrial category (1980-1996)	Woods & Poole Economics, Inc. 1999 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
Mean household income	mean household income ($) (1996)	Woods & Poole Economics, Inc. 1999 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 (1997)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/hhes/www/saipe/stcty/estimate.html

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
Social and cultural characteristics		
Racial Composition	% total population that are: Hispanic, White, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, Some Other Race, or Two or More Races (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov/
*Racial Diversity	% total population belonging to minorities (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov/
*Educational Attainment	% total population 25 years old and over with some college or college degree (1990)	U.S. Department of Commerce, Census Bureau. USA Counties 1998 http://tier2.census.gov/usac/index.html
*Religious Groups	dominant religion expressed as % total chruch membership (1990)	Bradley, M., Green, N., Jones, D., Lynn, M., and McNeil, L. (1992). Churches and Church Membership in the United States 1990. Atlanta: Glenmary Research Center.
English Language Ability	% total population 5 years old and over that does not speak English, or does not speak it very well (1990)	GeoLytics, Inc. (1998). CensusCD+Maps [CD-ROM]. East Brunswick, NJ. GeoLytics, Inc. specializes in the compression and distribution of publicly available demographic data to the public, private and nonprofit sectors. http://www.geolytics.com
Crime	number of serious crimes per 100,000 people (1993)	U.S. Department of Commerce, Census Bureau. USA Counties 1998 http://tier2.census.gov/usac/index.html
Recreation and Tourism		
*Recreation/Tourism Revenue	% total service receipts from lodging, amusement and recreation services (1992)	U.S. Department of Commerce, Census Bureau. USA Counties 1998 http://tier2.census.gov/usac/index.html
*Recreation/Tourism Employment	% employed civilian labor force in personal, entertainment, and recreation services (1990)	U.S. Department of Commerce, Census Bureau. USA Counties 1998 http://tier2.census.gov/usac/index.html

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
Administration and Government		
*Congressional Districts	Congressional district boundaries (1990)	ESRI, Environmental Systems Research Institute, Inc., is a private firm headquartered in Redlands, California with a focus on GIS (Geographic Information Systems) software development. http://www.esri.com/data/online/tiger/index.html
*Federal Expenditures	federal expenditures per capita ($) (1998)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/prod/www/abs/cffr.html
Land Use		
*Ecoregions	ecoregion division boundaries (1995)	1) USDA Forest Service, Inventory and Monitoring Institute, http://www.fs.fed.us/land/ecosysmgmt/ecoreg1_home.html 2) Bailey, Robert G. (1995). Description of the Ecoregions of the United States (2nd ed.). Misc. Pub. No. 1391, USDA Forest Service, 108 pp.
*Federal Lands	% land in federal ownership (1998)	U.S. Department of the Interior, Bureau of Land Management. Payment In Lieu of Taxes, Fiscal Year 1998. Washington, DC.
Farmland	% land classified as farmland (1992)	U.S. Department of Commerce, Census Bureau. USA Counties 1998 http://tier2.census.gov/usac/index.html
*Change in Farmland	% change in acres of farmland (1978-1992)	U.S. Department of Commerce, Census Bureau. USA Counties 1998 http://tier2.census.gov/usac/index.html
Domestic Water Use	gallons of water per day, per person (1995)	U.S. Department of the Interior, U.S. Geological Survey, http://water.usgs.gov/watuse/spread95.html
*Urbanization	level of urbanization (1997)	U.S. Department of Agriculture, Economic Research Service, http://usda.mannlib.cornell.edu/data-sets/rural/97002/
Change in Building Permits	average annual % change in number of building permits (1987-1997)	U.S. Department of Commerce, Census Bureau. USA Counties 1998 http://tier2.census.gov/usac/index.html

** Denotes a core indicator, common to all atlases in this series. Additional indicators were selected by park managers to include information relevant 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 on the following pages 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 variation in data values among counties. The legend accompanying the map allows the reader to see the actual magnitude of variation among the counties for that indicator. 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 3, 3, 3, and 4, with the group of 4 having the lowest data values/lightest shading. (2) Counties with identical data values are grouped in the same quartile, even if this results in quartiles of unequal size.

Map Sources – The context map at the beginning of the atlas was generated from Cartesia Software, 1998, MapArt Geopolitical Deluxe – USA (Lambertville, NJ; http://www.mapresources.com). The standard region map used throughout the atlas was generated from U.S. Census Bureau shapefiles. Contextual information (roads and cities) was obtained from the U.S. Geological Survey (http://www.nationalatlas.gov).

Production – Indicator data for the atlas were compiled in Microsoft Excel 98. These were linked to U.S. Census shapefiles using ArcView GIS 3.1. The GIS files were imported into Adobe Illustrator 8.0, with the Avenza MAPublisher 3.5 plug-in, for final map design. Text was prepared in Microsoft Word 98. The final atlas layout (text, maps, graphics) was completed using Adobe PageMaker 6.5.

Appendix 3: Technical Notes on Measurement of Selected Indicators

[1] **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.

[2] See note above on Population Density.

[3] See note above on Population Density.

[4] **Urban population** is measured as the percent 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 Chief, Geography Division, U.S. Bureau of the Census, Washington, DC 20233.

[5] **Rural population** is measured as the percent of the total population living in rural areas. All territory, population, and housing units not classified as urban (see above) are classified as rural.

[6] **Domestic migration** is measured as the net migration rate (the difference between the number of in-migrants and out-migrants). Since this is based on individual Federal income tax returns (on which filers provide their address for the prior year and the estimate year), the domestic migration figures do not take into account foreign migrants to the U.S. or other foreigners within the U.S. who do not pay U.S. taxes.

[7] 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.

[8] See note above on Industry Categories.

[9] See note above on Industry Categories.

[10] **Poverty** is measured as the percent of the total population living below the poverty level (1997). The poverty level is defined as earnings of $16,400 or less for a family of four persons. Poverty thresholds are applied on a national basis and are not adjusted for regional, state, or local variations in the cost of living.

[11] **Racial Composition** is based upon self-identification by people responding to the U.S. Census; it does not denote any clear-cut scientific definition of biological stock. 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 or Other Pacific Islander, and Some Other Race respectively). Respondents to the 2000 Census were also offered the option of identifying themselves as belonging to Two or More Races (this refers to a combination of two or more of the racial categories listed above). Persons of Hispanic/Latino origin may be of any race.

[12] **Racial Diversity** is defined for this measure as the percentage of the population that classifies itself 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 as being more "diverse" than a county in which each of the six major ethnic groups constituted 10% of the population (in the latter case, diversity would be measured as 60%). The Hispanic/Latino origin category was not included in this measure because persons of Hispanic/Latino origin may be of any race (including White).

[13] **Recreation and Tourism**, part of the broader sector of Sales and Services, includes a wide range of business establishments that fall within three general categories: 1) hotels, rooming houses, camps, and other lodging (ranging from hotels to campsites); 2) personal services involving the care of one's personal appearance or apparel (such as photographic studios, beauty shops, health clubs, and other miscellaneous services such as funeral parlors and tax preparation services); and 3) amusement and recreation services, such as movie theatres, video rental, museums, bowling alleys, and casinos.

[14] See note above on Recreation and Tourism.

[15] **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.

[16] **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. 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.

[17] **Farmland** consists primarily of agricultural land used for crops, pasture, or grazing. It also includes woodland and wasteland that is part of a farm operator's total operation.

[18] See note above on Farmland.

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

METROPOLITAN COUNTIES

1) Counties in large metropolitan areas of 1 million or more residents
2) Counties in small metropolitan areas of less than 1 million residents

NONMETROPOLITAN COUNTIES

Adjacent to a large metro area and

3) contains all or part of its own city of 10,000 or more residents
4) does not contain any part of a city of 10,000 or more residents

Adjacent to a small metro area and

5) contains all or part of its own city of 10,000 or more residents
6) does not contain any part of a city of 10,000 or more residents

Not adjacent to a metro area and

7) contains all or part of its own city of 10,000 or more residents
8) contains all or part of its own town of 2,500 to 9,999 residents
9) totally rural, does not contain any part of a town of 2,500 or more residents

[20] The issuing of **building permits** 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 increase 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.

For more information, contact:

Dr. Jean E. McKendry
NPS Social Science Program
National Park Service
1849 C Street, NW (MIB 3127)
Washington, D.C. 20240
E-mail: jeanm@uidaho.edu

Printed: 11/2001

NPS Social Science Program