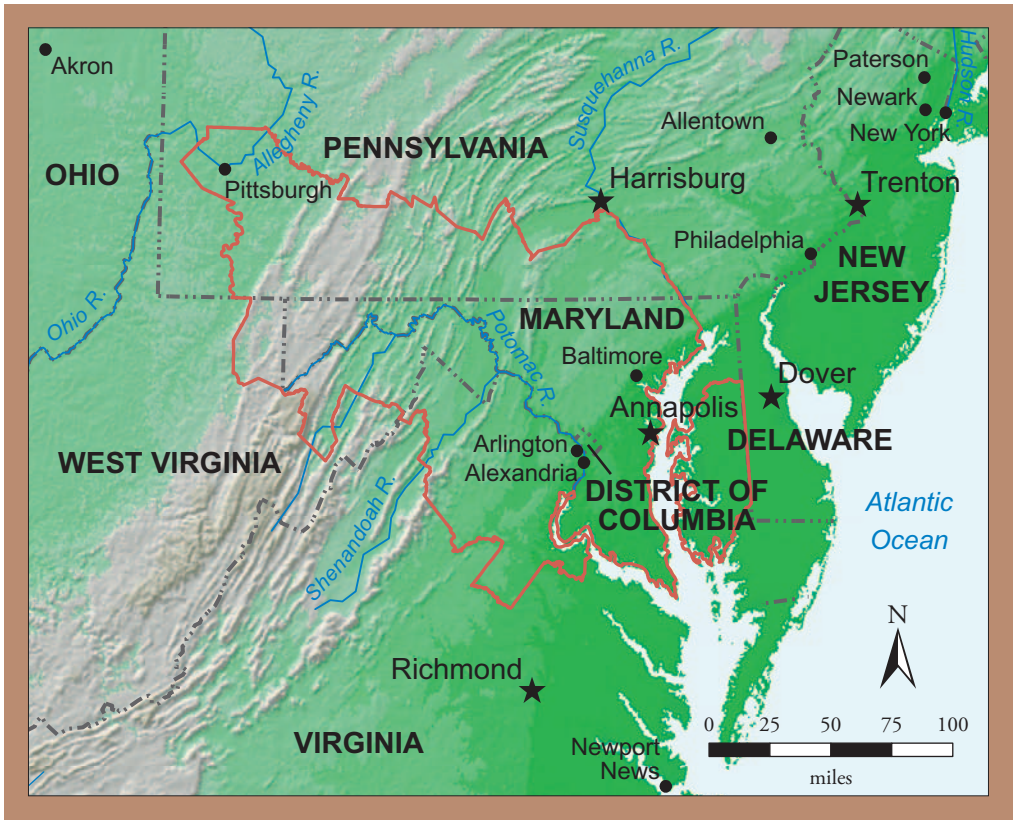
A Regional Socioeconomic Atlas



for
National Capital Parks

2004

A Regional Socioeconomic Atlas for National Capital Parks

by

Jean E. McKendry

Cynthia A. Brewer

Steven D. Gardner

2004

Acknowledgments

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About this Atlas

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

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

About the Authors

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

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Preface

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

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

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

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

Gary E. Machlis
Visiting Senior Scientist
National Park Service

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 the National Capital Parks. These changes outside park boundaries can create complex park management challenges. Information about regional trends and conditions is needed in order to manage and conserve park resources – both natural and cultural – more effectively. This atlas provides such information in a series of maps, complemented by tables, other graphics, and explanatory text.

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

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

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

There are many potential uses for this atlas. For example, park managers can share the atlas with new park staff, regional staff, the media, or policy makers as a way of orienting them to the basic facts about the region. Planners can use the atlas to examine emerging trends outside the parks and to prioritize actions to mitigate any anticipated adverse impacts on park resources. Local and regional leaders can consult the atlas to develop environmental policies that support park management goals while remaining responsive to local needs. Researchers can use the atlas to design studies that have practical benefit to park and ecosystem management. Additional uses are discussed in the atlas' concluding section, pages 78 - 79. 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 region surrounding National Capital park units.

Socioeconomic Indicators: Valuable Management Tools

The Relevance of Human Activities to Park Resource Management

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

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

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

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

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

The Value of Socioeconomic Indicators

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

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

The Integrated Set of Indicators

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

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

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

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

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

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

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

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

Selecting Specific Indicators

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

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

Technical Notes

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

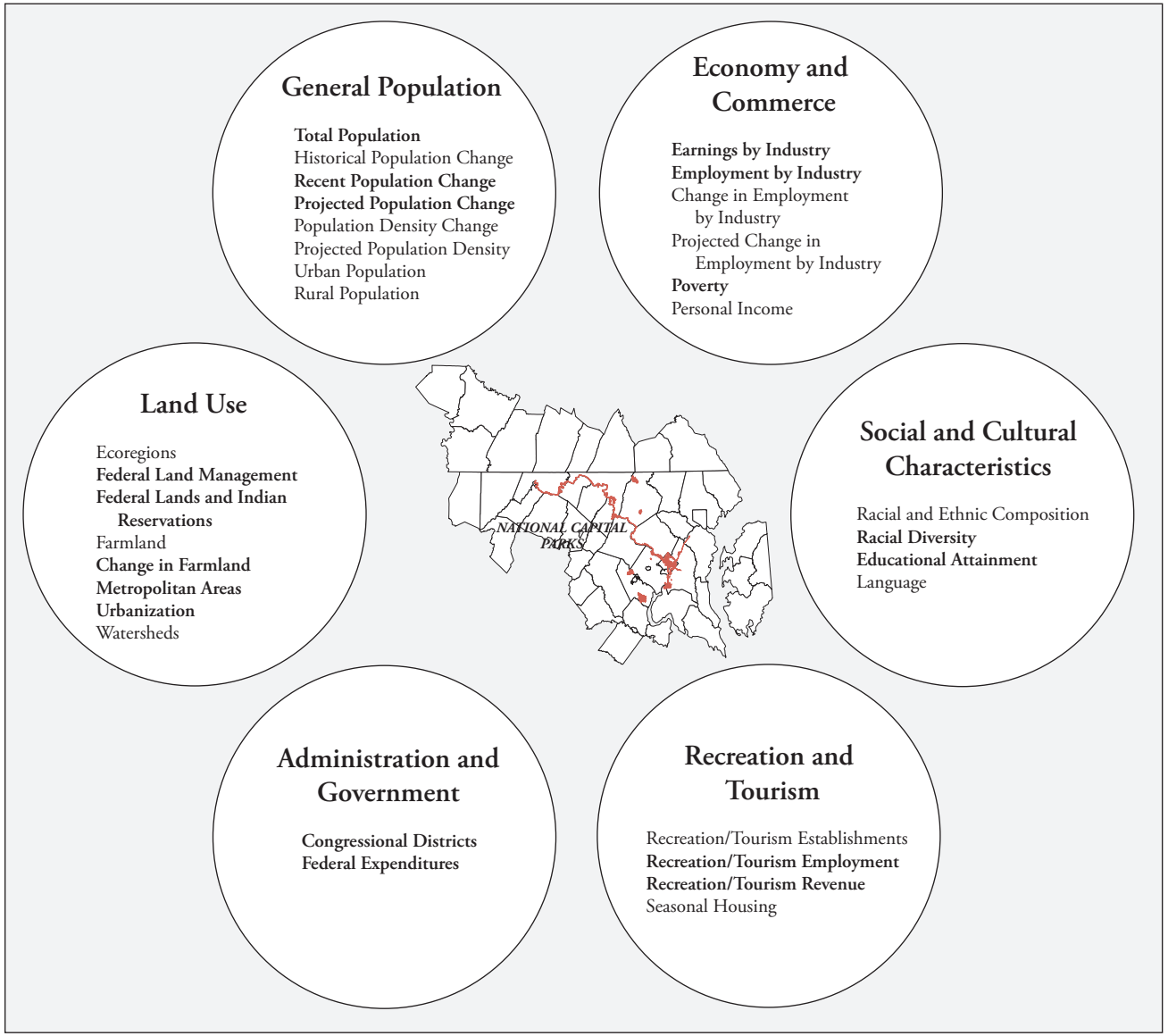


Figure 1. Indicators Included in this Atlas

core indicator additional indicator

The Region

In selecting the boundaries of the region of interest covered by this atlas, staff from the National Capital Regional office and individual park units were asked to define the geographic area that has the most significant impact on the management of their parks. 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 stretches from southern Pennsylvania to northern Virginia, and from the Maryland coast to West Virginia. It comprises nine Pennsylvania counties, seven West Virginia counties, 18 Maryland counties, 12 Virginia counties, and several independent cities. The map on the facing page depicts the region in its larger context.

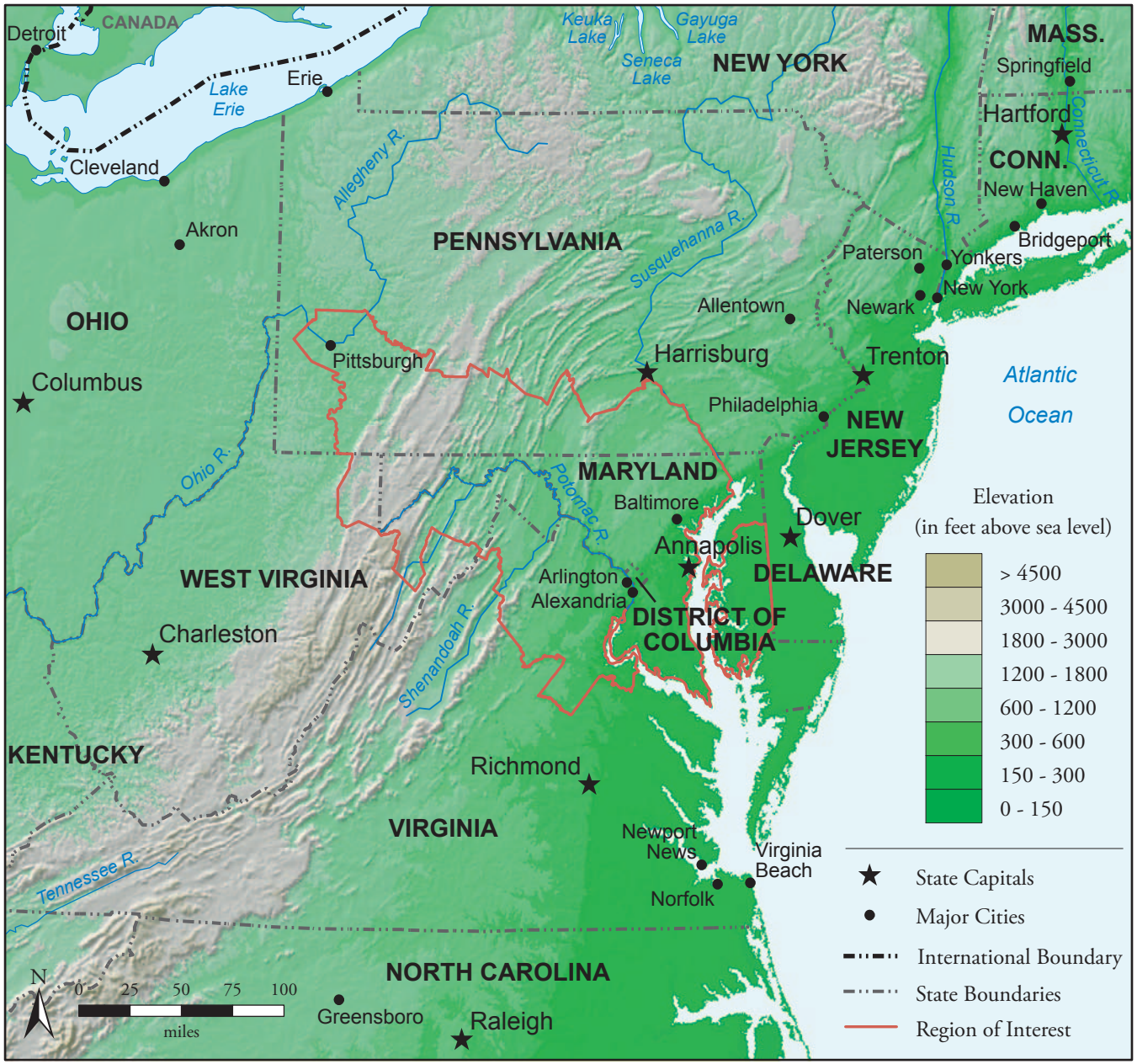
National Capital Region park units are located in and around Washington, D.C. The region is extremely diverse. It encompasses the Washington D.C., and Baltimore, Maryland metropolitan areas, a wide diversity of suburban towns and landscapes, as well as more rural areas. The eastern most portion of the region includes lands associated with the Chesapeake Bay, the largest estuary in North America. Unique and interesting coastal and estuarine ecosystems are found in this area. The eastern side of the bay is dominated by the nation's capital and the cities of Baltimore, Maryland and Arlington and Alexandria, Virginia. These highly urbanized areas give way to suburban areas where mid-sized towns are surrounded by rolling farmland and large estates. The Appalachian Mountain chain crosses the western portion of the region with its forested slopes. The diversity of landscapes in the region lead to a diversity of ecosystems that are home to numerous species.

The population of the region is as diverse as the landscapes. While white people dominate the western and northern portions of the region, people of all races, national origin, and ethnic background live in the region. The metropolitan areas have large populations of people of African, Hispanic, Latino, Asian, and European ancestry. People from most of the world's countries live and work in and around the District of Columbia.

The workings of national government play a large part in the economy of the region. Other economic activities are also important, including medical sciences, banking and financial institutions, higher education, bioscience research, transportation, and manufacturing. Farming is significant in some areas. Tourism is a major industry throughout the region.

The region contains dozens of national park units including Historic Sites, Military Parks, Memorials, Historical Parks, the National Mall, Constitution Gardens, and other NPS-managed units.

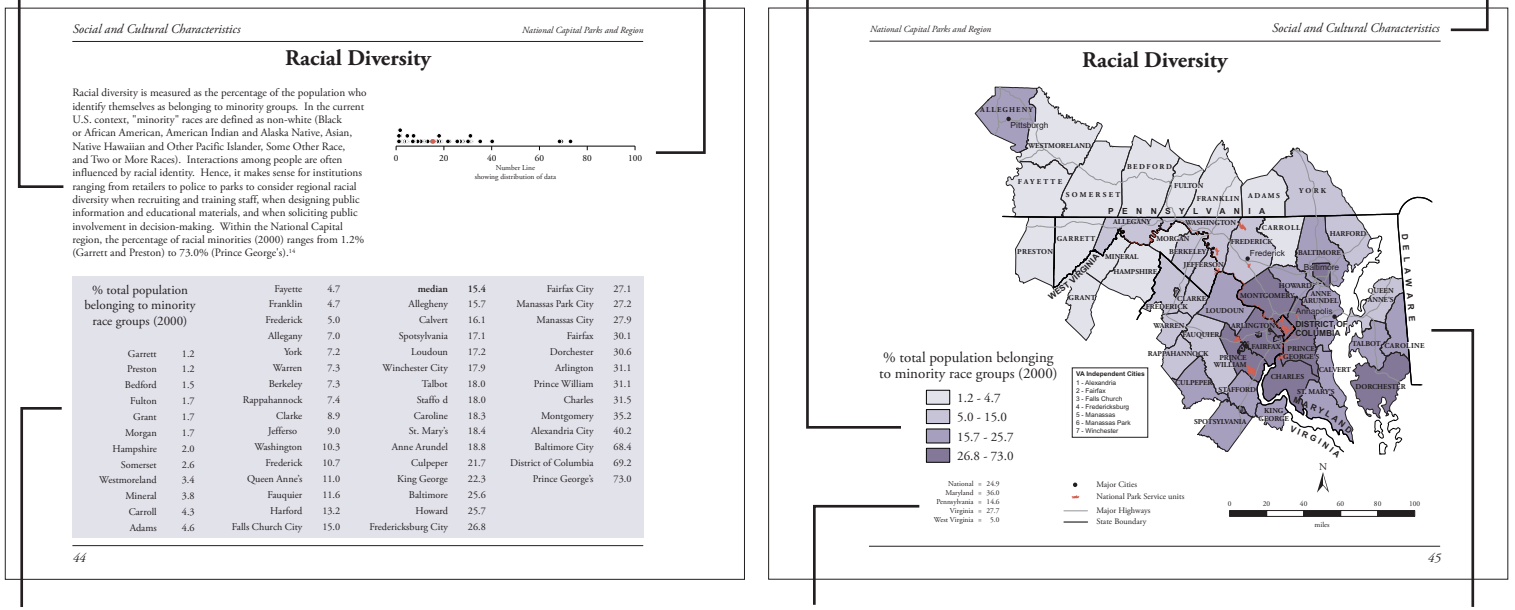
National Capital Parks Region



Using the Socioeconomic Indicators and Maps

The socioeconomic indicators for the National Capital Parks 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 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 map legend describing how the indicator is measured, the year that the data were gathered, and the range of values for each quartile grouping.
- the name of the general category to which this particular indicator belongs (such as general population or land use). Maps in the same general category share similar sets of color symbols.



Social and Cultural Characteristics *National Capital Parks and Region*

Racial Diversity

Racial diversity is measured as the percentage of the population who identify themselves as belonging to minority groups. In the current U.S. context, "minority" races are defined as non-white (Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Races). Interactions among people are often influenced by racial identity. Hence, it makes sense for institutions ranging from retailers to police to parks to consider regional racial diversity when recruiting and training staff, when designing public information and educational materials, and when soliciting public involvement in decision-making. Within the National Capital region, the percentage of racial minorities (2000) ranges from 1.2% (Garrett and Preston) to 73.0% (Prince George's).[14]

0 20 40 60 80 100

Number Line showing distribution of data

% total population belonging to minority race groups (2000)							
Garrett	1.2	Fayette	4.7	**median**	**15.4**	Fairfax City	27.1
Preston	1.2	Franklin	4.7	Allegheny	15.7	Manassas Park City	27.2
Bedford	1.5	Frederick	5.0	Calvert	16.1	Manassas City	27.9
Fulton	1.7	Allegany	7.0	Spotsylvania	17.1	Fairfax	30.1
Grant	1.7	York	7.2	Loudoun	17.2	Dorchester	30.6
Morgan	1.7	Warren	7.3	Winchester City	17.9	Arlington	31.1
Hampshire	2.0	Berkeley	7.3	Talbot	18.0	Prince William	31.1
Somerset	2.6	Rappahannock	7.4	Staffo d	18.0	Charles	31.5
Westmoreland	3.4	Clarke	8.9	Caroline	18.3	Montgomery	35.2
Mineral	3.8	Jefferso	9.0	St. Mary's	18.4	Alexandria City	40.2
Carroll	4.3	Washington	10.3	Anne Arundel	18.8	Baltimore City	68.4
Adams	4.6	Frederick	10.7	Culpeper	21.7	District of Columbia	69.2
		Queen Anne's	11.0	King George	22.3	Prince George's	73.0
		Fauquier	11.6	Baltimore	25.6		
		Harford	13.2	Howard	25.7		
		Falls Church City	15.0	Fredericksburg City	26.8		

44

National Capital Parks and Region *Social and Cultural Characteristics*

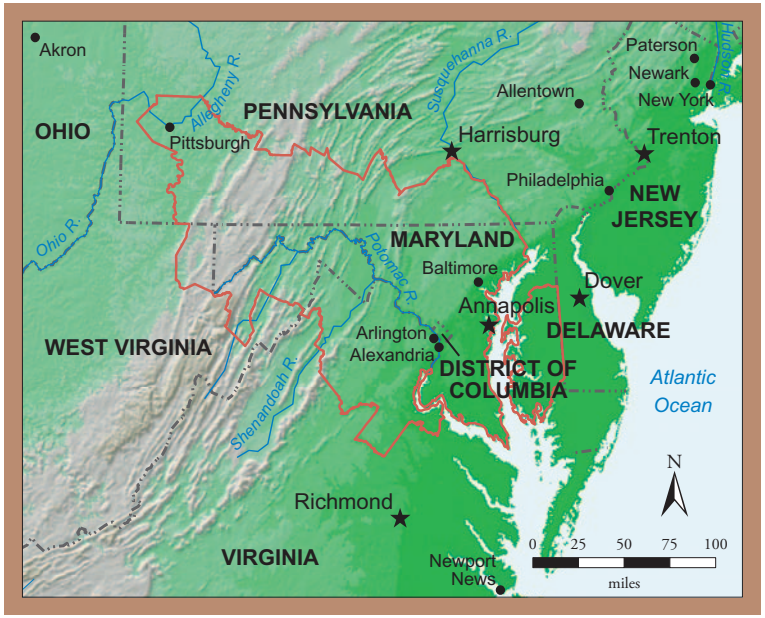
Racial Diversity

45

- 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 section displaying national and state data that can be compared with regional county data.
- a map that displays general patterns inherent in the data. For most indicators, counties are grouped into four classes that correspond to four sub-ranges of data values. These groups are called quartiles. The highest-ranked quartile receives the darkest shading. For more information on quartile classification, see Appendix 2, page 85.

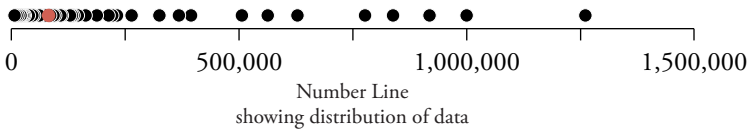
Data for independent cities in Virginia are reported separately from data for the counties that enclose them; these data are included directly in the classification applied to the maps, distribution of values in the number lines, and calculation of median values.

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 National Capital Parks region of interest, population (2003) ranges from 7,110 (Rappahannock) to 1,261,303 (Allegheny).[1]

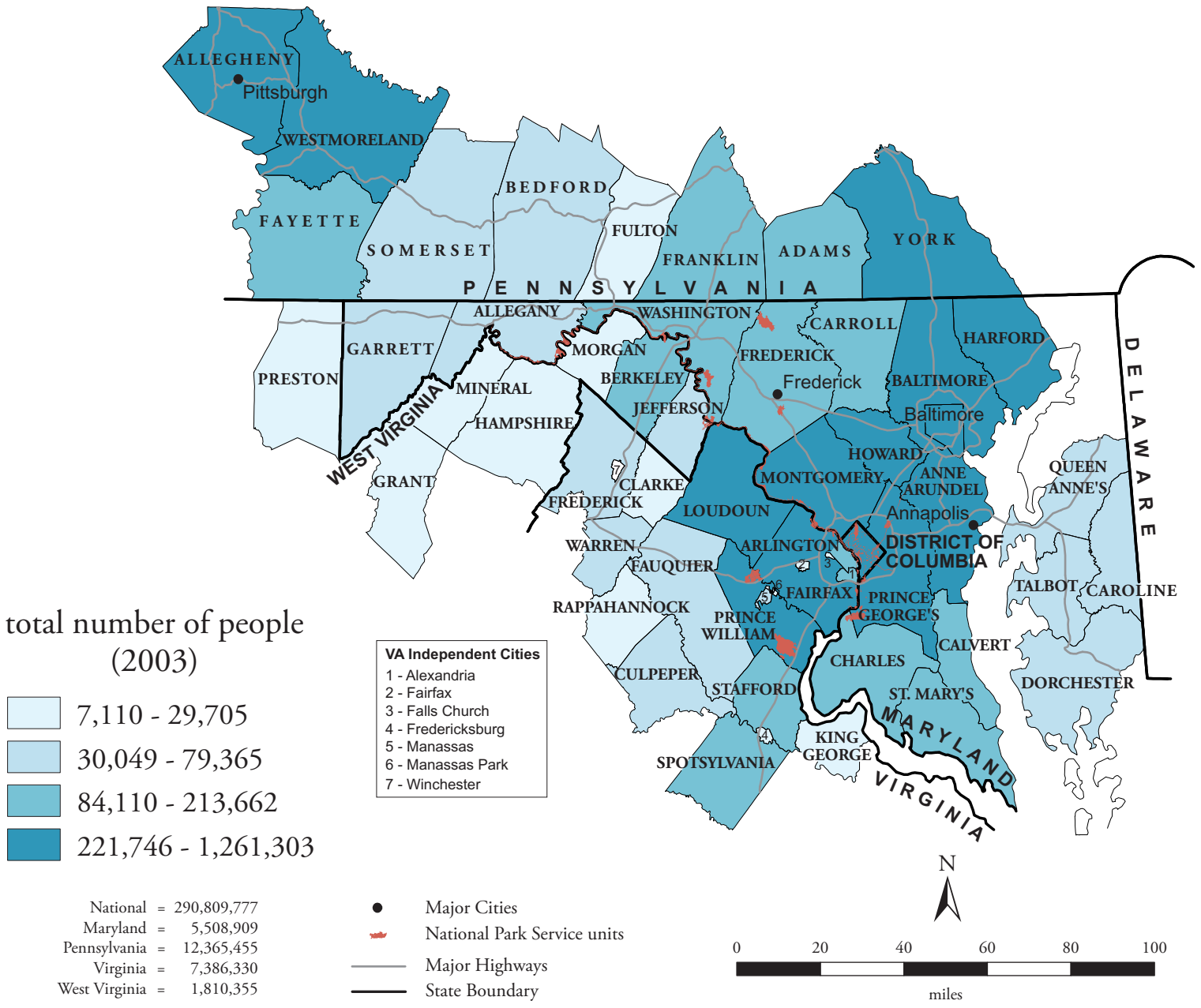


Number Line
showing distribution of data

total number of people (2003)

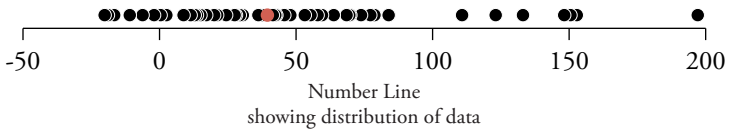
Rappahannock	7,110
Falls Church City	10,485
Manassas Park City	10,990
Grant	11,434
Clarke	13,364
Fulton	14,534
Morgan	15,514
King George	18,213
Fredericksburg City	20,189
Hampshire	21,247
Fairfax City	22,031
Winchester City	24,434
Mineral	27,147
Preston	29,705
Garrett	30,049
Dorchester	30,612
Caroline	30,861
Warren	33,871
Talbot	34,670
Manassas City	37,166
Culpeper	38,555
Queen Anne's	44,108
Jefferson	46,270
Bedford	49,941
Fauquier	61,137
Frederick, VA	64,565
Allegany	73,668
Somerset	79,365
median	**81,738**
Calvert	84,110
Berkeley	85,272
St. Mary's	92,754
Adams	96,456
Spotsylvania	107,838
Stafford	111,021
Alexandria City	128,923
Charles	133,049
Franklin	133,155
Washington	136,796
Fayette	146,121
Carroll	163,207
Arlington	187,873
Frederick, MD	213,662
Loudoun	221,746
Harford	232,175
Howard	264,265
Prince William	325,324
Westmoreland	368,224
York	394,915
Anne Arundel	506,620
D.C.	563,384
Baltimore City	628,670
Baltimore	777,184
Prince George's	838,716
Montgomery	918,881
Fairfax	1,000,405
Allegheny	1,261,303

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 National Capital Parks region of interest, growth rates (1970 - 1990) ranged from -20.1% (D.C.) to 197.1% (Howard).



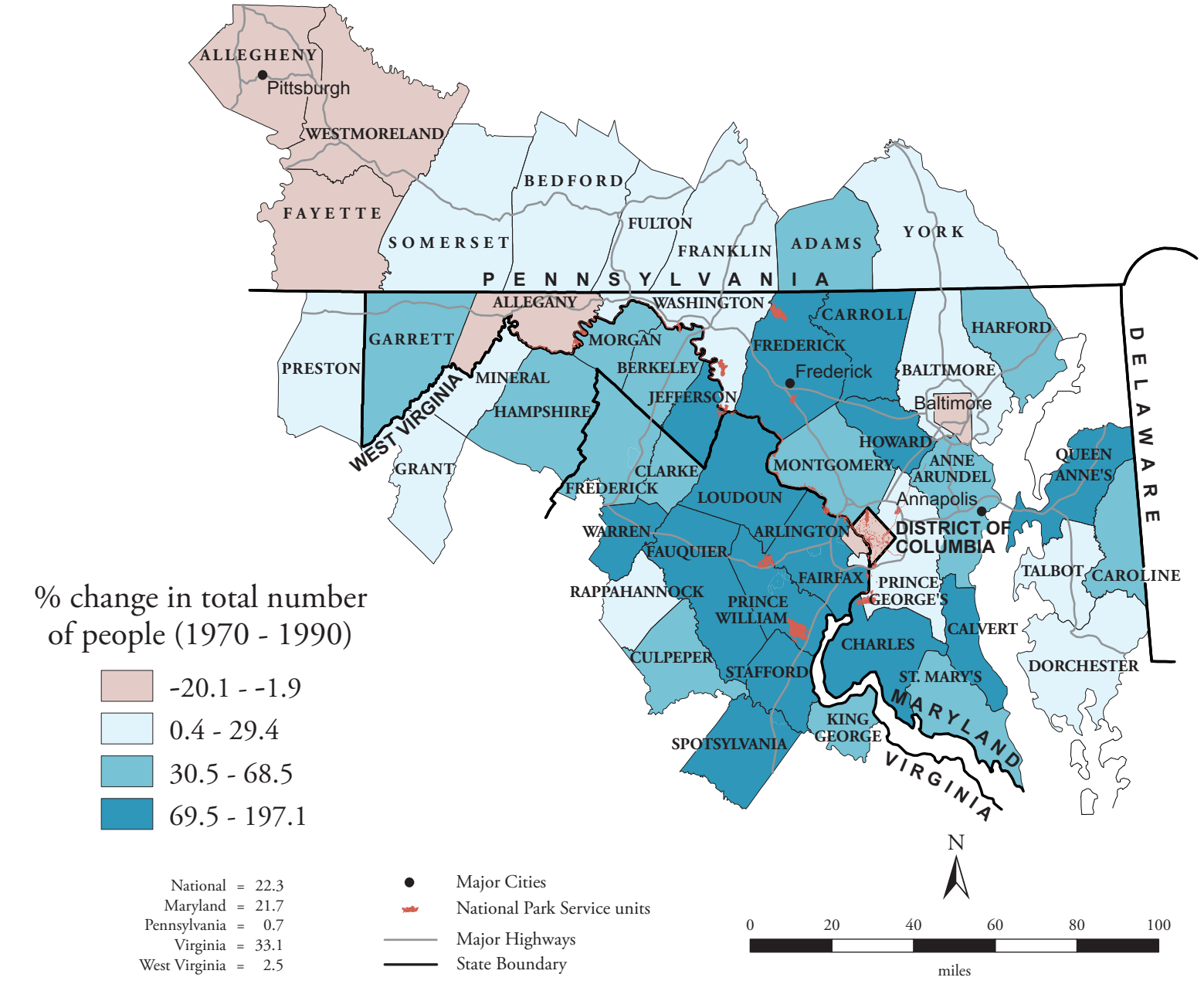
Number Line
showing distribution of data

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

D.C.	-20.1
Baltimore City	-18.9
Allegheny	-16.6
Allegany	-10.9
Fayette	-6.2
Arlington	-2.0
Westmoreland	-1.9
Alexandria City	0.4
Dorchester	2.4
Somerset	2.5
Prince George's	8.8
Baltimore	11.4
Bedford	12.9
Preston	13.7
Mineral	15.0
Washington	17.1
Franklin	20.0
Grant	21.1
York	24.4
Fulton	27.5
Rappahannock	28.0
Talbot	29.4
Garrett	30.5
Caroline	36.2
Adams	37.5
median	**39.5**
Hampshire	41.5
Morgan	42.4
Anne Arundel	42.8
Montgomery	45.7
Clarke	47.9
Culpeper	53.2
Frederick, VA	55.3
Harford	57.9
St. Mary's	59.5
Berkeley	63.8
King George	68.5
Jefferson	69.5
Warren	69.9
Fairfax	73.8
Frederick, MD	77.2
Carroll	78.7
Fauquier	83.9
Queen Anne's	84.0
Charles	110.8
Prince William	123.1
Loudoun	133.1
Calvert	148.2
Spotsylvania	150.5
Stafford	152.8
Howard	197.1

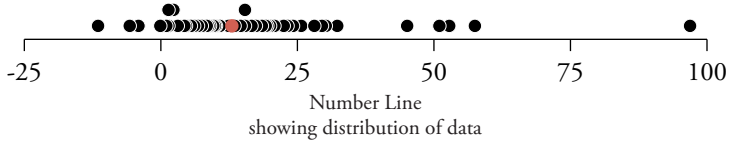
Woods & Poole data groups all Virginia independent cities (except Alexandria) with their surrounding county.

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 National Capital Parks region of interest, the recent change in population (1990 - 2000) ranges from -11.5% (Baltimore City) to 96.9% (Loudoun).

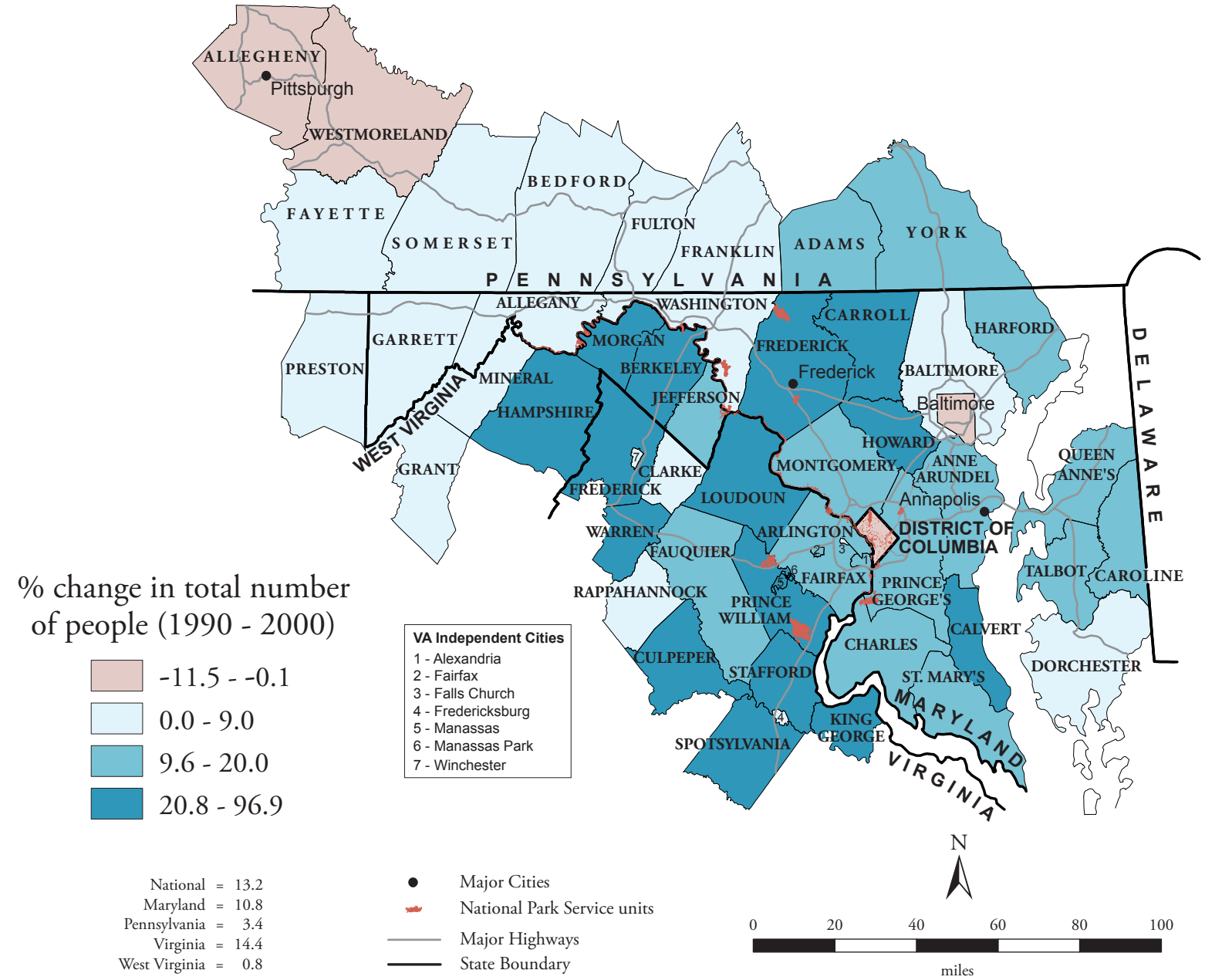


Number Line
showing distribution of data

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

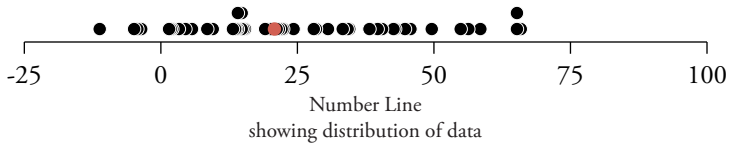
Baltimore City	-11.5
D.C.	-5.7
Allegheny	-4.1
Westmoreland	-0.1
Allegany	0.0
Preston	1.0
Fredericksburg City	1.3
Dorchester	1.4
Mineral	1.4
Fayette	2.3
Somerset	2.3
Fulton	3.1
Bedford	4.3
Clarke	4.6
Rappahannock	5.5
Garrett	6.1
Franklin	6.8
Winchester City	7.5
Falls Church City	8.3
Grant	8.4
Washington	8.7
Baltimore	9.0
Fairfax City	9.6
Prince George's	9.9
Caroline	10.1
Talbot	10.7
Arlington	10.8
York	12.4
median	**12.8**
Fauquier	13.1
St. Mary's	13.5
Anne Arundel	14.6
Montgomery	15.4
Alexandria City	15.4
Adams	16.6
Jefferson	17.4
Fairfax	18.5
Charles	19.2
Queen Anne's	19.5
Harford	20.0
Warren	20.8
Carroll	22.3
Hampshire	22.5
Morgan	23.2
Culpeper	23.3
King George	24.2
Manassas City	25.7
Berkeley	28.1
Frederick, VA	29.5
Frederick, MD	30.0
Prince William	30.2
Howard	32.3
Calvert	45.1
Stafford	51.0
Manassas Park City	52.8
Spotsylvania	57.5
Loudoun	96.9

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 National Capital Parks region of interest, the projected change in population by the year 2020 ranges from -11.2% (Baltimore City) to 65.9% (Loudoun).[2]

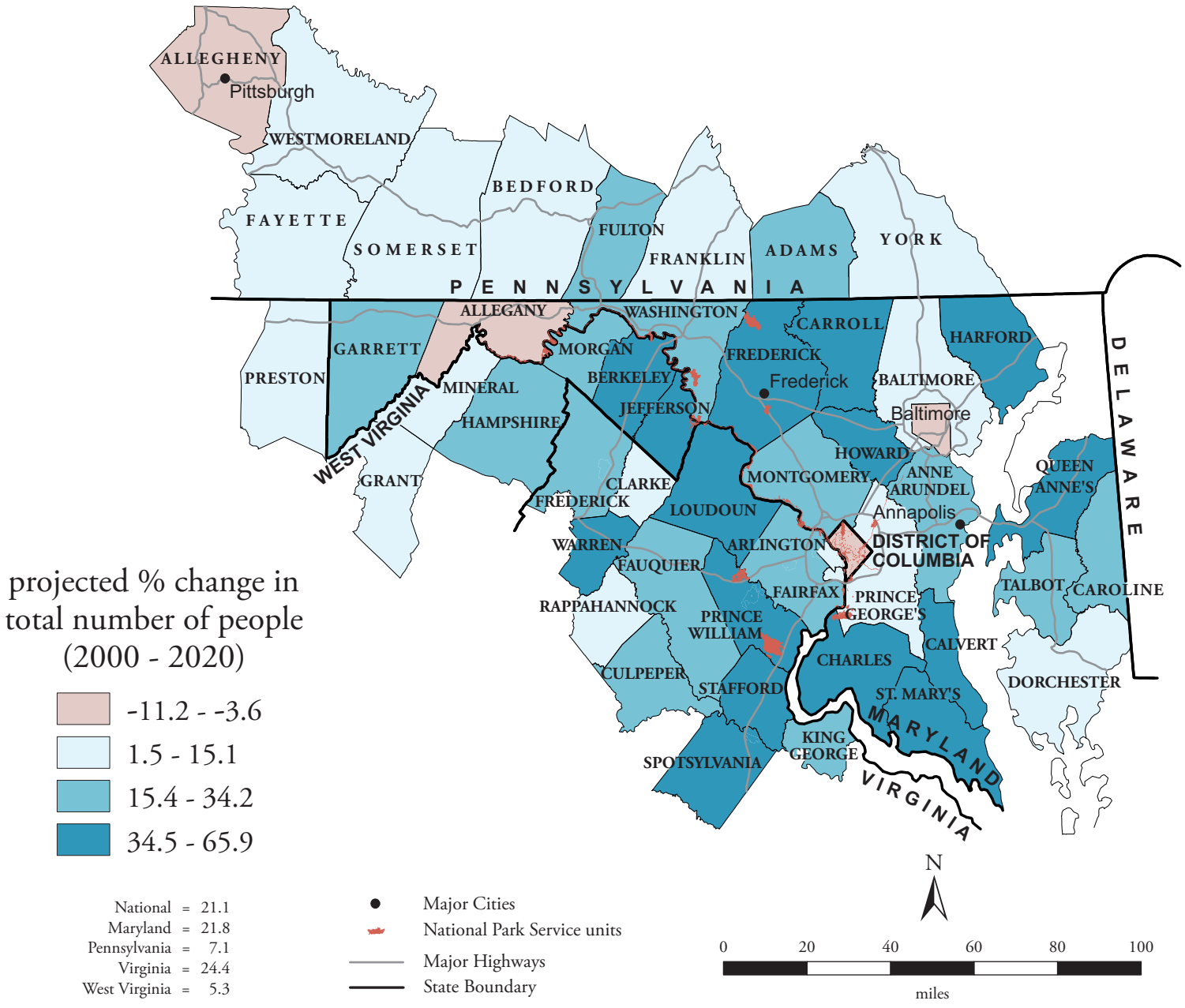


projected % change in total number of people (2000 - 2020)

Baltimore City	-11.2
Allegany	-4.9
D.C.	-4.3
Allegheny	-3.6
Somerset	1.5
Dorchester	1.8
Westmoreland	2.1
Fayette	3.3
Preston	4.5
Bedford	5.7
Mineral	8.5
Arlington	9.5
Franklin	13.2
Grant	13.6
Rappahannock	13.8
Baltimore	14.1
Clarke	14.1
Prince George's	14.8
York	14.8
Alexandria City	15.1
Fulton	15.4
Washington	19.1
Culpeper	20.1
Adams	20.3
Morgan	20.4
median	**20.8**
Garrett	21.2
Hampshire	21.6
Caroline	22.1
Montgomery	22.4
Talbot	24.3
King George	28.0
Anne Arundel	28.4
Frederick, VA	30.6
Fauquier	33.3
Fairfax	34.2
Queen Anne's	34.5
Jefferson	38.2
Warren	39.7
St. Mary's	40.5
Carroll	42.6
Harford	42.9
Berkeley	44.7
Charles	45.7
Frederick, MD	49.6
Stafford	54.9
Prince William	56.3
Spotsylvania	58.5
Calvert	65.2
Howard	65.2
Loudoun	65.9

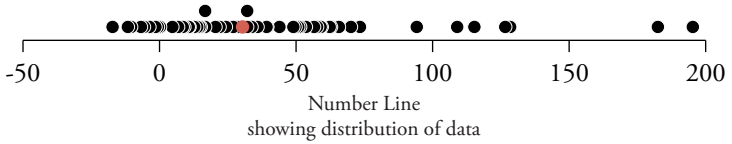
Woods & Poole data groups all Virginia independent cities (except Alexandria) with their surrounding county.

Projected Population Change



Population Density Change

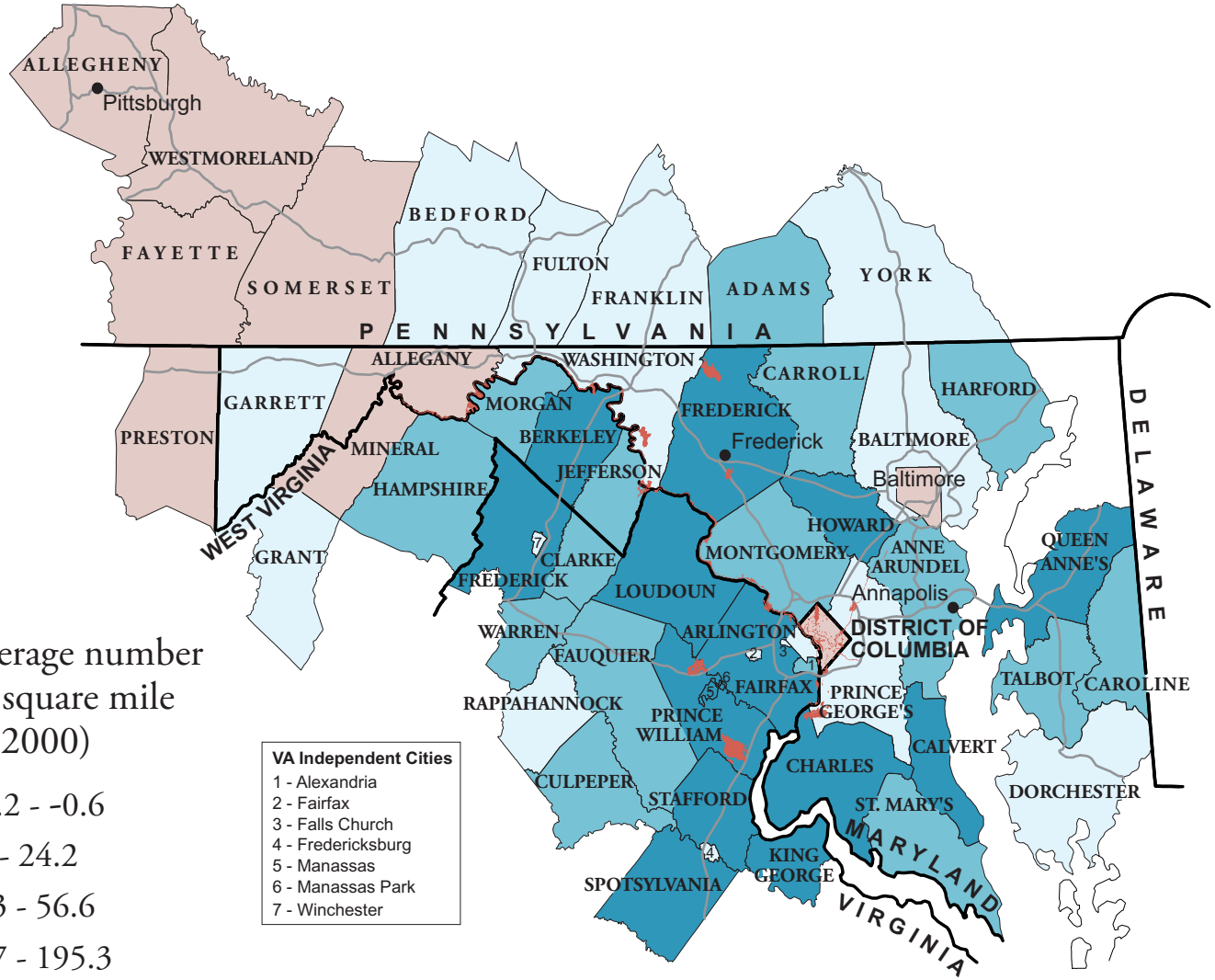
Population density change is an alternate means to describe population growth, stability, or decline. Steady or decelerating growth over a 20-year time period suggests that government and institutions can anticipate and plan for needs in advance. Accelerating population growth may be placing stress on government and institutions to respond rapidly to changes in civic life, industry, infrastructure, and the use of land and resources. Within the National Capital Parks region of interest, the change in population density (1980 - 2000) ranges from -17.2% (Baltimore City) to 195.3% (Loudoun).[3]



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

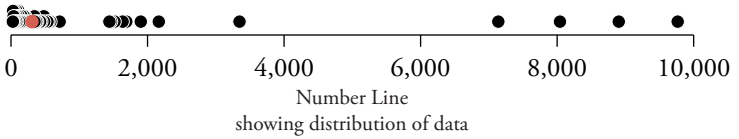
Baltimore City	-17.2
Allegheny	-11.6
D.C.	-10.4
Allegany	-7.0
Fayette	-6.8
Westmoreland	-5.7
Preston	-3.7
Somerset	-1.5
Mineral	-0.6
Dorchester	0.2
Fairfax City	4.7
Bedford	6.8
Fredericksburg City	8.5
Falls Church City	9.1
Grant	10.7
Fulton	11.0
Garrett	12.7
Franklin	13.8
Rappahannock	14.6
Baltimore	15.1
Washington	16.7
Winchester City	16.7
Prince George's	20.5
York	22.0
Arlington	24.2
Alexandria City	24.3
Clarke	27.0
Caroline	28.6
median	**30.4**
Anne Arundel	32.1
Talbot	32.1
Adams	33.7
Hampshire	35.9
Jefferson	39.2
Morgan	39.5
St. Mary's	43.9
Warren	49.0
Harford	49.8
Montgomery	50.8
Culpeper	51.5
Fauquier	53.6
Carroll	56.6
Manassas Park City	57.7
Queen Anne's	59.0
King George	59.4
Berkeley	62.3
Fairfax	62.8
Charles	65.7
Frederick, MD	70.1
Frederick, VA	73.4
Prince William	94.2
Howard	109.0
Calvert	115.3
Manassas City	126.6
Stafford	128.4
Spotsylvania	182.5
Loudoun	195.3

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 National Capital Parks region of interest, projected population density for the year 2020 ranges from 26.9 people per square mile (Grant) to 9,766.0 people per square mile (Alexandria City).[4]

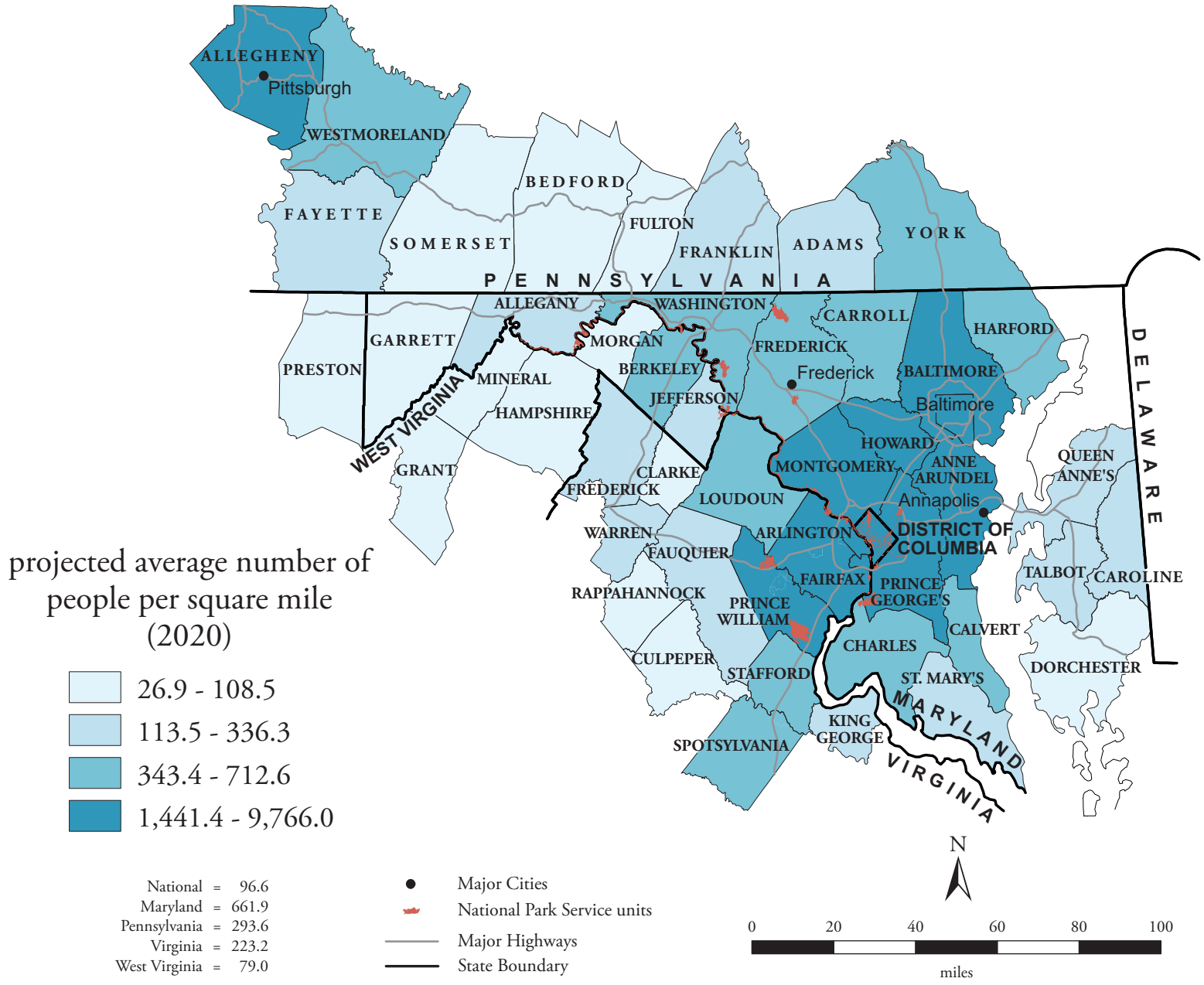


projected average number of people per square mile (2020)

Grant	26.9
Rappahannock	29.8
Fulton	37.6
Hampshire	38.5
Preston	47.2
Bedford	52.1
Garrett	55.9
Dorchester	56.0
Somerset	75.6
Morgan	78.7
Clarke	81.8
Mineral	89.5
Culpeper	108.5
Fauquier	113.5
Caroline	113.7
King George	119.8
Queen Anne's	147.1
Talbot	156.4
Allegany	167.6
Franklin	189.7
Fayette	194.2
Warren	207.5
Adams	211.7
Frederick, VA	256.1
Jefferson	278.8
median	**307.6**
St. Mary's	336.3
Berkeley	343.4
Washington	343.8
Westmoreland	368.2
Charles	382.5
Spotsylvania	425.9
Frederick, MD	443.4
Carroll	481.4
York	485.5
Stafford	534.3
Loudoun	548.4
Calvert	577.1
Harford	712.6
Baltimore	1,441.4
Prince William	1,464.9
Anne Arundel	1,516.8
Howard	1,634.9
Allegheny	1,688.4
Prince George's	1,901.1
Montgomery	2,165.0
Fairfax	3,347.2
Baltimore City	7,138.2
Arlington	8,041.7
D.C.	8,902.8
Alexandria City	9,766.0

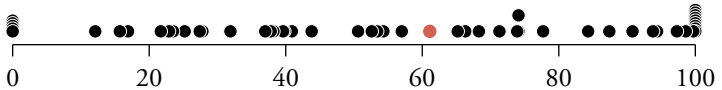
Woods & Poole data groups all Virginia independent cities (except Alexandria) with their surrounding county.

Projected Population Density



Urban Population

The relative proportion of urban dwellers within counties in the parks' region can be significant in addressing regional issues related to park management. Urban dwellers may have easier access to schools, stores, and medical services. They may also benefit from a greater array of public services such as water utilities and municipal police protection. These and many other characteristics can generate differences in urban and rural strategies for dealing with issues such as taxation, development, and environmental protection. Within the National Capital Parks region of interest, the percent of total population living in urban areas (2000) ranges from 0.0% to 100.0%.[5]

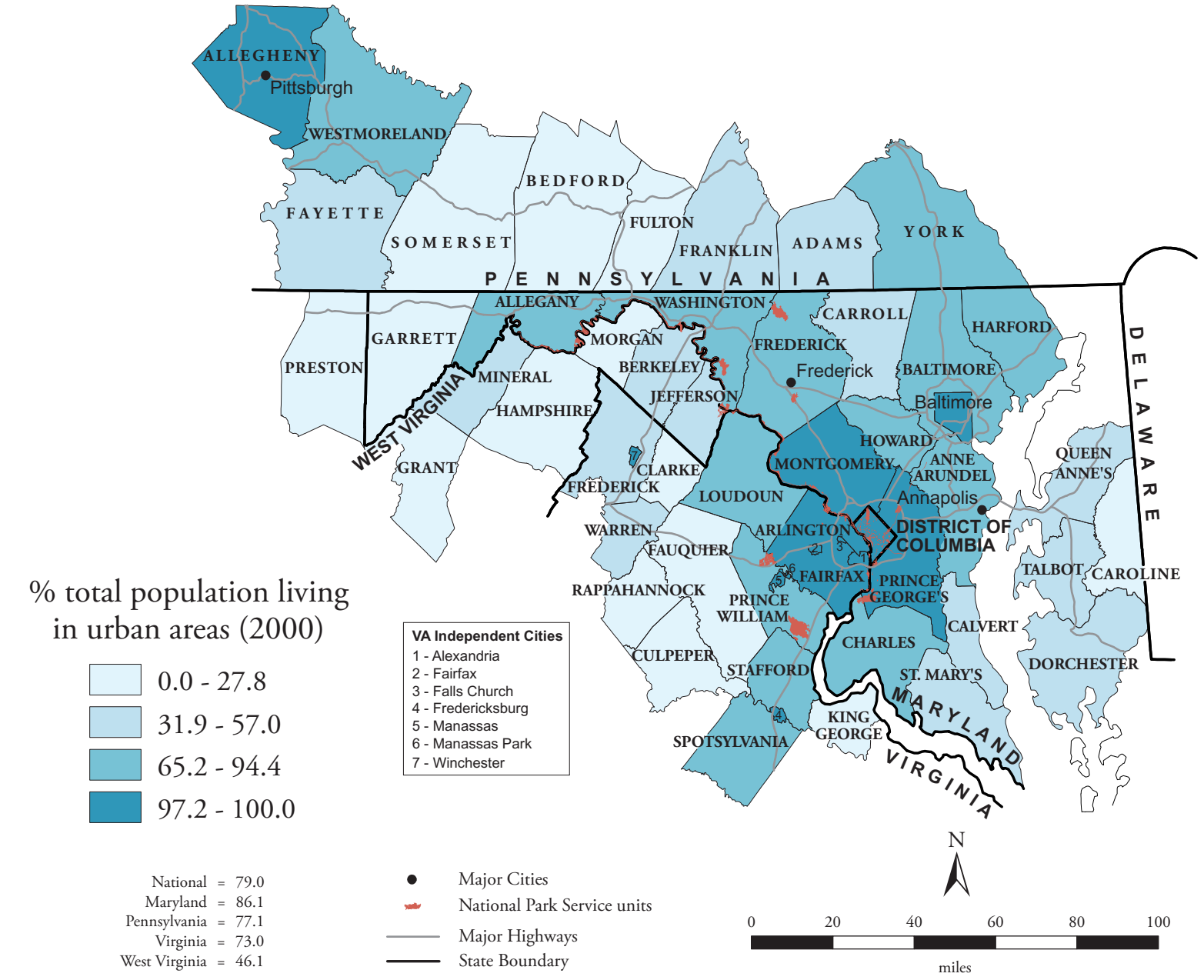


Number Line
showing distribution of data

% total population living in urban areas (2000)

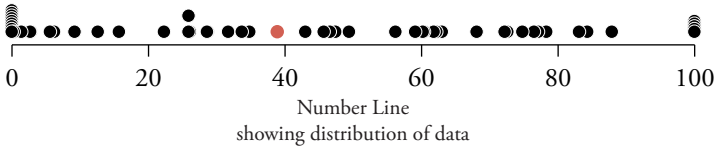
Fulton	0.0
King George	0.0
Rappahannock	0.0
Hampshire	0.0
Morgan	0.0
Preston	12.1
Bedford	15.7
Garrett	16.9
Caroline	21.7
Grant	22.9
Clarke	23.5
Somerset	25.2
Fauquier	27.4
Culpeper	27.8
Jefferson	31.9
Talbot	37.0
St. Mary's	37.8
Mineral	38.2
Adams	39.6
Queen Anne's	39.8
Dorchester	40.9
Warren	43.8
Frederick, VA	50.6
Franklin	52.6
Fayette	53.4
Calvert	54.2
Berkeley	54.3
Carroll	57.0
median	**61.1**
Spotsylvania	65.2
Charles	66.3
Washington	68.3
York	71.3
Frederick, MD	71.4
Stafford	73.9
Allegany	74.1
Westmoreland	74.1
Harford	77.7
Loudoun	84.3
Howard	87.4
Prince William	90.8
Baltimore	93.8
Anne Arundel	94.4
Montgomery	97.2
Allegheny	97.3
Prince George's	97.4
Fairfax	98.6
Fredericksburg City	99.7
D.C.	100.0
Baltimore City	100.0
Arlington	100.0
Alexandria City	100.0
Fairfax City	100.0
Falls Church City	100.0
Manassas City	100.0
Manassas Park City	100.0
Winchester City	100.0

Urban Population



Rural Population

The rural population of a county consists of people who live outside urban areas. Rural dwellers may be less dependent on government for services, such as water supply and police protection. Local networks of neighbors and community groups are likely to be very important in civic life and for rural identity. Rural dwellers may also be accustomed to significant autonomy regarding decisions about land use. Differences in attitudes toward taxation, government, development, and environmental protection between urban and rural dwellers may produce competing visions for a region's future. Within the National Capital Parks region of interest, the percent of total population living in rural areas (2000) ranges from 0.0% to 100.0%.[6]

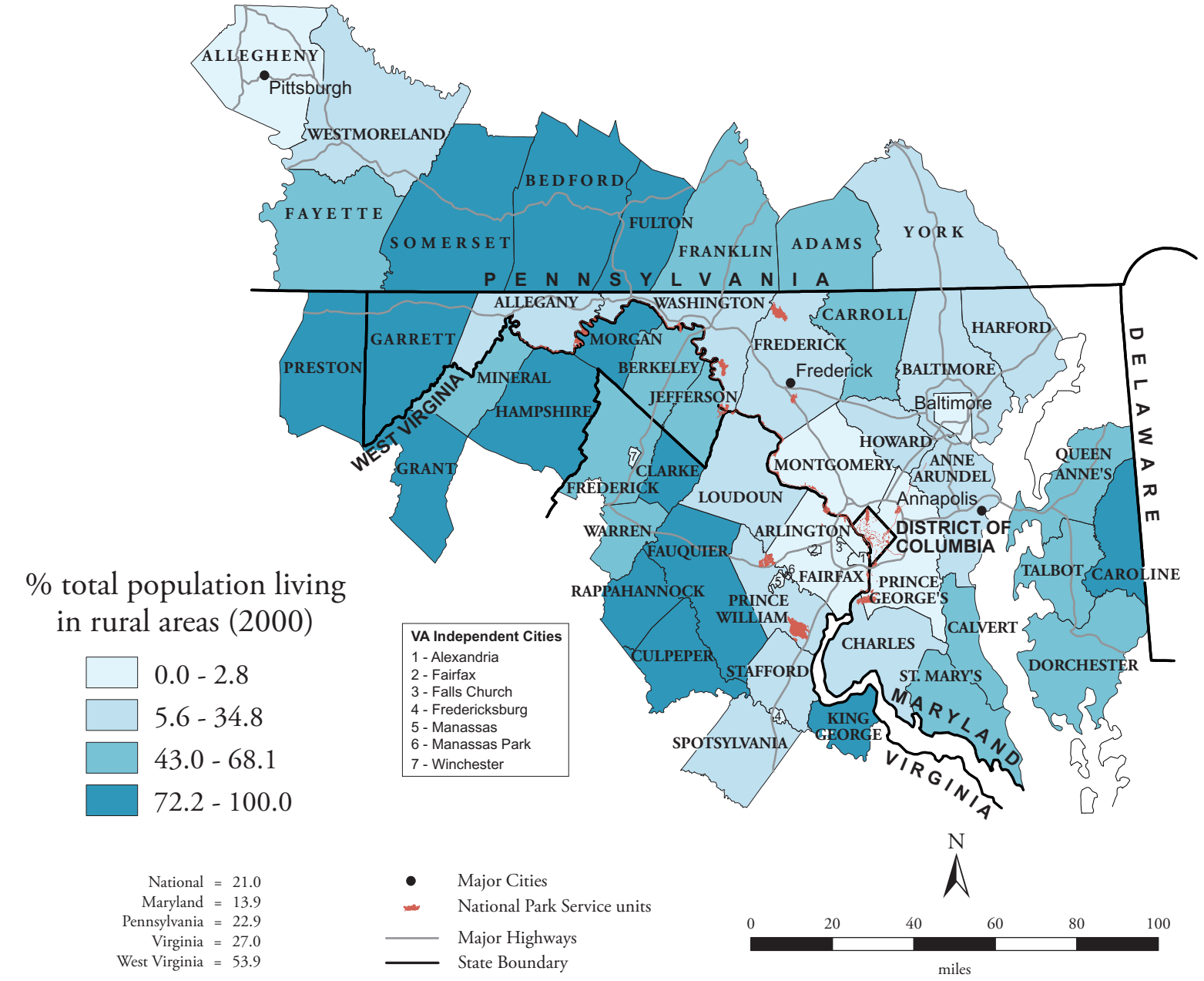


Number Line
showing distribution of data

% total population living in rural areas (2000)

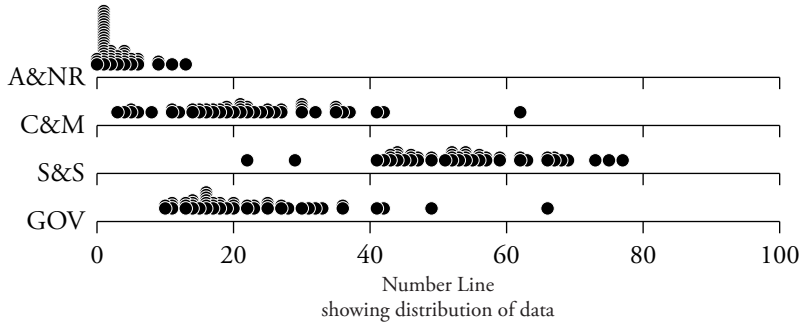
D.C.	0.0
Baltimore City	0.0
Arlington	0.0
Alexandria City	0.0
Fairfax City	0.0
Falls Church City	0.0
Manassas City	0.0
Manassas Park City	0.0
Winchester City	0.0
Fredericksburg City	0.3
Fairfax	1.4
Prince George's	2.6
Allegheny	2.7
Montgomery	2.8
Anne Arundel	5.6
Baltimore	6.2
Prince William	9.2
Howard	12.6
Loudoun	15.7
Harford	22.3
Allegany	25.9
Westmoreland	25.9
Stafford	26.1
Frederick, MD	28.6
York	28.7
Washington	31.7
Charles	33.7
Spotsylvania	34.8
median	**38.9**
Carroll	43.0
Berkeley	45.7
Calvert	45.8
Fayette	46.6
Franklin	47.4
Frederick, VA	49.4
Warren	56.2
Dorchester	59.1
Queen Anne's	60.2
Adams	60.4
Mineral	61.8
St. Mary's	62.2
Talbot	63.0
Jefferson	68.1
Culpeper	72.2
Fauquier	72.6
Somerset	74.8
Clarke	76.5
Grant	77.1
Caroline	78.3
Garrett	83.1
Bedford	84.3
Preston	87.9
Fulton	100.0
King George	100.0
Rappahannock	100.0
Hampshire	100.0
Morgan	100.0

Rural Population



Earnings by Industry

Earnings by industry are indicative of the overall size of a local economy as well as the relative importance of each major industrial sector within that economy. The diversity of economic activities in the region presents an array of challenges to park management. For example, relatively mobile industries such as light manufacturing or financial services may be concerned with land costs and tax rates, whereas natural resource dependent industries such as farming or mining may be concerned with land use regulations and other environmental policies. Within the National Capital Parks region of interest (1999), Sales and Services is the leading sector of earnings. The second-ranking sector is Government.[7]



Number Line
showing distribution of data

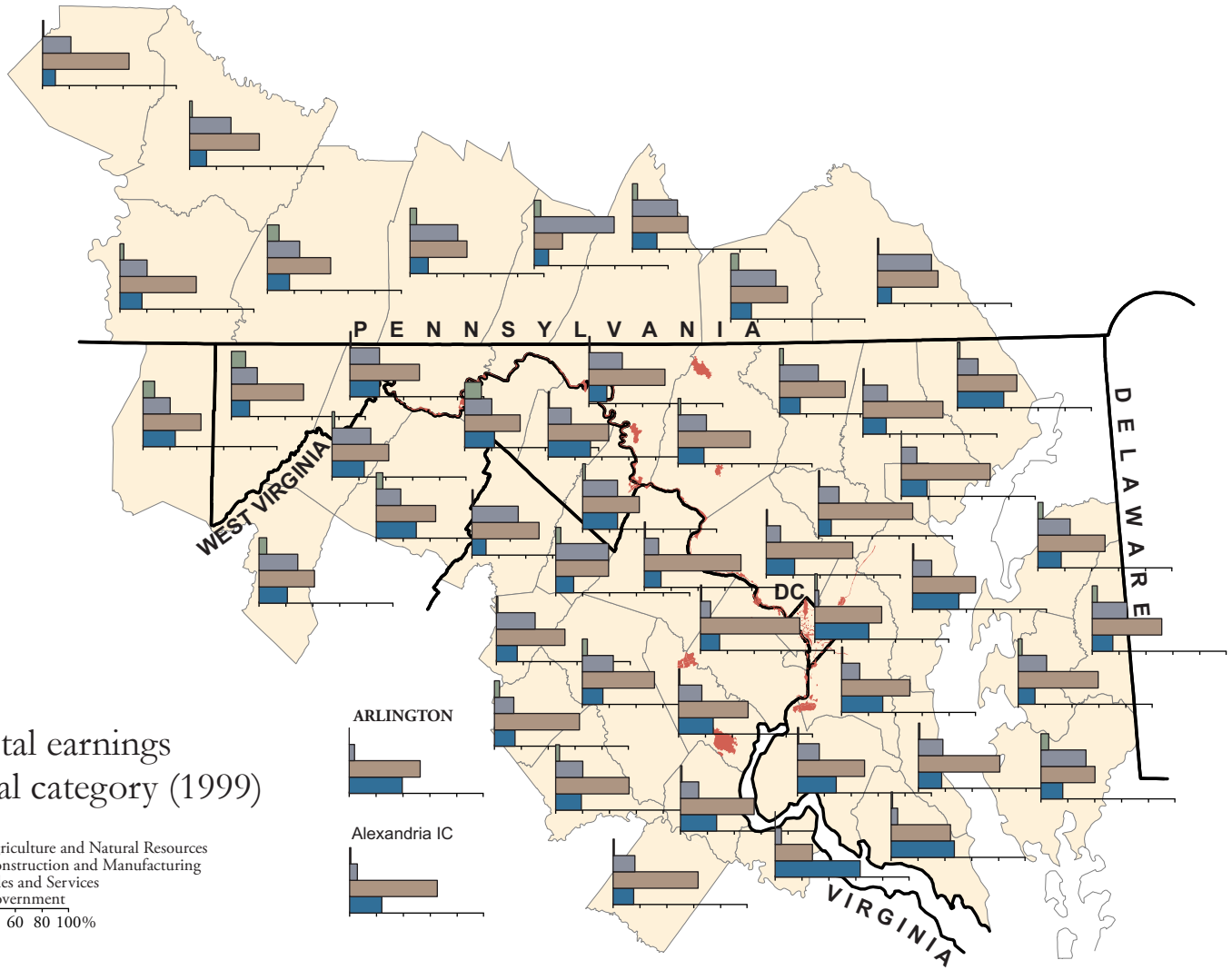
A&NR = Agriculture and Natural Resources
C&M = Construction and Manufacturing
S&S = Sales and Services
GOV = Government

Percentages may not add to one hundred due to rounding.

% total earnings by industrial category (1999)

	A&NR	C&M	S&S	GOV
D.C.	2	3	52	42
Allegany	1	23	54	23
Anne Arundel	1	15	49	36
Baltimore	1	19	62	18
Calvert	1	19	63	18
Caroline	4	27	54	16
Carroll	3	30	51	16
Charles	1	17	52	30
Dorchester	6	35	42	17
Frederick, MD	2	22	56	20
Garrett	11	20	56	14
Harford	2	16	46	36
Howard	1	16	73	10
Montgomery	1	11	67	22
Prince George's	1	14	53	32
Queen Anne's	4	25	52	18
St. Mary's	1	5	46	49
Talbot	3	22	62	13
Washington	1	26	59	14
Baltimore City	0	12	69	20
Adams	6	35	44	16
Allegheny	1	22	67	10
Bedford	5	37	44	14
Fayette	3	21	59	17
Franklin	4	35	43	19
Fulton	5	62	22	11
Somerset	9	25	49	17
Westmoreland	2	32	54	13
York	1	42	47	11
Arlington	0	4	55	41
Clarke	4	41	41	14
Culpeper	3	21	57	20
Fairfax	1	8	77	15
Fauquier	4	24	56	16
Frederick, VA	1	36	52	11
King George	0	5	29	66
Loudoun	1	11	75	13
Prince William	1	18	54	27
Rappahannock	4	15	66	16
Spotsylvania	1	17	66	16
Stafford	1	14	57	28
Warren	1	30	53	16
Alexandria City	1	6	68	25
Berkeley	1	18	47	33
Grant	6	30	43	22
Hampshire	5	19	46	31
Jefferson	2	27	44	27
Mineral	2	30	44	25
Morgan	13	21	43	23
Preston	9	21	45	25

Earnings by Industry

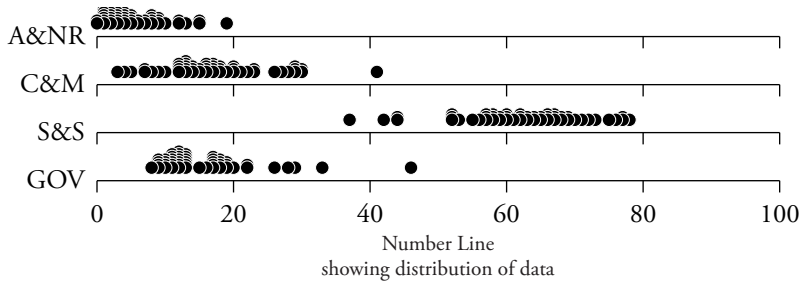


	A&NR	C&M	S&S	GOV
National	2	22	60	16
Maryland	1	15	61	23
Pennsylvania	2	26	60	13
Virginia	1	17	58	24
West Virginia	6	20	52	22

Woods & Poole data groups all Virginia independent cities (except Alexandria) with their surrounding county.

Employment by Industry

One indicator of the way a particular county's job market is structured is the percentage of workers employed in each of the four major industrial sectors. This employment distribution is indicative of the kinds of skills, knowledge, and concerns that are most prevalent among workers. Occupational patterns can influence people's priorities and actions with regard to parks and resource protection. For example, construction workers might welcome the prospect of rapid growth, whereas government workers such as teachers and police might worry that rapid growth would stress existing government resources. Within the National Capital Parks region of interest (1999), the leading sector of employment is Sales and Services.[8]



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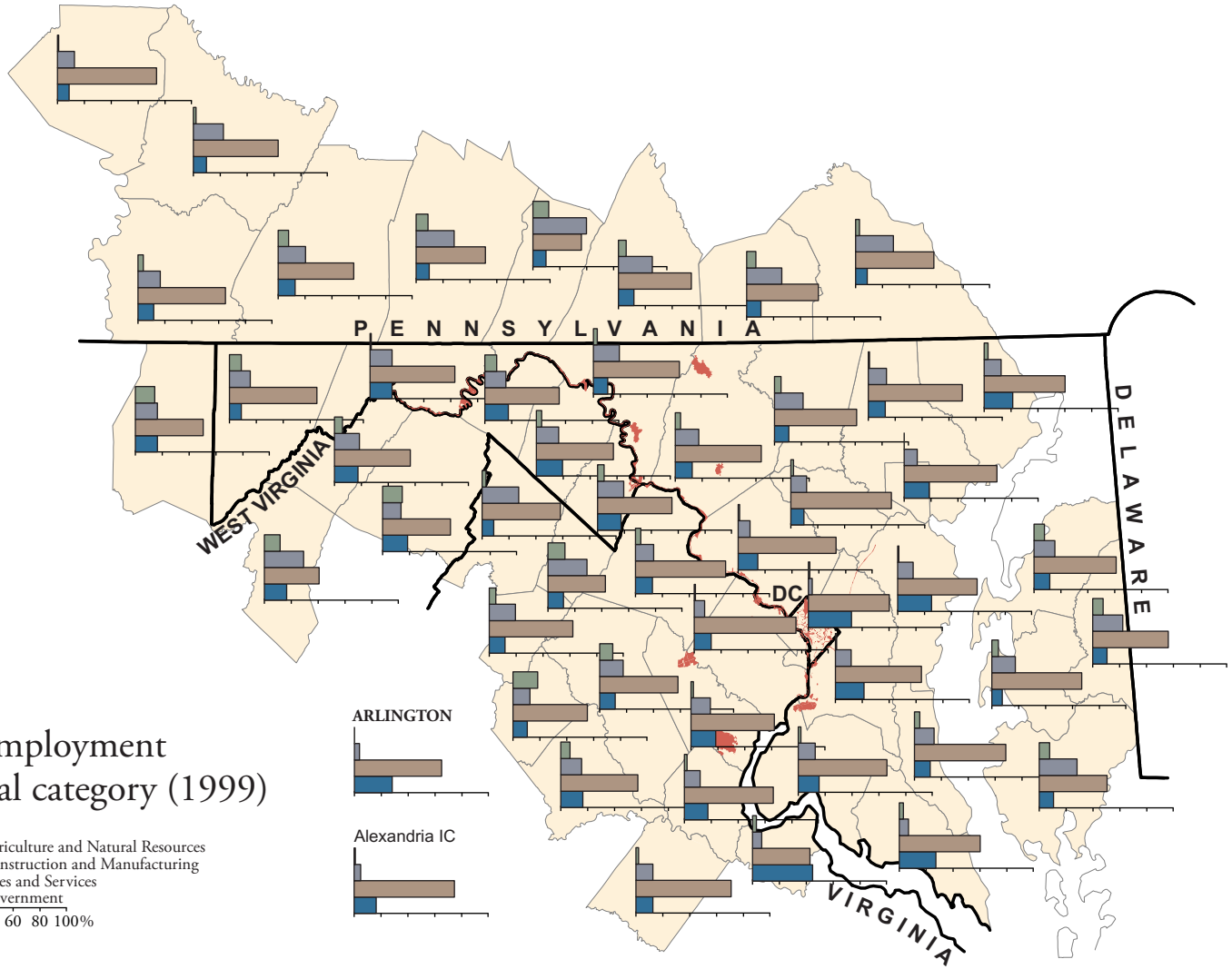
GOV = Government

Percentages may not add to one hundred due to rounding.

% employment by industrial category (1999)

	A&NR	C&M	S&S	GOV
D.C.	1	3	62	33
Allegany	1	17	65	17
Anne Arundel	1	12	61	26
Baltimore	1	14	72	13
Calvert	4	15	70	12
Caroline	8	23	58	11
Carroll	5	22	63	11
Charles	2	13	68	16
Dorchester	8	29	52	11
Frederick, MD	4	18	66	13
Garrett	9	16	67	9
Harford	3	13	62	22
Howard	2	12	77	10
Montgomery	1	9	75	15
Prince George's	1	12	66	22
Queen Anne's	8	16	63	12
St. Mary's	3	7	62	28
Talbot	5	18	69	8
Washington	3	20	66	11
Baltimore City	0	10	71	19
Adams	7	27	55	11
Allegheny	1	13	76	9
Bedford	9	29	53	10
Fayette	4	17	67	12
Franklin	6	26	56	12
Fulton	12	41	37	10
Somerset	8	21	58	13
Westmoreland	2	23	65	10
York	3	29	60	9
Arlington	0	4	67	29
Clarke	13	30	44	12
Culpeper	7	16	59	17
Fairfax	1	8	78	13
Fauquier	10	18	60	12
Frederick, VA	3	28	60	9
King George	3	7	44	46
Loudoun	4	14	69	13
Prince William	2	15	64	19
Rappahannock	19	13	57	11
Spotsylvania	2	13	73	13
Stafford	2	12	68	18
Warren	5	20	64	12
Alexandria City	1	5	77	17
Berkeley	4	17	59	20
Grant	12	30	42	17
Hampshire	15	14	52	19
Jefferson	5	20	57	18
Mineral	6	19	58	18
Morgan	9	16	57	18
Preston	15	17	52	17

Employment by Industry



% employment
by industrial category (1999)

Agriculture and Natural Resources
Construction and Manufacturing
Sales and Services
Government

0 20 40 60 80 100%

	A&NR	C&M	S&S	GOV
National	4	17	65	14
Maryland	2	13	69	17
Pennsylvania	2	19	67	11
Virginia	3	16	63	18
West Virginia	6	15	61	17

Woods & Poole data groups all Virginia independent cities (except Alexandria) with their surrounding county.

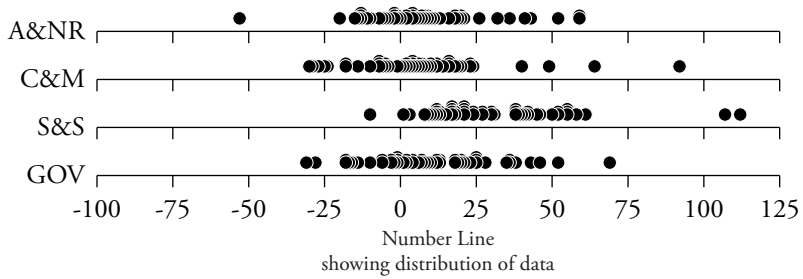
N

0 20 40 60 80 100

miles

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 National Capital Parks region of interest (1990 - 1999), the sector experiencing the highest increases was Sales and Services.[9]

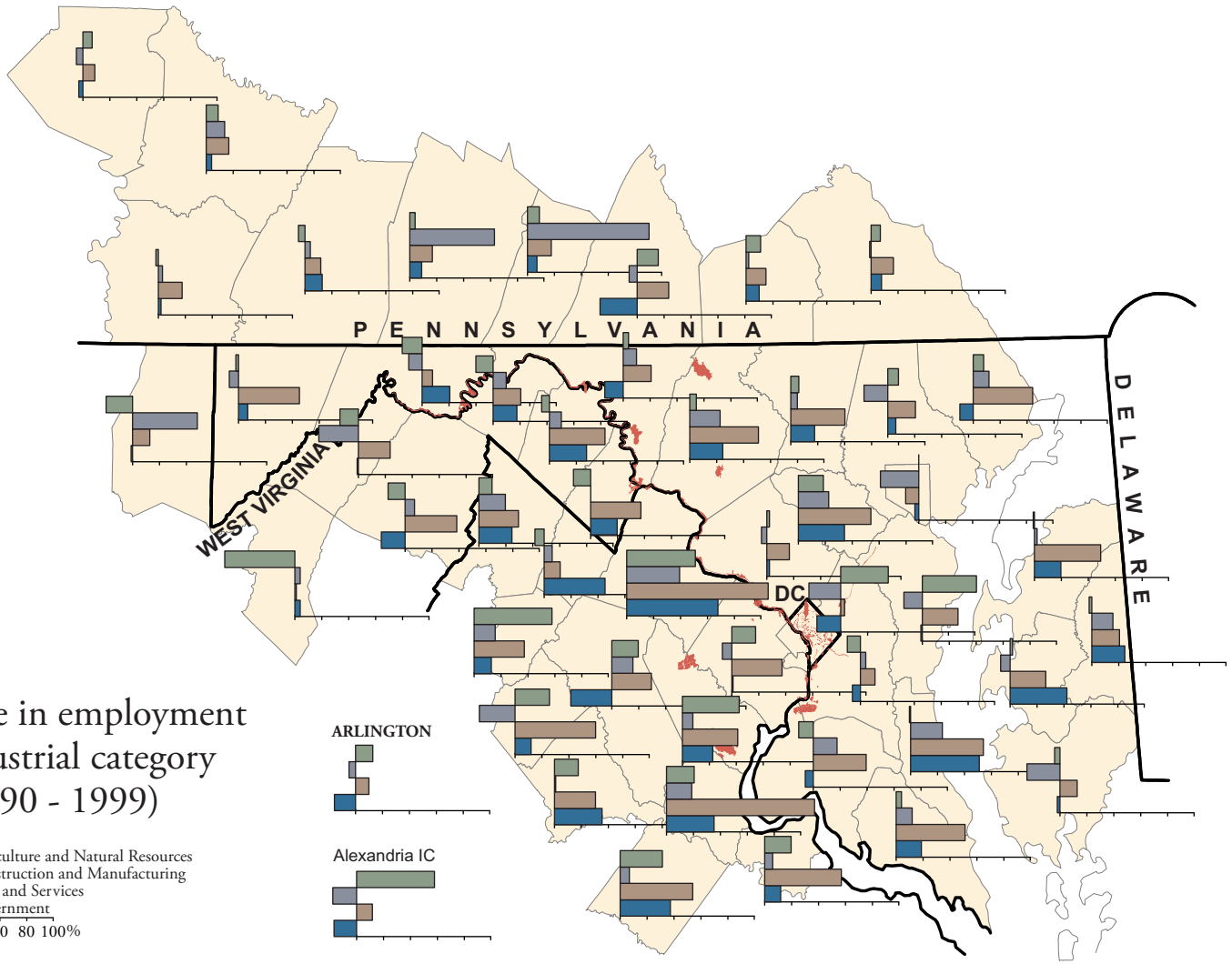


A&NR = Agriculture and Natural Resources
C&M = Construction and Manufacturing
S&S = Sales and Services
GOV = Government

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

	A&NR	C&M	S&S	GOV
D.C.	36	-24	3	-18
Allegany	-15	-10	8	21
Anne Arundel	41	-14	27	-1
Baltimore	8	-18	21	6
Calvert	-1	24	55	52
Caroline	-2	16	21	25
Carroll	6	5	41	18
Charles	-11	18	40	-6
Dorchester	-4	-25	13	-2
Frederick, MD	5	23	52	25
Garrett	-2	-7	46	7
Harford	8	12	45	-10
Howard	19	23	55	35
Montgomery	2	-4	17	2
Prince George's	-10	4	11	-6
Queen Anne's	-1	2	50	20
St. Mary's	4	12	52	19
Talbot	2	-7	27	43
Washington	4	10	21	-14
Baltimore City	0	-29	-10	-3
Adams	11	2	15	10
Allegheny	7	-5	9	-3
Bedford	4	64	17	9
Fayette	-2	3	18	2
Franklin	16	-6	24	-28
Fulton	9	92	18	7
Somerset	-5	4	12	13
Westmoreland	9	14	17	4
York	7	-1	17	8
Arlington	13	-5	10	-16
Clarke	-7	6	12	46
Culpeper	18	1	31	36
Fairfax	18	-7	38	1
Fauquier	20	16	30	-31
Frederick, VA	10	20	30	25
King George	20	6	58	12
Loudoun	52	40	107	69
Prince William	43	8	42	23
Rappahannock	26	-27	61	12
Spotsylvania	32	7	55	38
Stafford	21	19	112	36
Warren	59	16	38	13
Alexandria City	59	-18	12	-17
Berkeley	-6	9	42	28
Grant	-53	4	1	4
Hampshire	-13	7	39	-18
Jefferson	-13	0	38	20
Mineral	-14	-30	24	-1
Morgan	-13	10	21	18
Preston	-20	49	13	-1

Change in Employment by Industry



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

Agriculture and Natural Resources
Construction and Manufacturing
Sales and Services
Government

0 20 40 60 80 100%

	A&NR	C&M	S&S	GOV
National	6	6	25	5
Maryland	2	-7	17	2
Pennsylvania	5	-4	15	0
Virginia	7	-1	28	0
West Virginia	-20	1	22	9

Woods & Poole data groups all Virginia independent cities (except Alexandria) with their surrounding county.

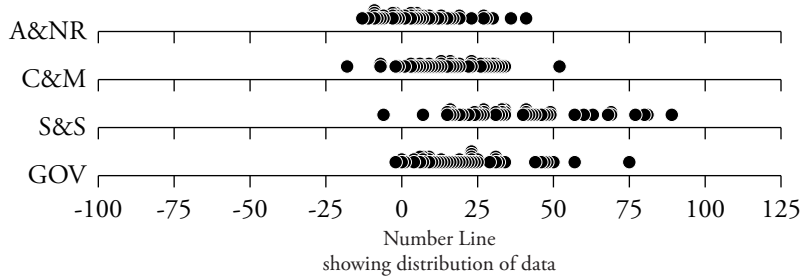
N

0 20 40 60 80 100

miles

Projected Change in Employment by Industry

Jobs in the four industrial sectors are in a constant state of flux. A projected decline or increase in a certain industrial sector may show which skills could be in demand at a future date. This could lead to a change in migration patterns in the counties around the parks as new people arrive to take advantage of the new employment opportunities. Within the National Capital Parks region of interest (2000 - 2020), the greatest projected increases are in Sales and Services.[10]

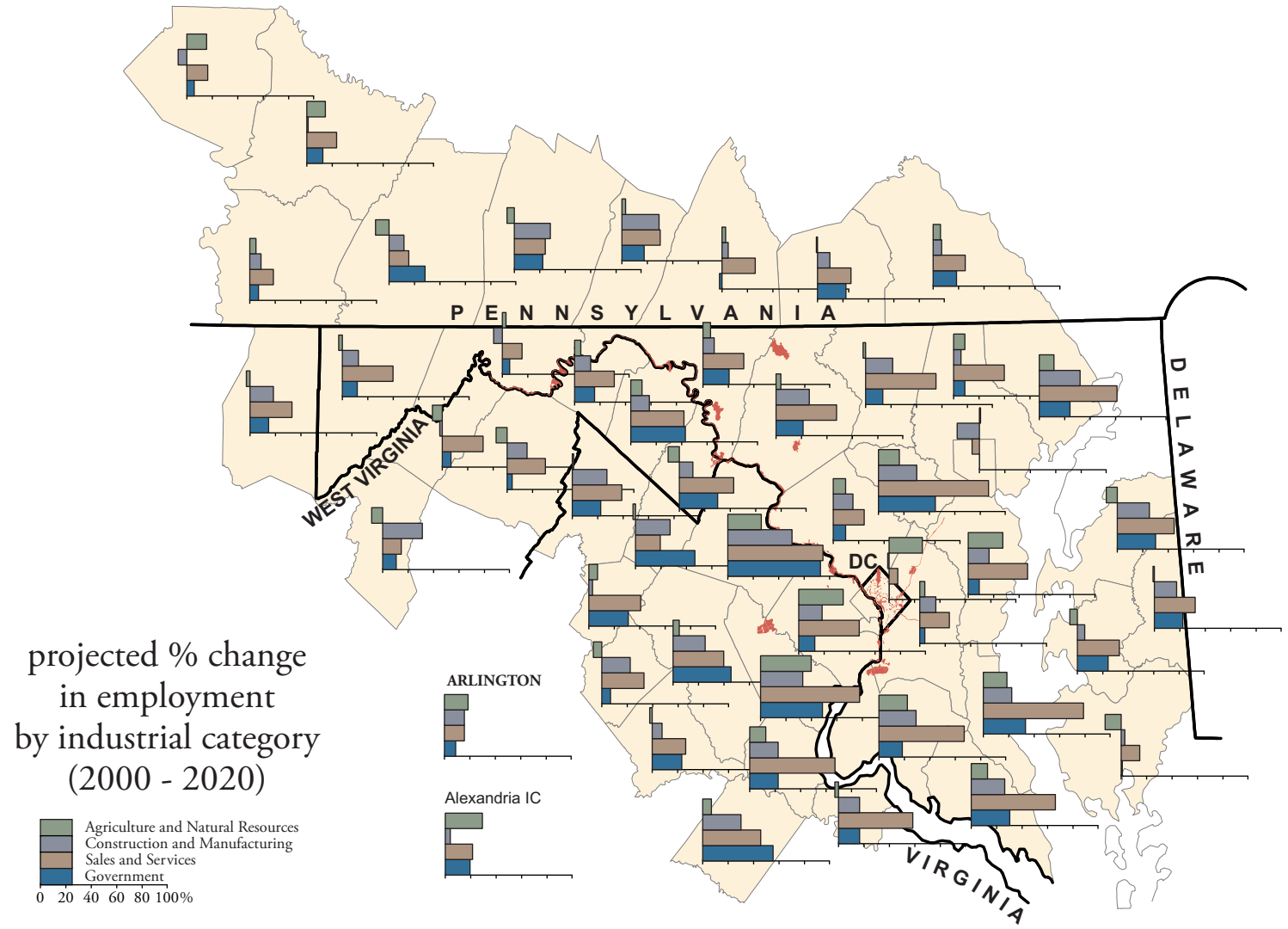


A&NR = Agriculture and Natural Resources
C&M = Construction and Manufacturing
S&S = Sales and Services
GOV = Government

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

	A&NR	C&M	S&S	GOV
D.C.	27	-1	7	0
Allegany	3	-7	16	6
Anne Arundel	28	17	48	9
Baltimore	9	6	41	9
Calvert	19	23	81	34
Caroline	-1	18	33	23
Carroll	-2	22	57	14
Charles	23	30	69	19
Dorchester	-13	3	15	1
Frederick, MD	4	27	49	22
Garrett	-3	13	41	12
Harford	12	33	63	25
Howard	17	31	89	46
Montgomery	10	16	25	10
Prince George's	4	13	24	4
Queen Anne's	-9	26	46	31
St. Mary's	13	27	68	31
Talbot	-6	6	34	25
Washington	6	9	33	21
Baltimore City	1	-18	-6	0
Adams	-1	10	27	23
Allegheny	16	-7	17	6
Bedford	-6	29	25	23
Fayette	5	9	19	7
Franklin	3	5	27	-2
Fulton	3	30	31	18
Somerset	-11	12	16	29
Westmoreland	15	1	24	13
York	6	7	26	19
Arlington	19	16	16	9
Clarke	-2	28	20	48
Culpeper	-2	8	27	24
Fairfax	36	19	49	13
Fauquier	5	26	41	47
Frederick, VA	1	28	40	23
King George	-3	17	60	17
Loudoun	27	52	77	75
Prince William	41	34	80	50
Rappahannock	-7	23	34	7
Spotsylvania	7	31	47	57
Stafford	13	23	69	23
Warren	7	3	42	32
Alexandria City	30	4	22	20
Berkeley	9	15	43	44
Grant	-9	32	15	11
Hampshire	-9	16	31	4
Jefferson	-9	11	44	31
Mineral	-8	-2	33	7
Morgan	5	13	32	16
Preston	-3	19	34	15

Projected Change in Employment by Industry

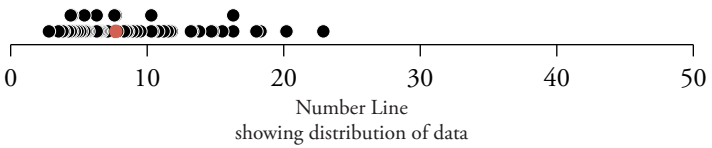


	A&NR	C&M	S&S	GOV
National	8	10	33	23
Maryland	6	11	33	11
Pennsylvania	5	1	23	14
Virginia	6	12	37	21
West Virginia	6	2	32	21

Woods & Poole data groups all Virginia independent cities (except Alexandria) with their surrounding county.

Poverty

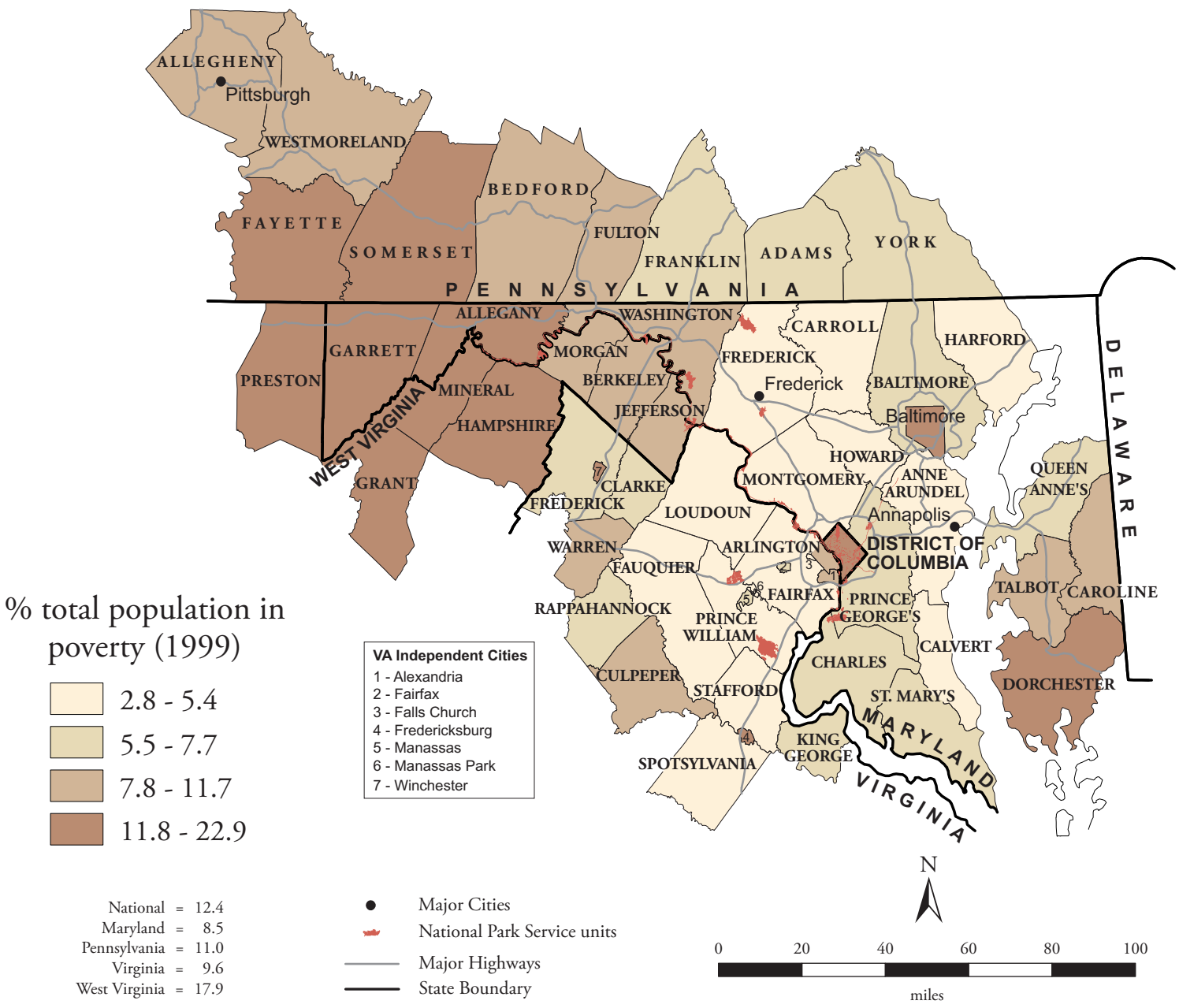
Poverty is officially defined as the condition of living in a household with income below the federally-determined poverty threshold ($17,029 in 1999 for a family of four people). The extent of poverty can be measured as the percentage of the total population living below that threshold. Those living in poverty can face such difficulties as finding adequate housing and health care, getting enough food, and reaching job sites and government services, including parks. The level of poverty in the park region necessarily becomes significant to park management decisions and priorities. Within the National Capital Parks region of interest, the incidence of poverty (1999) ranges from 2.8% (Loudoun) to 22.9% (Baltimore City).[11]



% total population in poverty (1999)

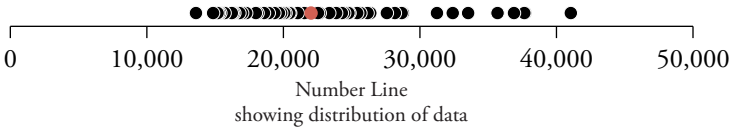
Loudoun	2.8	Manassas Park City	5.2	**Prince George's**	7.7	Winchester City	13.2
Stafford	3.5	Montgomery	5.4	Arlington	7.8	Garrett	13.3
Carroll	3.8	Fauquier	5.4	Talbot	8.3	Dorchester	13.8
Howard	3.9	Charles	5.5	Warren	8.5	Mineral	14.7
Falls Church City	4.2	King George	5.6	Westmoreland	8.6	Allegany	14.8
Calvert	4.4	Fairfax City	5.7	Alexandria City	8.9	Fredericksburg City	15.5
Prince William	4.4	Queen Anne's	6.3	Culpeper	9.2	Grant	16.3
Frederick	4.5	Manassas City	6.3	Washington	9.5	Hampshire	16.3
Fairfax	4.5	Frederick	6.4	Bedford	10.3	Fayette	18.0
Spotsylvania	4.7	Baltimore	6.5	Jefferson	10.3	Preston	18.3
Harford	4.9	Clarke	6.6	Morgan	10.4	D.C.	20.2
Anne Arundel	5.1	York	6.7	Fulton	10.8	Baltimore City	22.9
		Adams	7.1	Allegheny	11.2		
		St. Mary's	7.2	Berkeley	11.5		
		Franklin	7.6	Caroline	11.7		
		Rappahannock	7.6	Somerset	11.8		

Poverty


ALLEGHENY
Pittsburgh
WESTMORELAND
FAYETTE
SOMERSET
BEDFORD
FULTON
FRANKLIN
ADAMS
YORK
PENNSYLVANIA
ALLEGANY
WASHINGTON
GARRETT
MORGAN
PRESTON
MINERAL
BERKELEY
JEFFERSON
HAMPSHIRE
WEST VIRGINIA
GRANT
CARROLL
HARFORD
FREDERICK
Frederick
BALTIMORE
Baltimore
DELAWARE
HOWARD
MONTGOMERY
ANNE ARUNDEL
QUEEN ANNE'S
CLARKE
FREDERICK
LOUDOUN
Annapolis
WARREN
ARLINGTON
DISTRICT OF COLUMBIA
FAUQUIER
FAIRFAX
PRINCE GEORGE'S
TALBOT
CAROLINE
RAPPAHANNOCK
PRINCE WILLIAM
CALVERT
CHARLES
CULPEPER
STAFFORD
ST. MARY'S
DORCHESTER
KING GEORGE
SPOTSYLVANIA
MARYLAND
VIRGINIA
VA Independent Cities
1 - Alexandria
2 - Fairfax
3 - Falls Church
4 - Fredericksburg
5 - Manassas
6 - Manassas Park
7 - Winchester
% total population in poverty (1999)
2.8 - 5.4
5.5 - 7.7
7.8 - 11.7
11.8 - 22.9
National = 12.4
Maryland = 8.5
Pennsylvania = 11.0
Virginia = 9.6
West Virginia = 17.9
Major Cities
National Park Service units
Major Highways
State Boundary
N
0 20 40 60 80 100
miles

Personal Income

Personal income provides an indication of the relative affluence of counties in the region. Variations in average income per person across the region can influence the manner in which residents use tools, such as grassroots organizing, fundraising, legal action, or election cycles, to make local concerns a government priority. Park management and resource protection often require that local relationships be established that transcend differences in wealth and affluence. Within the National Capital Parks region of interest, average income per person (1999) ranges from $13,596 (Preston) to $41,051 (Falls Church City).[12]

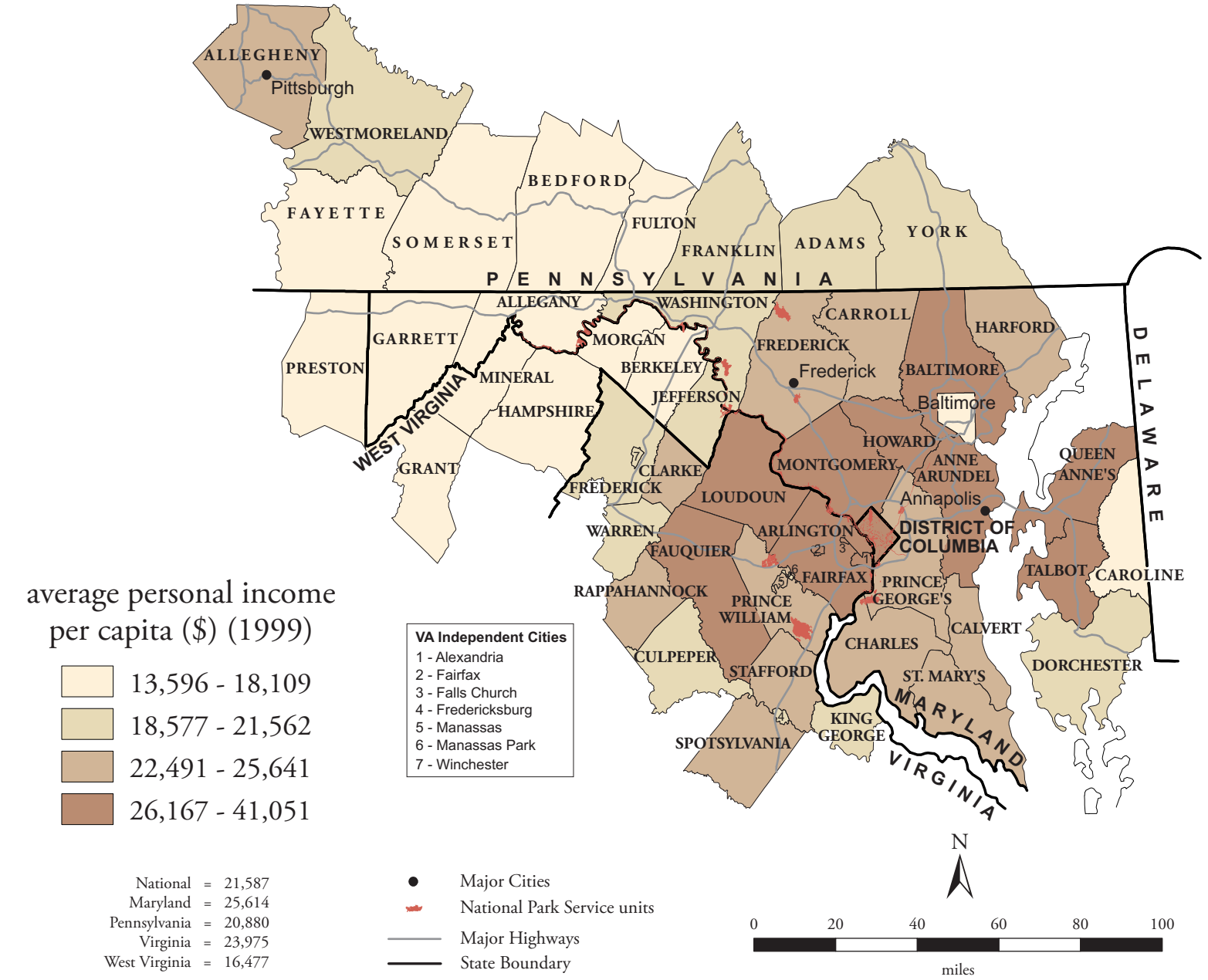


Number Line
showing distribution of data

average personal income per capita ($) (1999)

Preston	13,596	Berkeley	17,982	**median**	**22,027**	Queen Anne's	26,364
Hampshire	14,851	Morgan	18,109	Allegheny	22,491	Anne Arundel	27,578
Somerset	15,178	Adams	18,577	Spotsylvania	22,536	Talbot	28,164
Fayette	15,274	Dorchester	18,929	St. Mary's	22,662	D.C.	28,659
Mineral	15,384	Franklin	19,339	Prince George's	23,360	Fauquier	28,757
Grant	15,696	Westmoreland	19,674	Carroll	23,829	Fairfax City	31,247
Garrett	16,219	Warren	19,841	Rappahannock	23,863	Howard	32,402
Bedford	16,316	Washington	20,062	Harford	24,232	Loudoun	33,530
Fulton	16,409	Culpeper	20,162	Charles	24,285	Montgomery	35,684
Allegany	16,780	Jefferson	20,441	Manassas City	24,453	Fairfax	36,888
Baltimore City	16,978	Winchester City	20,500	Stafford	24,762	Alexandria City	37,645
Caroline	17,275	Manassas Park City	21,048	Clarke	24,844	Arlington	37,706
		Frederick	21,080	Frederick	25,404	Falls Church City	41,051
		York	21,086	Calvert	25,410		
		Fredericksburg City	21,527	Prince William	25,641		
		King George	21,562	Baltimore	26,167		

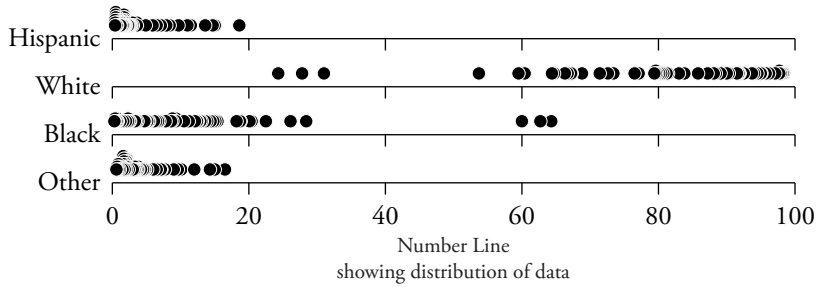
Personal Income



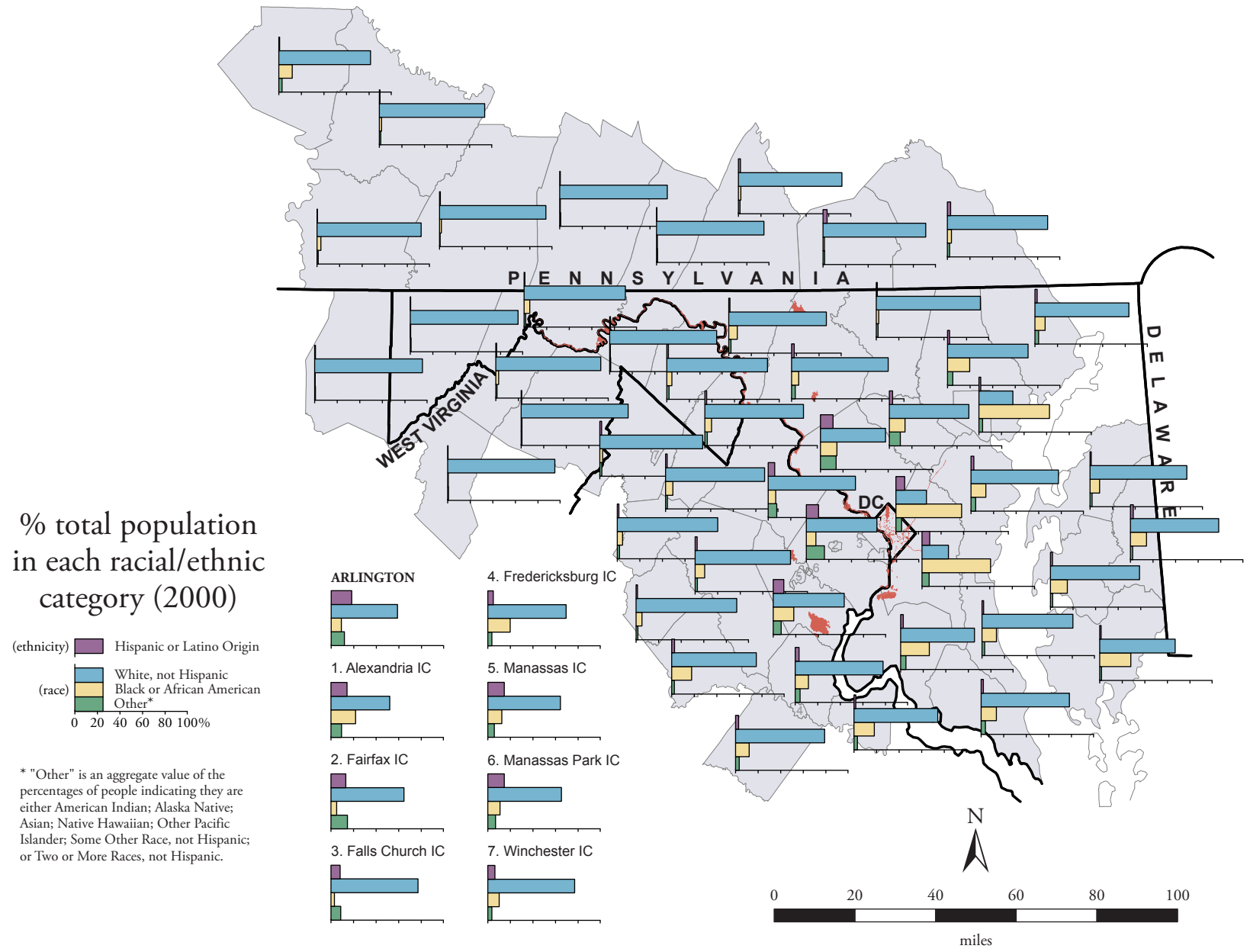
Racial and Ethnic Composition

Racial and ethnic composition is indicated by the relative size of each of the major race groups and the separate Hispanic ethnic category as classified by the U.S. Census Bureau. These characteristics of the region's population reveal its diversity, which informs park activities such as interpretation and outreach. Within the National Capital Parks region of interest (2000), White people constitute the largest racial group in all but three cases. In Washington D.C., Baltimore City, and Prince George's County, Blacks or African Americans represent the largest racial group. Arlington County has the highest percentage (19%) of the population of Hispanic or Latino origin.[13]

Note: Data are presented in a two-page table that follows the adjacent map.



Racial and Ethnic Composition



Racial and Ethnic Composition

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

	H	W	B	AI	A	NH	O	T
D.C.	8	28	60	0	3	0	0	2
Allegany	1	93	5	0	1	0	0	1
Anne Arundel	3	80	14	0	2	0	0	1
Baltimore	2	73	20	0	3	0	0	1
Calvert	2	83	13	0	1	0	0	1
Caroline	3	81	15	0	1	0	0	1
Carroll	1	95	2	0	1	0	0	1
Charles	2	67	26	1	2	0	0	2
Dorchester	1	69	28	0	1	0	0	1
Frederick	2	88	6	0	2	0	0	1
Garrett	0	98	0	0	0	0	0	0
Harford	2	86	9	0	2	0	0	1
Howard	3	73	14	0	8	0	0	2
Montgomery	12	60	15	0	11	0	0	2
Prince George's	7	24	63	0	4	0	0	2
Queen Anne's	1	88	9	0	1	0	0	1
St. Mary's	2	80	14	0	2	0	0	2
Talbot	2	81	15	0	1	0	0	1
Washington	1	89	8	0	1	0	0	1
Baltimore City	2	31	64	0	2	0	0	1
Adams	4	94	1	0	1	0	0	1
Allegheny	1	84	12	0	2	0	0	1
Bedford	1	98	0	0	0	0	0	1
Fayette	0	95	4	0	0	0	0	1
Franklin	2	95	2	0	1	0	0	1
Fulton	0	98	1	0	0	0	0	1

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

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

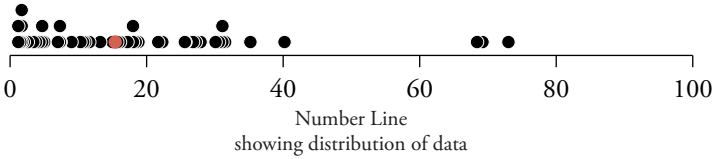
Racial and Ethnic Composition

	H	W	B	AI	A	NH	O	T
Somerset	1	97	2	0	0	0	0	0
Westmoreland	1	96	2	0	1	0	0	1
York	3	92	4	0	1	0	0	1
Arlington	19	60	9	0	9	0	0	3
Clarke	2	90	7	0	1	0	0	1
Culpeper	3	77	18	0	1	0	0	1
Fairfax	11	64	9	0	13	0	0	3
Fauquier	2	87	9	0	1	0	0	1
Frederick	2	94	3	0	1	0	0	1
King George	2	77	19	1	1	0	0	1
Loudoun	6	80	7	0	5	0	0	2
Prince William	10	65	19	0	4	0	0	3
Rappahannock	1	92	5	0	0	0	0	1
Spotsylvania	3	81	13	0	1	0	0	2
Stafford	4	80	12	1	2	0	0	2
Warren	2	92	5	0	0	0	0	1
Alexandria City	15	54	23	0	6	0	0	3
Fairfax City	14	67	5	0	12	0	0	2
Falls Church City	8	80	3	0	7	0	0	2
Fredericksburg City	5	71	20	0	2	0	0	2
Manassas City	15	66	13	0	3	0	0	2
Manassas Park City	15	67	11	0	4	0	0	2
Winchester City	7	79	11	0	2	0	0	2
Berkeley	2	92	5	0	1	0	0	1
Grant	1	98	1	0	0	0	0	0
Hampshire	1	98	1	0	0	0	0	1
Jefferson	2	90	6	0	1	0	0	1
Mineral	1	96	3	0	0	0	0	1
Morgan	1	98	1	0	0	0	0	1
Preston	1	98	0	0	0	0	0	1

National	13	69	12	1	4	0	0	2
Maryland	4	62	28	0	4	0	0	2
Pennsylvania	3	84	10	0	2	0	0	1
Virginia	5	70	20	0	4	0	0	2
West Virginia	1	95	3	0	1	0	0	1

Racial Diversity

Racial diversity is measured as the percentage of the population belonging to minority groups. In the current U.S. context, "minority" races are defined as non-White (Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Races). Interactions among people are often influenced by racial identity. Hence, it makes sense for institutions ranging from retailers to police to parks to consider regional racial diversity when recruiting and training staff, when designing public information and educational materials, and when soliciting public involvement in decision-making. Within the National Capital Parks region of interest, the percentage of racial minorities (2000) ranges from 1.2% (Garrett and Preston) to 73.0% (Prince George's).[14]

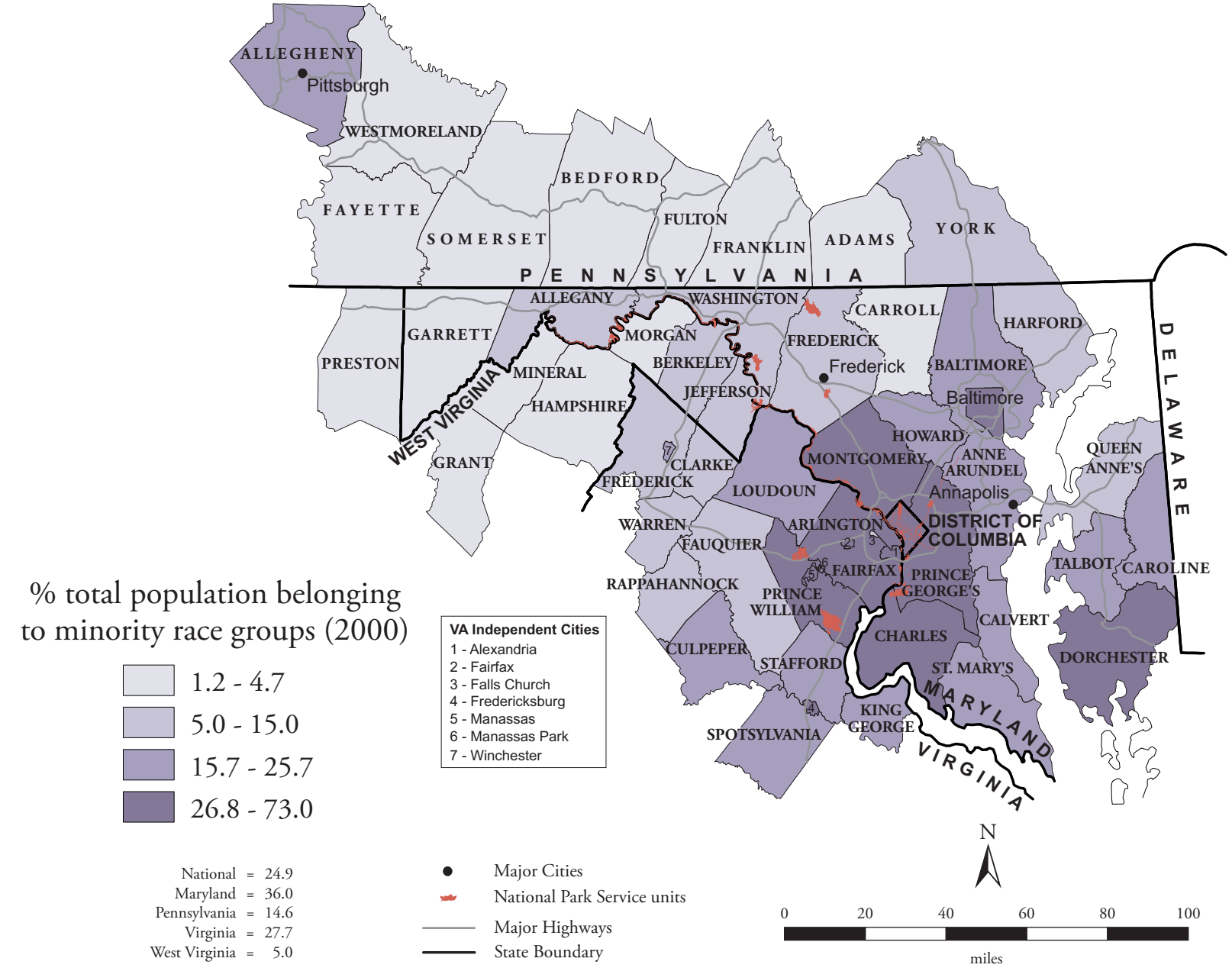


Number Line
showing distribution of data

% total population belonging to minority race groups (2000)

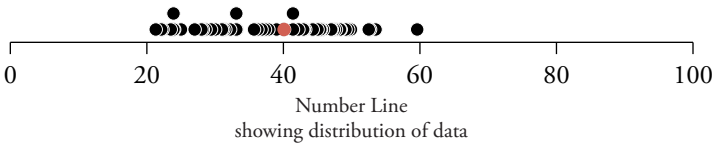
Garrett	1.2
Preston	1.2
Bedford	1.5
Fulton	1.7
Grant	1.7
Morgan	1.7
Hampshire	2.0
Somerset	2.6
Westmoreland	3.4
Mineral	3.8
Carroll	4.3
Adams	4.6
Fayette	4.7
Franklin	4.7
Frederick	5.0
Allegany	7.0
York	7.2
Warren	7.3
Berkeley	7.3
Rappahannock	7.4
Clarke	8.9
Jefferson	9.0
Washington	10.3
Frederick	10.7
Queen Anne's	11.0
Fauquier	11.6
Harford	13.2
Falls Church City	15.0
median	**15.4**
Allegheny	15.7
Calvert	16.1
Spotsylvania	17.1
Loudoun	17.2
Winchester City	17.9
Talbot	18.0
Stafford	18.0
Caroline	18.3
St. Mary's	18.4
Anne Arundel	18.8
Culpeper	21.7
King George	22.3
Baltimore	25.6
Howard	25.7
Fredericksburg City	26.8
Fairfax City	27.1
Manassas Park City	27.2
Manassas City	27.9
Fairfax	30.1
Dorchester	30.6
Arlington	31.1
Prince William	31.1
Charles	31.5
Montgomery	35.2
Alexandria City	40.2
Baltimore City	68.4
D.C.	69.2
Prince George's	73.0

Racial Diversity



Educational Attainment

Educational attainment indicators measure the average amount of formal education that a county's residents have received. One indicator of educational attainment is the percentage of adults who have attended or graduated from college. Educational attainment influences many aspects of life, such as how much money people earn, what they do for recreation, where they get their information, and how they participate in civic life. With regard to park management, the educational attainment of the general public is an important consideration in activities, such as marketing, public participation processes, and the design of interpretive programs. Within the National Capital Parks region of interest, the percentage of adults with some college education (2000) ranges from 21.3% (Fulton) to 59.6% (Loudoun).[15]

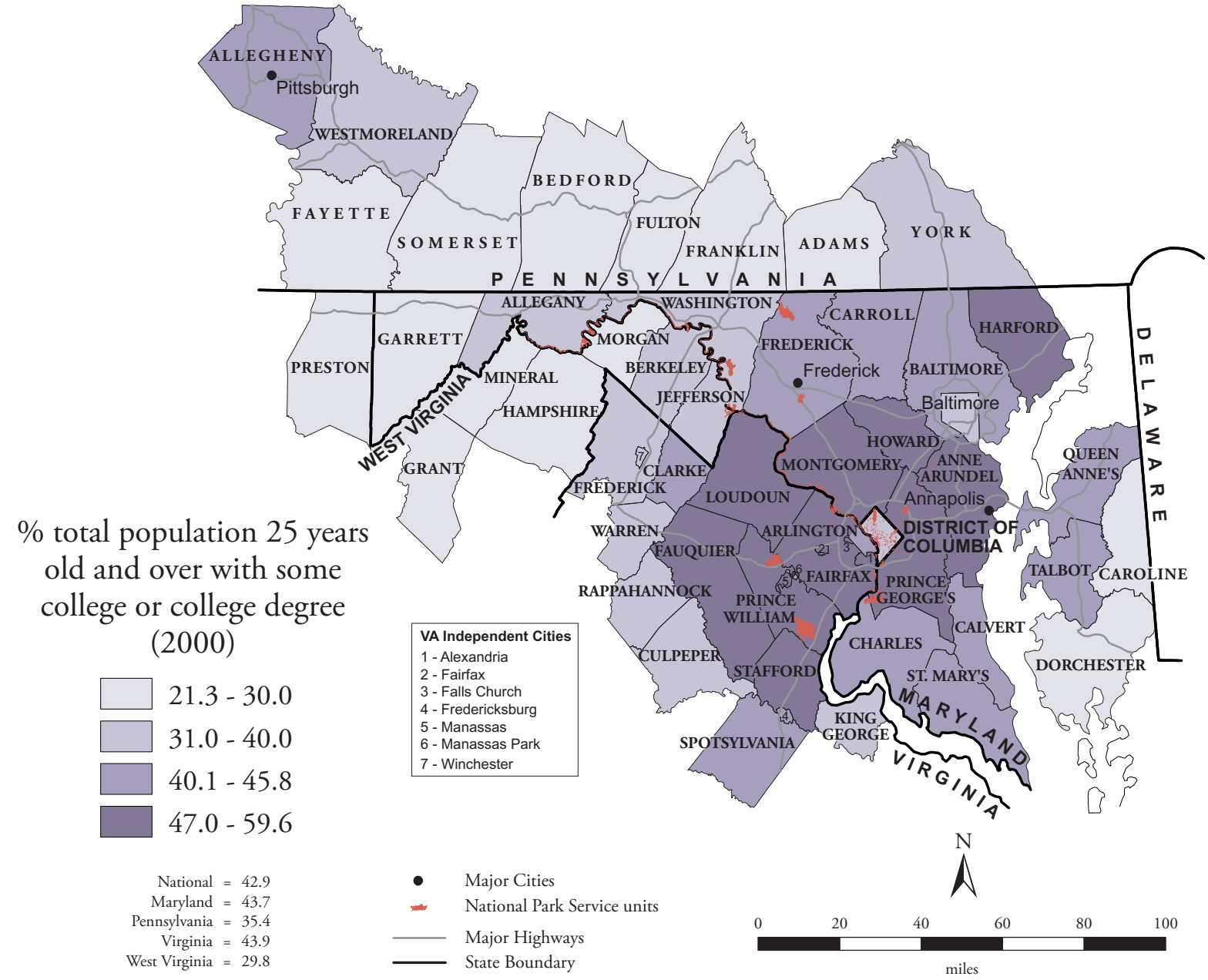


Number Line
showing distribution of data

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

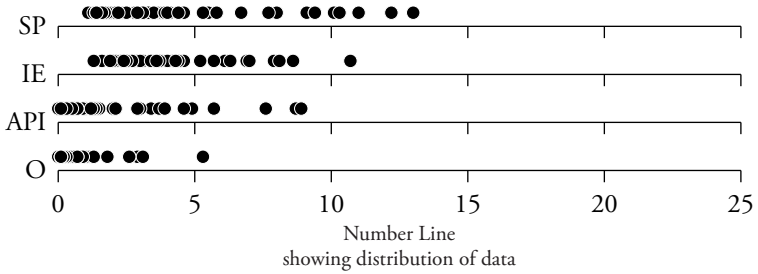
Fulton	21.3
Hampshire	22.1
Preston	22.3
Somerset	23.5
Fayette	23.9
Grant	23.9
Bedford	24.0
Morgan	25.0
Dorchester	27.0
Franklin	28.0
Caroline	28.2
Mineral	28.6
Adams	29.4
Garrett	30.0
Allegany	31.0
Berkeley	31.2
Baltimore City	31.5
Culpeper	32.2
Washington	33.1
Warren	33.1
York	33.2
Jefferson	35.7
D.C.	36.2
Frederick	36.8
Rappahannock	37.3
Westmoreland	37.8
Winchester City	39.0
King George	40.0
Fredericksburg City	**40.1**
Allegheny	41.4
Clarke	41.4
St. Mary's	42.2
Talbot	42.9
Manassas Park City	43.0
Carroll	43.2
Calvert	44.2
Baltimore	44.3
Queen Anne's	45.0
Spotsylvania	45.4
Arlington	45.5
Charles	45.7
Frederick	45.8
Anne Arundel	47.0
Manassas City	47.1
Prince George's	47.4
Fauquier	47.7
Fairfax City	48.3
Montgomery	48.4
Harford	49.1
Alexandria City	49.4
Falls Church City	49.5
Stafford	49.9
Fairfax	52.5
Prince William	52.7
Howard	53.5
Loudoun	59.6

Educational Attainment



Language

Indicators of language ability measure proficiency in languages other than English. One approach is to measure proficiency by collecting information about the primary, non-English language spoken at the household level. Households are an important place where people may feel most comfortable speaking in their primary language. Awareness of the language spoken at home (other than English), by major language category, can inform park managers about the relative diversity of languages in the counties in their region. Such information can be used to develop outreach and interpretive programs. Within the National Capital Parks region of interest (2000), Spanish- or Indo-European-speaking households are generally the largest category as a percentage of all households.[16]

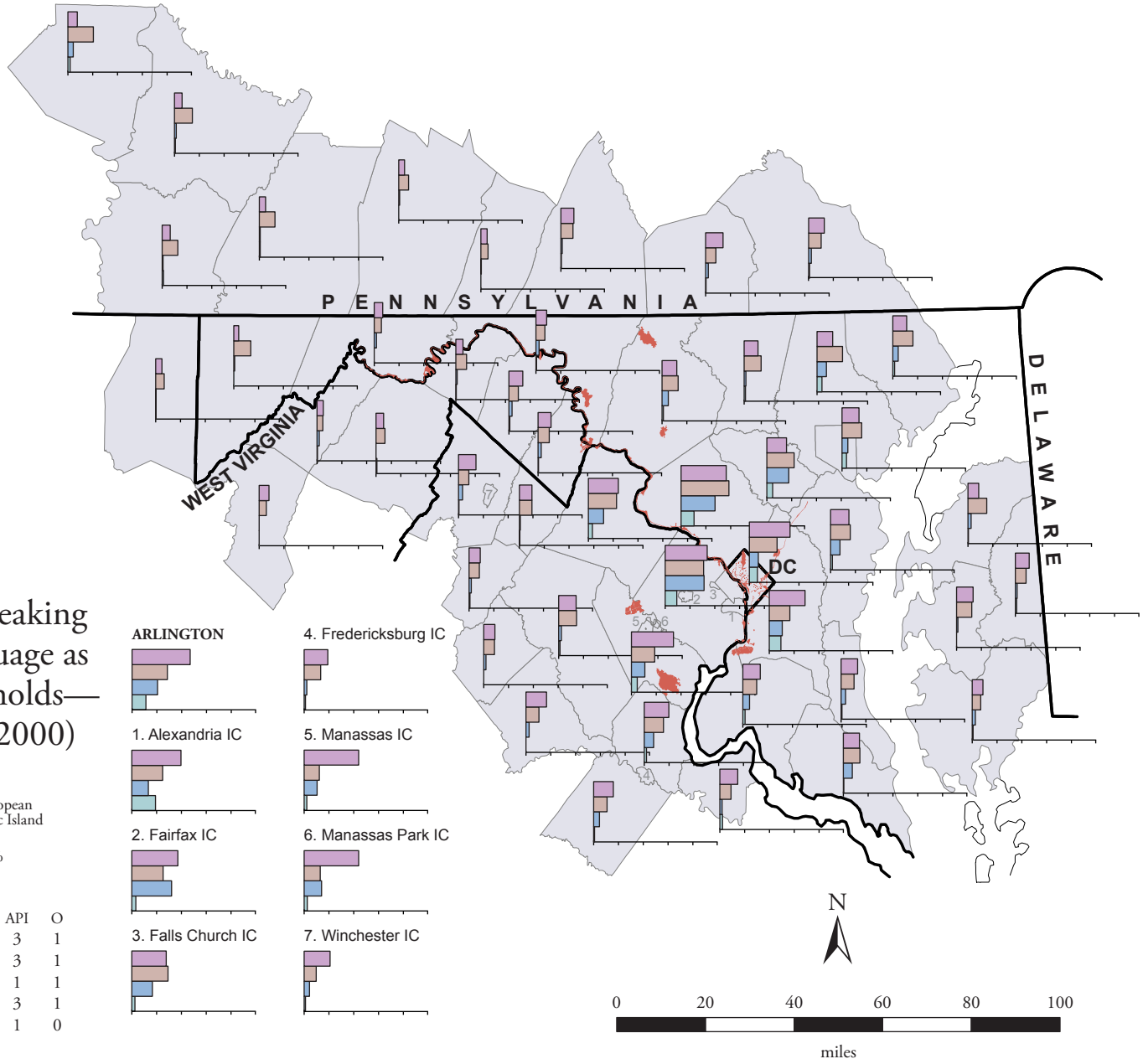


SP = Spanish
IE = Other Indo-European
API = Asian and Pacific Island
O = Other

households speaking a foreign language as % of all households—by category (2000)

	SP	IE	API	O
D.C.	9	6	2	2
Allegany	2	2	1	0
Anne Arundel	4	4	2	0
Baltimore	3	6	2	1
Calvert	4	3	1	0
Caroline	3	2	0	0
Carroll	3	4	0	0
Charles	4	3	1	0
Dorchester	2	2	1	0
Frederick	3	4	1	0
Garrett	1	4	0	0
Harford	3	5	1	0
Howard	4	6	5	1
Montgomery	10	11	8	3
Prince George's	8	5	3	3
Queen Anne's	2	4	1	0
St. Mary's	4	4	2	0
Talbot	4	3	0	0
Washington	2	2	1	0
Baltimore City	4	4	1	1
Adams	4	2	1	0
Allegheny	2	6	1	1
Bedford	1	2	0	0
Fayette	2	3	0	0
Franklin	3	3	0	0
Fulton	1	2	0	0
Somerset	1	4	0	0
Westmoreland	2	4	0	0
York	3	3	1	0
Arlington	13	8	6	3
Clarke	3	3	0	0
Culpeper	5	3	1	0
Fairfax	9	9	9	3
Fauquier	4	4	1	0
Frederick	4	2	1	0
King George	4	2	0	1
Loudoun	7	6	3	1
Prince William	9	5	3	1
Rappahannock	2	2	0	0
Spotsylvania	4	3	1	0
Stafford	5	4	2	0
Warren	3	2	0	0
Alexandria City	11	7	4	5
Fairfax City	10	7	9	1
Falls Church City	8	8	5	1
Fredericksburg City	5	4	1	0
Manassas City	12	3	3	1
Manassas Park City	12	4	4	1
Winchester City	6	3	1	0
Berkeley	3	2	1	0
Grant	2	2	0	0
Hampshire	2	2	0	0
Jefferson	3	3	1	0
Mineral	1	1	0	0
Morgan	2	2	0	0
Preston	1	2	0	0

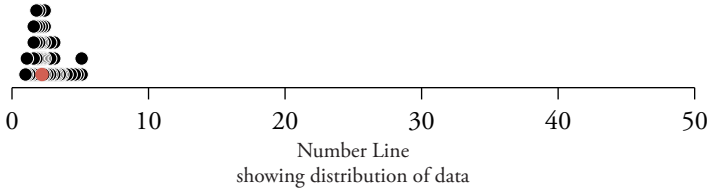
Language



	SP	IE	API	O
National	10	5	3	1
Maryland	5	5	3	1
Pennsylvania	4	5	1	1
Virginia	5	4	3	1
West Virginia	2	2	1	0

Recreation/Tourism Establishments

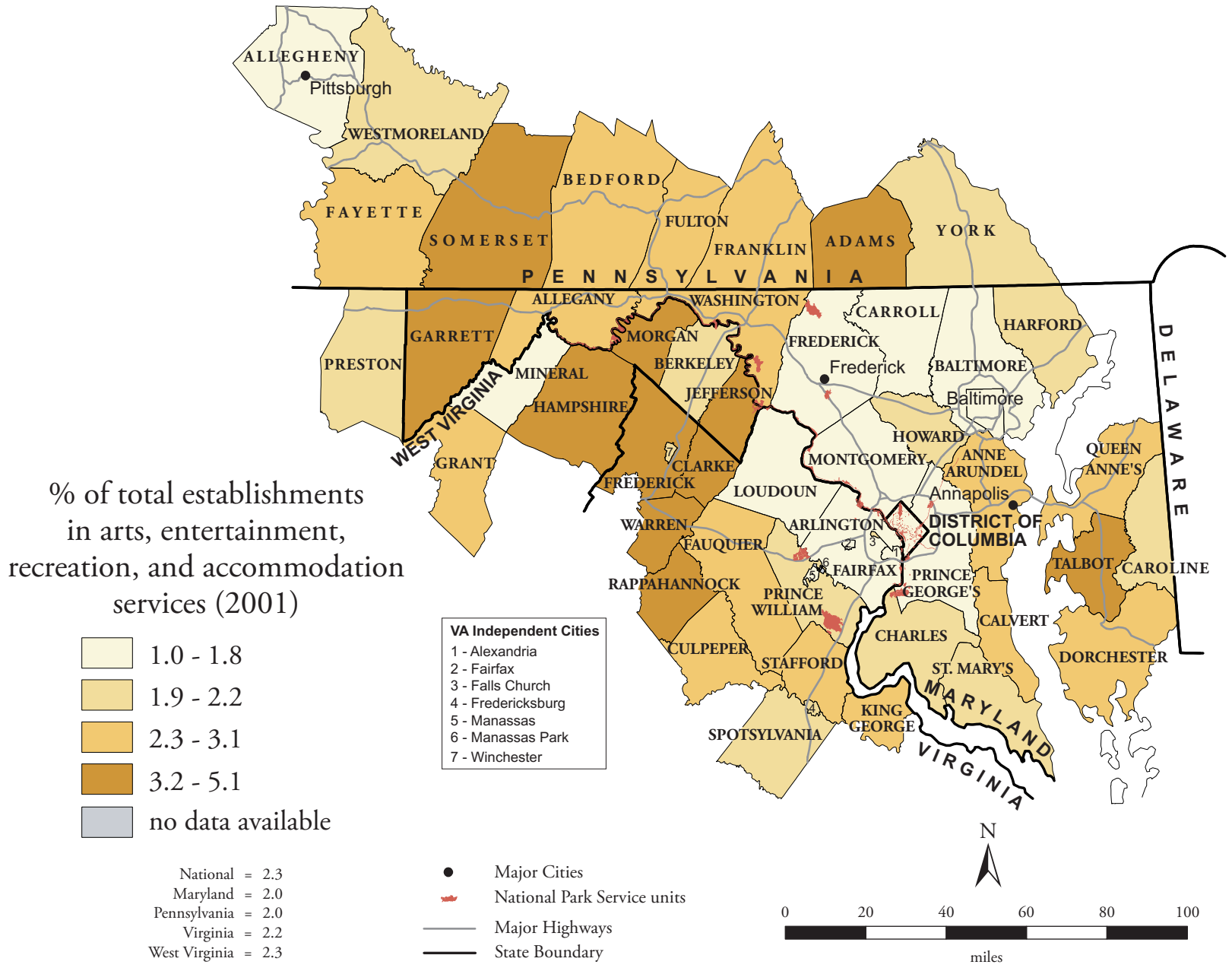
The recreation and tourism industry is measured using two categories: the arts, entertainment and recreation sector (ranging from museums and concerts, to sporting events and amusement parks) and the accommodation subsector of the accomodation and food services sector (ranging from hotels to campsites). The size of these sectors is a broad indicator of a county's economic reliance on recreation and tourism relative to the other sectors of the economy. Recreation and tourism establishments can be proponents of actions that enhance their area's attractiveness as a visitor destination (such as transportation improvements, protection of scenic or cultural landmarks, or marketing campaigns). Recreation and tourism establishments also can be vulnerable to, and thus wary of, actions, policies, or chance events that could affect business, such as visitor use restrictions, fires, or economic downturns. Within the National Capital Parks region of interest, the percentage of total establishments in arts, entertainment, recreation, and accommodation services (2001) ranges from 1.0% (Manassas City) to 5.1% (Warren and Rappahannock).[17]



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

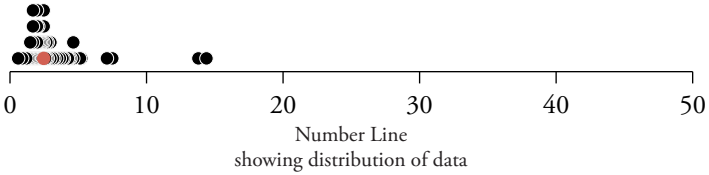
Manassas City	1.0	Allegheny	1.8	**Howard**	**2.2**	Fulton	3.1
Mineral	1.1	Loudoun	1.8	**Winchester City**	**2.2**	Fauquier	3.1
Fairfax City	1.1	Arlington	1.8	**Westmoreland**	**2.2**	Hampshire	3.2
Carroll	1.3	Baltimore	1.8	Calvert	2.3	Somerset	3.3
Baltimore City	1.4	D.C.	1.8	Allegany	2.3	Frederick	3.5
Fairfax	1.6	Harford	1.9	Washington	2.4	Talbot	3.6
Prince George's	1.6	Prince William	1.9	Dorchester	2.4	Garrett	3.7
Alexandria City	1.6	Preston	2.0	King George	2.4	Jefferson	4.0
Montgomery	1.6	Charles	2.0	Fayette	2.4	Clarke	4.3
Frederick	1.7	York	2.0	Anne Arundel	2.4	Morgan	4.6
		Falls Church City	2.0	Stafford	2.6	Adams	4.8
		St. Mary's	2.0	Grant	2.8	Warren	5.1
		Fredericksburg City	2.1	Franklin	2.8	Rappahannock	5.1
		Caroline	2.1	Culpeper	2.8	Manassas Park City	N/A
		Berkeley	2.1	Queen Anne's	2.9		
		Spotsylvania	**2.2**	Bedford	3.1		

Recreation/Tourism Establishments



Recreation/Tourism Employment

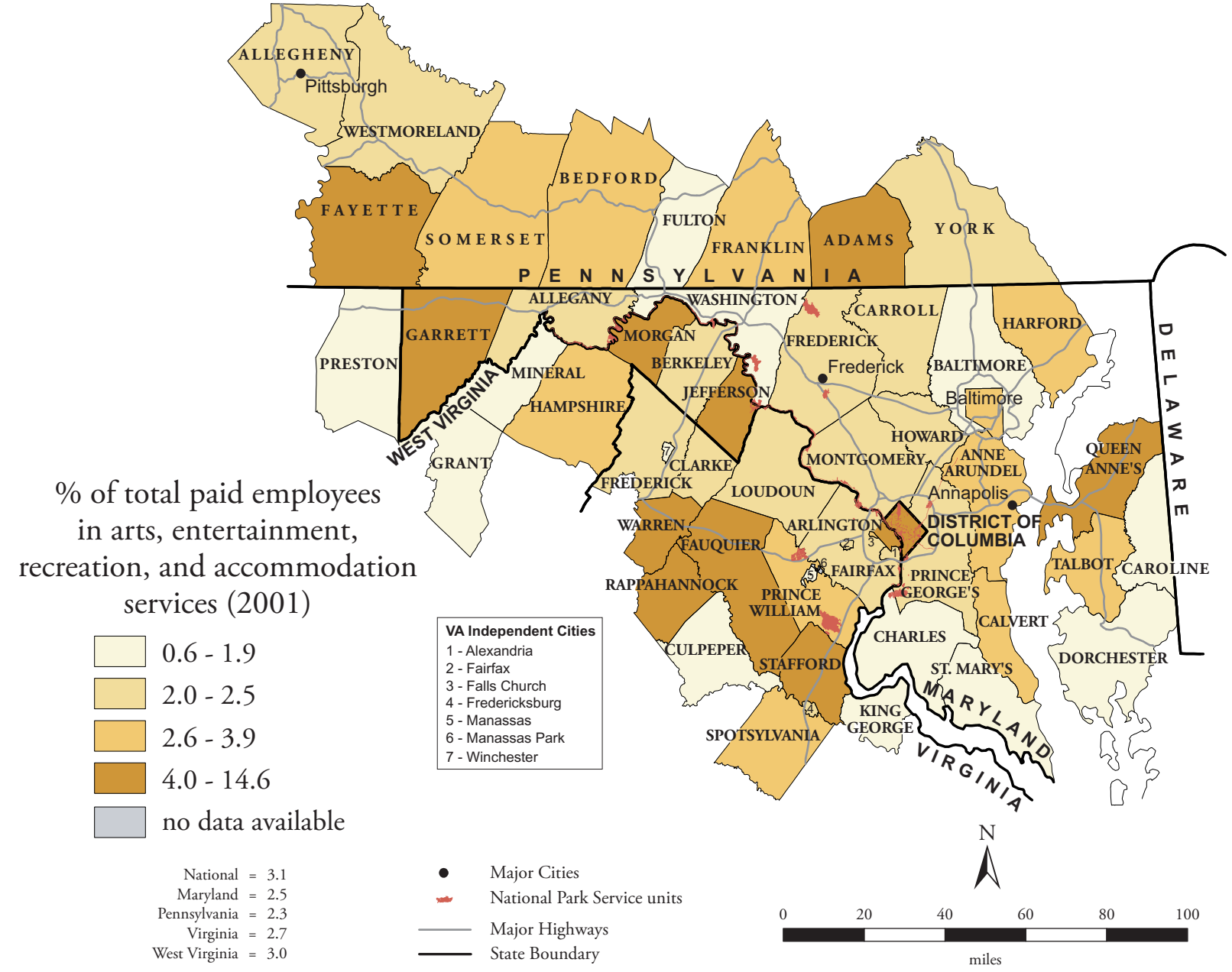
The significance of the recreation/tourism industry to a county economy can be indicated by the percentage of county workers that it employs. Workers counted as recreation and tourism employees include country club managers, blackjack dealers, campground employees, fishing guides, motel attendants, and other providers of recreation services. A high level of recreation/tourism employment may mean that residents have more disposable income or that the area attracts visitors or vacationers. Within the National Capital Parks region of interest, the percentage of total paid employees in arts, entertainment, recreation, and accommodation services (2001) ranges from 0.6% (Fulton) to 14.6% (Jefferson).[18]



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

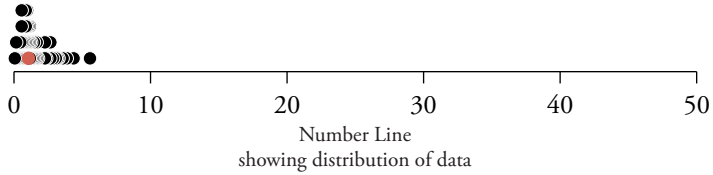
Fulton	0.6	Charles	1.7	Allegany	2.4	Bedford	3.9
Dorchester	0.9	St. Mary's	1.7	**Frederick**	**2.5**	Stafford	4.0
Manassas City	1.2	King George	1.8	**Loudoun**	**2.5**	Queen Anne's	4.3
Grant	1.3	Baltimore	1.9	**Berkeley**	**2.5**	D.C.	4.4
Mineral	1.4	Frederick	2.0	Alexandria City	2.5	Warren	4.5
Culpeper	1.5	Clarke	2.0	Harford	2.6	Arlington	4.7
Winchester City	1.5	Westmoreland	2.0	Spotsylvania	2.7	Fauquier	4.7
Preston	1.6	York	2.0	Somerset	2.7	Rappahannock	5.2
Washington	1.7	Howard	2.1	Anne Arundel	2.8	Adams	5.3
Caroline	1.7	Carroll	2.1	Prince William	2.8	Garrett	7.2
		Allegheny	2.1	Franklin	3.0	Fayette	7.6
		Prince George's	2.2	Baltimore City	3.0	Morgan	14.0
		Fredericksburg City	2.2	Falls Church City	3.2	Jefferson	14.6
		Fairfax City	2.3	Hampshire	3.3	Manassas Park City	N/A
		Fairfax	2.3	Calvert	3.5		
		Montgomery	2.4	Talbot	3.7		

Recreation/Tourism Employment



Recreation/Tourism Revenue

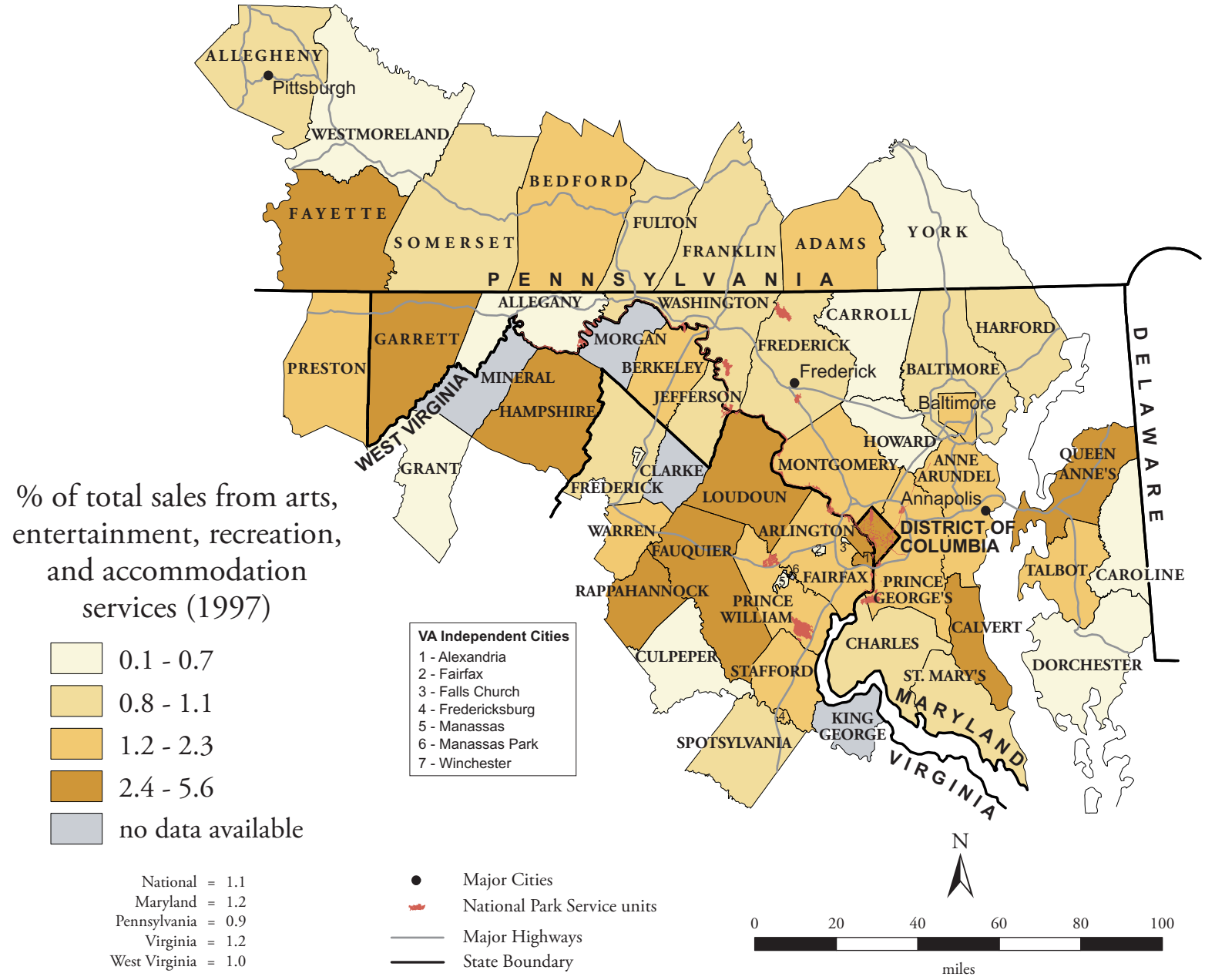
Recreation and tourism revenue is a key indicator of the economic importance of recreation and tourism to a county. Recreation and tourism revenue can be expressed as a percentage of total sales and service receipts. Recreation and tourism establishments can occupy an important position within a county economy because they attract visitor dollars from elsewhere. Secondary economic benefits are realized when these dollars are re-spent within the local economy or deposited in banks, where they provide capital to other businesses. Within the National Capital Parks region of interest, the percentage of total sales from arts, entertainment, recreation, and accommodation services (1997) ranges from 0.1% (Caroline) to 5.6% (Hampshire).[19]



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

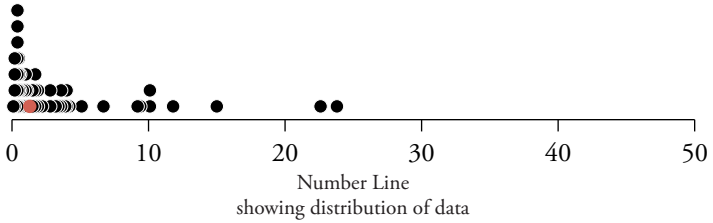
Caroline	0.1	Culpeper	0.6	Anne Arundel	1.2	Loudoun	2.7
Allegany	0.2	Carroll	0.7	Bedford	1.2	Fauquier	2.9
Manassas City	0.2	Fairfax City	0.7	Montgomery	1.2	Fayette	3.1
Dorchester	0.3	Jefferson	0.8	Berkeley	1.3	D.C.	3.2
Falls Church City	0.4	Harford	0.8	Adams	1.3	Garrett	3.3
Grant	0.5	Baltimore	0.9	Prince William	1.4	Rappahannock	3.6
York	0.5	Franklin	0.9	Fredericksburg City	1.5	Arlington	3.9
Howard	0.6	Washington	0.9	Preston	1.5	Calvert	4.4
Westmoreland	0.6	Frederick	0.9	Fairfax	1.6	Hampshire	5.6
Winchester City	0.6	St. Mary's	1.0	Talbot	1.7	Clarke	N/A
		Charles	1.0	Warren	1.7	King George	N/A
		Allegheny	1.0	Prince George's	1.8	Mineral	N/A
		Frederick	1.0	Stafford	2.3	Morgan	N/A
		Somerset	**1.1**	Baltimore City	2.3	Manassas Park City	N/A
		Fulton	**1.1**	Alexandria City	2.4		
		Spotsylvania	**1.1**	Queen Anne's	2.7		

Recreation/Tourism Revenue



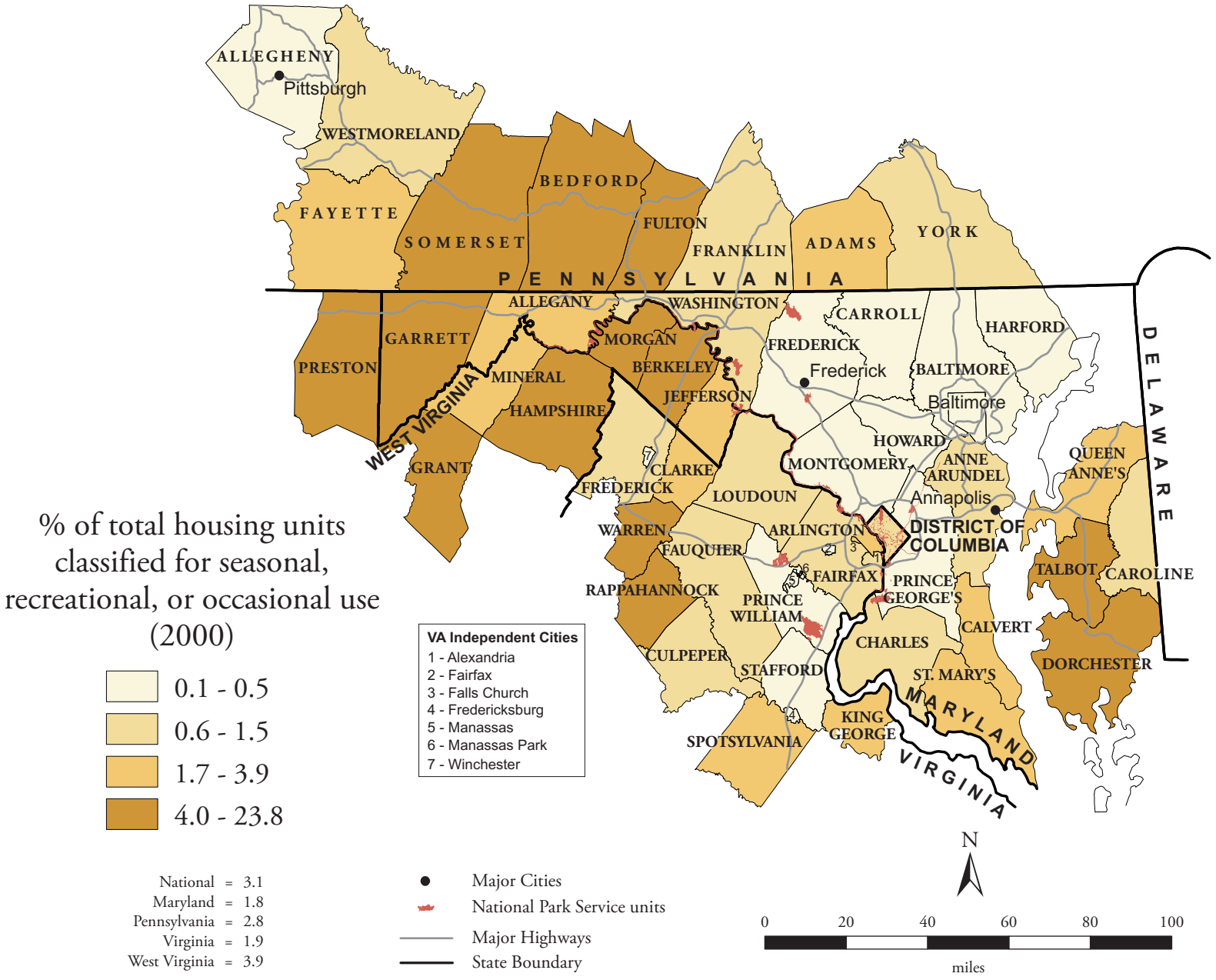
Seasonal Housing

Seasonal, recreational, and occasional use housing units are those intended for occupancy only during certain seasons of the year and are found primarily in resort areas. Parks with a large number of seasonal housing units located nearby can be considered "destination parks." Such parks attract people who can afford to travel a considerable distance and spend a few days in or near parks in the region. Within the National Capital Parks region of interest, the percentage of total housing units classified for seasonal, recreational, or occasional use (2000) ranges from 0.1% (Manassas Park City) to 23.8% (Garrett).[20]



% of total housing units classified for seasonal, recreational, or occasional use (2000)	
Manassas Park City	0.1
Prince George's	0.2
Carroll	0.2
Prince William	0.2
Manassas City	0.2
Howard	0.4
Allegheny	0.4
Harford	0.4
Fairfax City	0.4
Stafford	0.4
Baltimore	0.4
Frederick	0.4
Baltimore City	0.5
Fredericksburg City	0.5
Montgomery	0.5
Winchester City	0.5
Loudoun	0.6
Fairfax	0.6
York	0.6
Caroline	0.8
D.C.	0.8
Alexandria City	0.8
Washington	0.9
Charles	1.0
Westmoreland	1.0
Anne Arundel	1.0
Franklin	1.1
Culpeper	1.1
median	**1.3**
Frederick	1.5
Fauquier	1.5
Arlington	1.7
Allegany	1.7
Spotsylvania	1.7
Adams	1.9
Falls Church City	1.9
Fayette	2.2
Jefferson	2.8
Mineral	2.8
Clarke	3.2
King George	3.4
St. Mary's	3.6
Calvert	3.6
Queen Anne's	3.9
Berkeley	4.0
Warren	4.0
Dorchester	4.2
Preston	5.1
Talbot	6.7
Fulton	9.2
Rappahannock	9.4
Somerset	10.1
Bedford	10.1
Grant	11.8
Morgan	15.0
Hampshire	22.6
Garrett	23.8

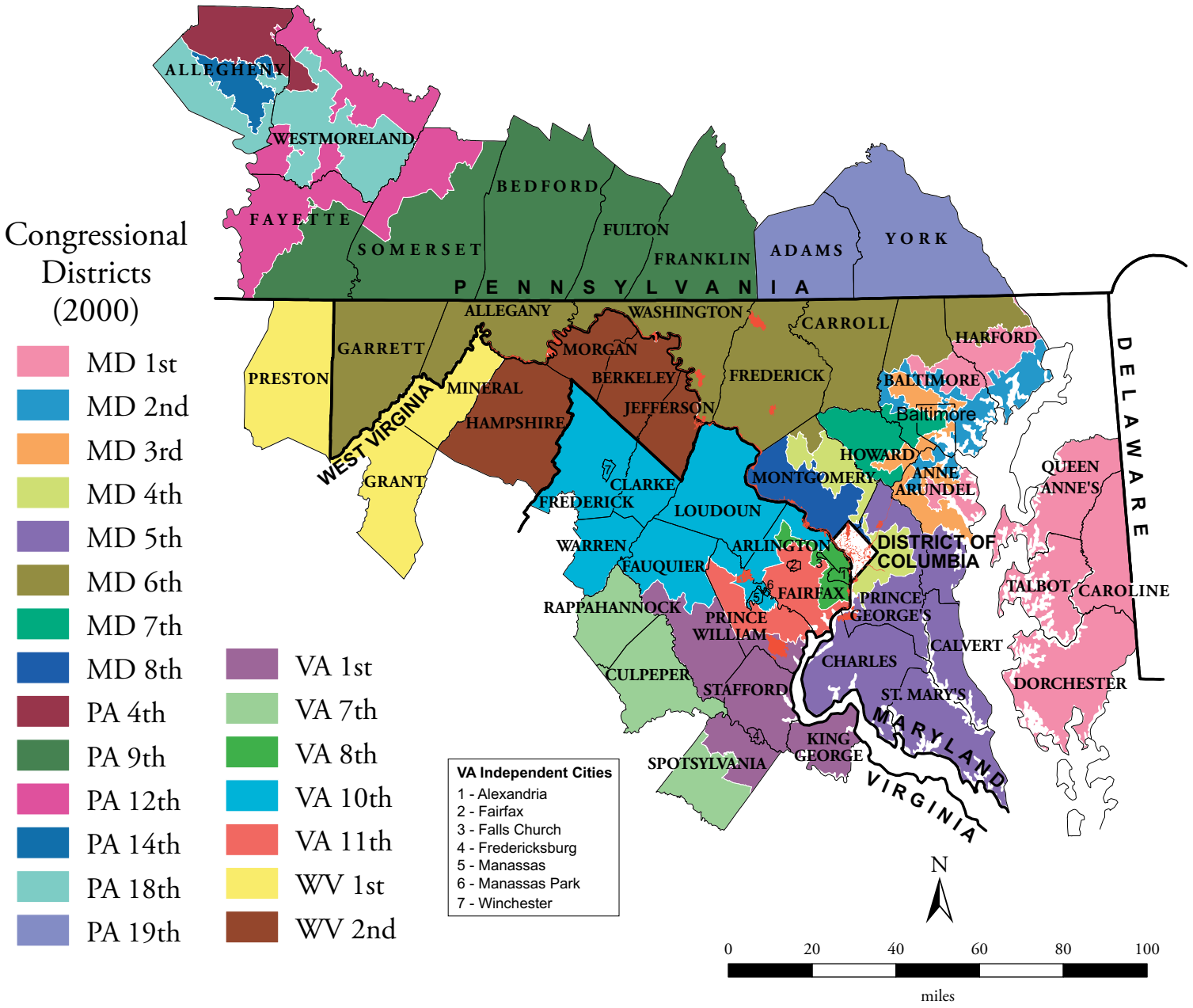
Seasonal Housing



Congressional Districts

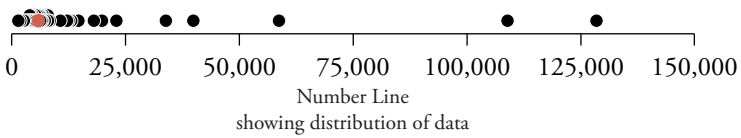
Congressional districts form a key layer in the political structure of a region of interest for a park. These districts, roughly equivalent in population, are defined by state legislatures based on the national census and redrawn every ten years. Members of Congress are key points of access for citizens seeking to influence federal-level policies and programs, including those related to federal lands such as national parks and national forests. The National Capital Parks region of interest includes all or portion of 21 Congressional districts: eight in Maryland, six in Pennsylvania, five in Virginia, and two in West Virginia. The districts for the 108th Congress are based on Census 2000.

Congressional Districts



Federal Expenditures

The importance of the federal government to a county economy can be indicated by the amount of federal expenditures per person. These expenditures can be a key source of dollars flowing into the county economy (in contrast, taxes and fees are an outflow of dollars). Federal spending can influence the park region through such wide-ranging initiatives as agricultural subsidies, social programs, military bases, and national parks. Within the National Capital Parks region of interest, federal expenditures per person (2002) range from $1,462 (Manassas Park City) to $128,499 (Fairfax City).[21]

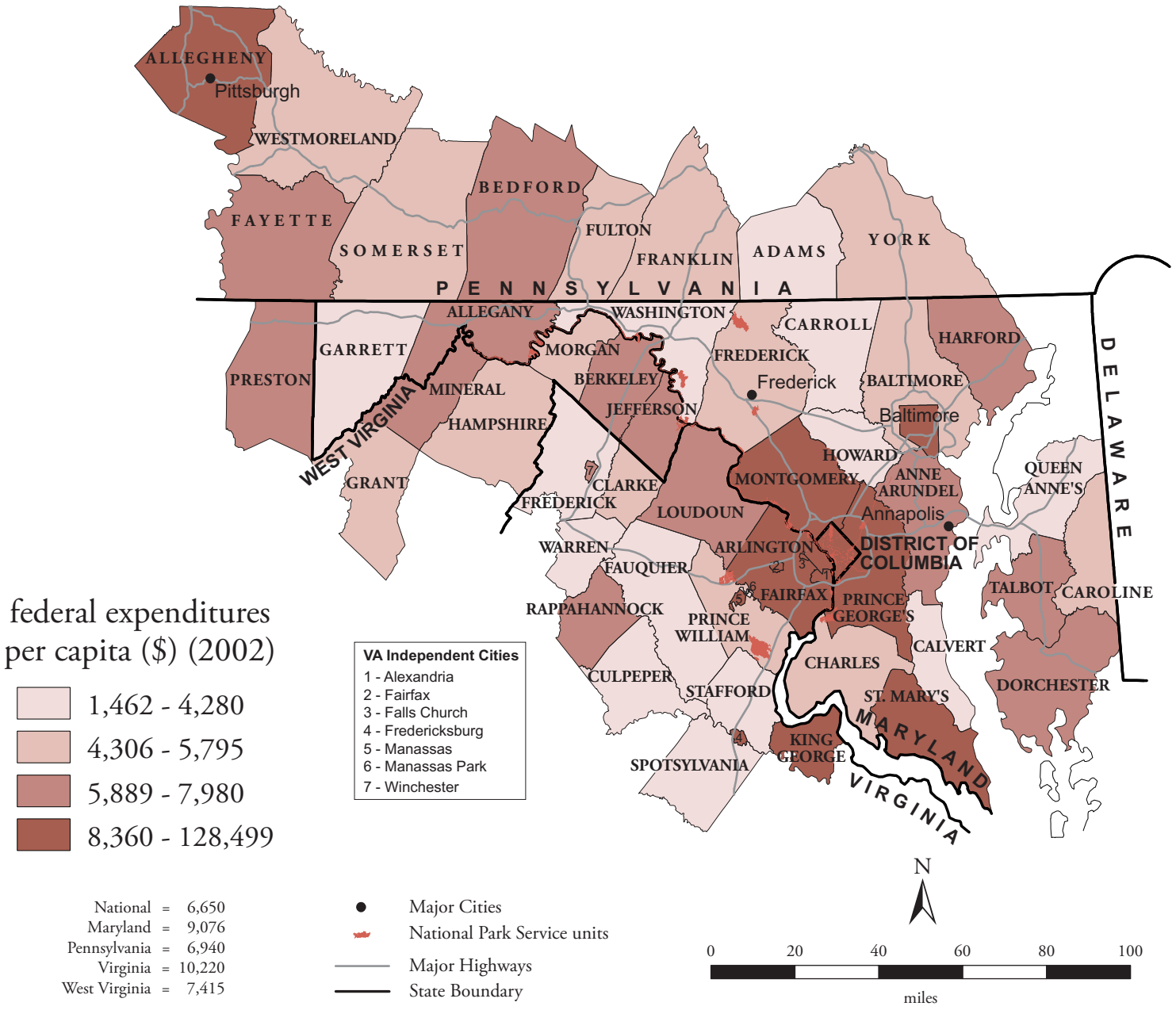


Number Line
showing distribution of data

federal expenditures per capita ($) (2002)

Manassas Park City	1,462	Washington	4,267	**median**	**5,842**	Prince George's	10,702
Spotsylvania	1,904	Adams	4,280	Preston	5,889	Fairfax	12,165
Frederick	2,661	Clarke	4,306	Rappahannock	5,902	Baltimore City	12,488
Stafford	2,899	Hampshire	4,556	Bedford	5,973	Montgomery	13,074
Calvert	3,247	Caroline	4,644	Jefferson	6,007	Fredericksburg City	14,670
Carroll	3,678	Morgan	4,696	Talbot	6,200	St. Mary's	18,062
Howard	3,956	Charles	4,883	Allegany	6,251	Manassas City	19,849
Warren	4,062	York	5,189	Dorchester	6,407	Alexandria City	23,009
Culpeper	4,162	Prince William	5,225	Berkeley	6,551	King George	33,881
Fauquier	4,205	Fulton	5,317	Mineral	6,746	Arlington	39,922
Queen Anne's	4,214	Franklin	5,340	Harford	6,789	D.C.	58,738
Garrett	4,218	Grant	5,633	Winchester City	6,881	Falls Church City	108,952
		Baltimore	5,675	Fayette	7,289	Fairfax City	128,499
		Somerset	5,705	Anne Arundel	7,936		
		Frederick	5,778	Loudoun	7,980		
		Westmoreland	5,795	Allegheny	8,360		

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 addressed effectively at the ecoregion level.

The National Capital Parks region of interest includes parts of three ecoregion divisions: Hot Continental, Hot Continental Regime Mountains, and Subtropical.

Bailey's Ecoregions

Ecoregions are ecosystems of regional extent, differentiated according to a hierarchical scheme that uses climate and vegetation as indicators of the extent of each unit. Robert Bailey of the U.S. Forest Service, U.S. Department of Agriculture, developed one system of ecoregional classifications (Bailey, R.G. 1995. *Description of the Ecoregions of the United States*, 2nd edition, Misc. Pub. No. 1391).

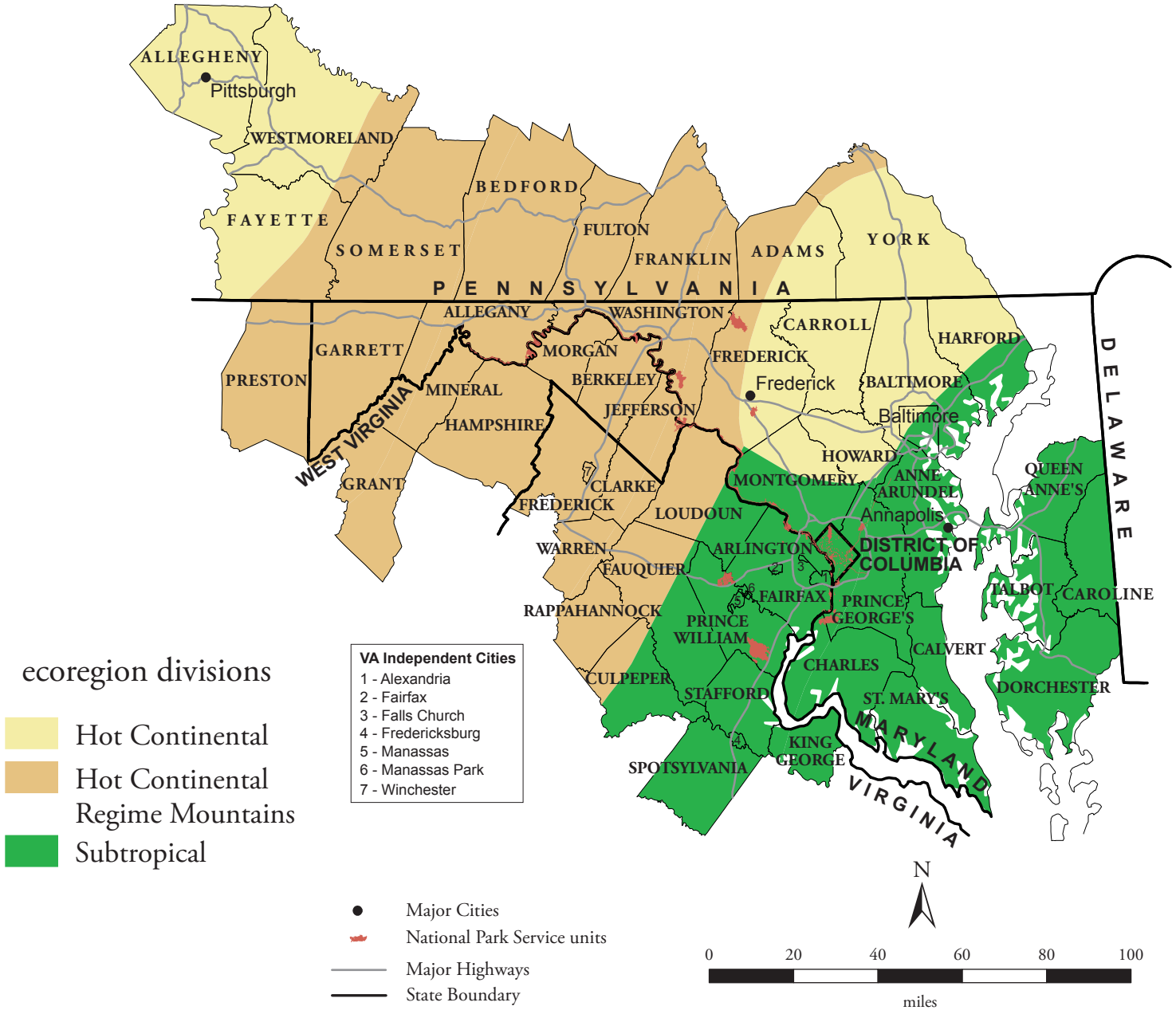
Descriptions of the three ecoregions that overlay the National Capital Parks region of interest are as follows:

Hot Continental – climate includes warm to hot summers and cold winters. Precipitation occurs throughout the year, with significant amounts during the summer. The temperate forest is typically composed of deciduous, broad-leafed trees that provide a canopy in the summer, but shed their leaves completely in the winter.

Hot Continental Regime Mountains – climate is temperate, with distinct summer and winter seasons, and all areas are subject to frost. Precipitation is distributed throughout the year, with snow accumulating during the winter. The forest is typically composed of an oak-pine forest mix. Chestnut was once abundant here, but a blight has eliminated it as a canopy tree.

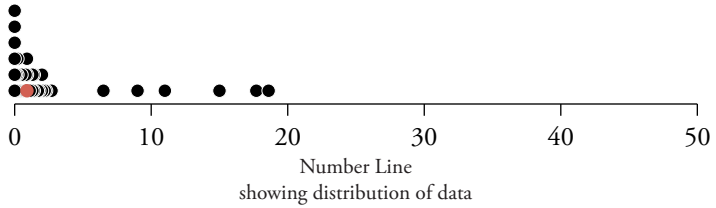
Subtropical – climate includes hot summers with high humidity and mild winters. However, frost occurs nearly every winter. Precipitation is distributed throughout the year, with a peak occurring during early spring or midsummer in the form of thunderstorms. Summer droughts can occur. Snow falls rarely and melts almost immediately. The forest is typically composed of broadleaf deciduous and needleleaf evergreen trees.

Ecoregions


ALLEGHENY
Pittsburgh
WESTMORELAND
FAYETTE
BEDFORD
SOMERSET
FULTON
FRANKLIN
ADAMS
YORK
PENNSYLVANIA
ALLEGANY
WASHINGTON
CARROLL
HARFORD
GARRETT
MORGAN
FREDERICK
PRESTON
MINERAL
BERKELEY
Frederick
BALTIMORE
Baltimore
JEFFERSON
HAMPSHIRE
WEST VIRGINIA
HOWARD
QUEEN ANNE'S
MONTGOMERY
ANNE ARUNDEL
GRANT
CLARKE
FREDERICK
LOUDOUN
Annapolis
DISTRICT OF COLUMBIA
WARREN
ARLINGTON
FAUQUIER
TALBOT
CAROLINE
FAIRFAX
PRINCE GEORGE'S
RAPPAHANNOCK
PRINCE WILLIAM
CALVERT
CHARLES
CULPEPER
STAFFORD
ST. MARY'S
DORCHESTER
KING GEORGE
SPOTSYLVANIA
MARYLAND
VIRGINIA
DELAWARE
ecoregion divisions
Hot Continental
Hot Continental Regime Mountains
Subtropical
VA Independent Cities
1 - Alexandria
2 - Fairfax
3 - Falls Church
4 - Fredericksburg
5 - Manassas
6 - Manassas Park
7 - Winchester
Major Cities
National Park Service units
Major Highways
State Boundary
N
0 20 40 60 80 100
miles

Federal Land Management

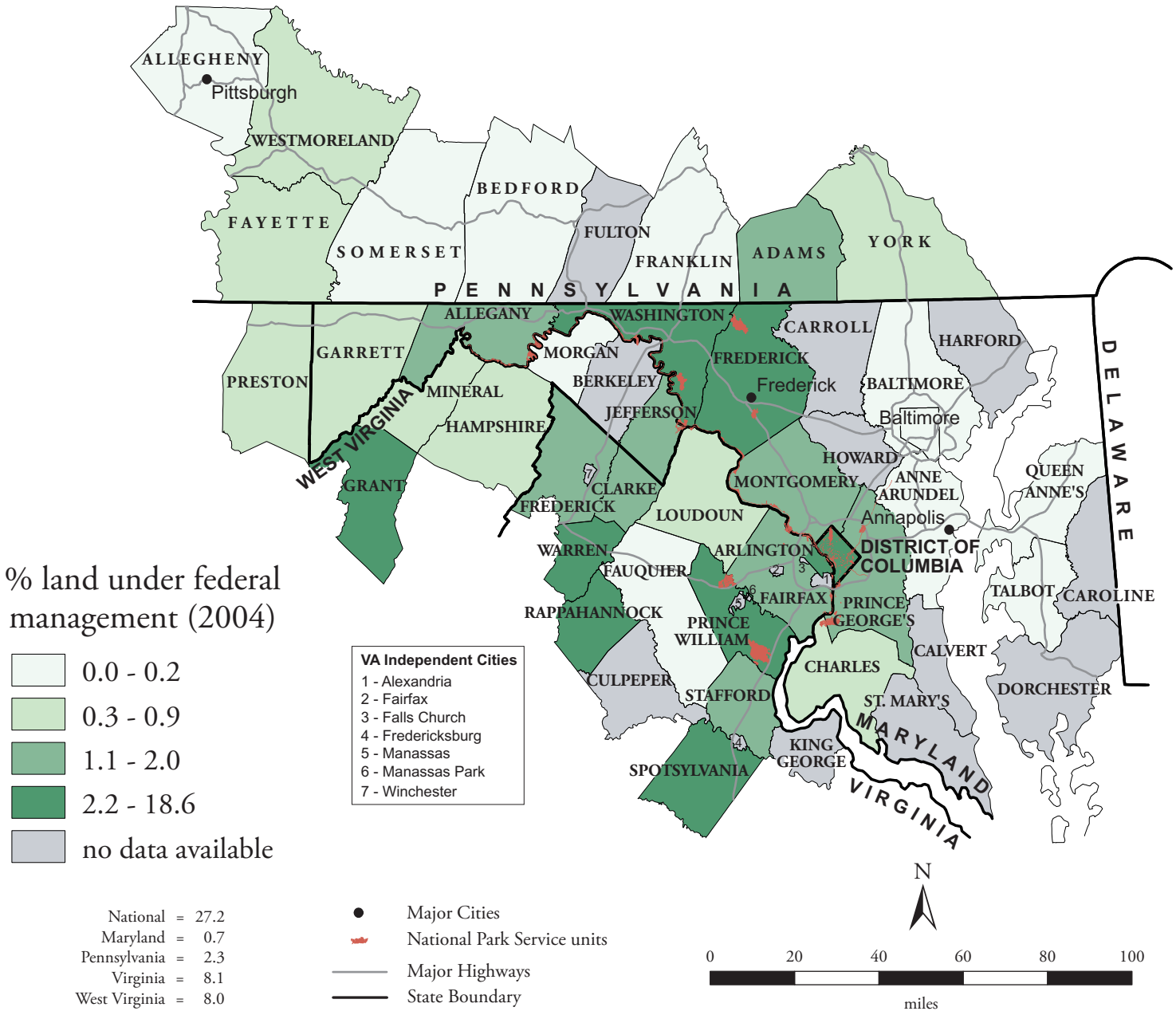
One indicator of the federal government's role in regional resource management is the amount of land under federal management. This amount can be measured as a percentage of the total land area in each county. Stewardship of private land is carried out through a combination of regulation, market forces, and voluntary action. In contrast, stewardship of public land is carried out through direct implementation of agency policies. Thus the variation in public versus private land ownership across the park region can significantly influence the design and implementation of resource protection strategies. Within the National Capital Parks region of interest, land under federal management (2004) ranges from 0.0% to 18.6% (Rappahannock).[22]



% land under federal management (2004)

Queen Anne's	0.0	Loudoun	0.4	Clarke	2.0	St. Mary's	N/A
Talbot	0.0	Charles	0.5	Frederick	2.2	Fulton	N/A
Baltimore City	0.0	Fayette	0.5	Spotsylvania	2.3	Culpeper	N/A
Allegheny	0.0	Garrett	0.8	Washington	2.7	King George	N/A
Bedford	0.0	Mineral	0.8	Grant	6.5	Alexandria City	N/A
Baltimore	0.0	**Hampshire**	**0.9**	Prince William	9.0	Fairfax City	N/A
Morgan	0.1	**Westmoreland**	**0.9**	Arlington	11.0	Falls Church City	N/A
Franklin	0.1	**Preston**	**0.9**	Warren	15.0	Fredericksburg City	N/A
Anne Arundel	0.2	Allegany	1.1	D.C.	17.7	Manassas City	N/A
Somerset	0.2	Stafford	1.3	Rappahannock	18.6	Manassas Park City	N/A
Fauquier	0.2	Prince George's	1.3	Calvert	N/A	Winchester City	N/A
York	0.3	Montgomery	1.4	Caroline	N/A	Berkeley	N/A
		Adams	1.4	Carroll	N/A		
		Jefferson	1.7	Dorchester	N/A		
		Frederick	1.8	Harford	N/A		
		Fairfax	2.0	Howard	N/A		

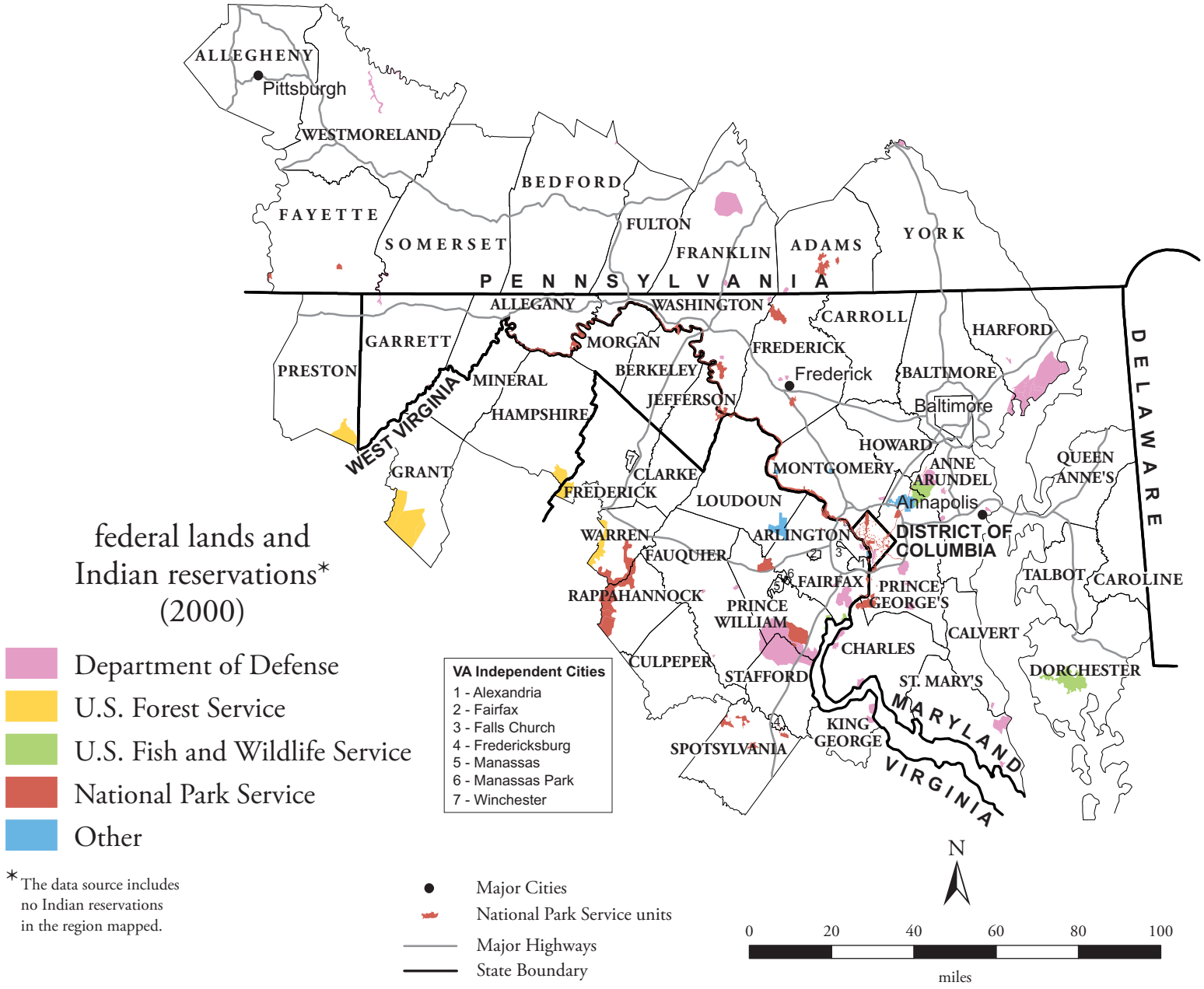
Federal Land Management



Federal Lands and Indian Reservations

National park units, administered by the National Park Service, are part of a larger system of public lands. Other federal agencies that administer public lands include the Bureau of Land Management, Bureau of Reclamation, Department of Defense, U.S. Fish and Wildlife Service, and U.S. Forest Service. Indian reservations are also an important part of the landscape. Public land managed by one federal agency may share boundaries with land managed by a different federal agency or with an Indian reservation. Understanding the location and pattern of federal lands (by agency) and Indian reservations can help park managers and others in the region cooperate on resource protection and planning issues.[23]

Federal Lands and Indian Reservations



federal lands and Indian reservations* (2000)

- Department of Defense
- U.S. Forest Service
- U.S. Fish and Wildlife Service
- National Park Service
- Other

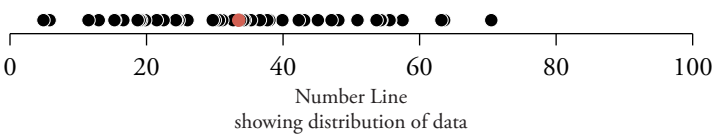
*The data source includes no Indian reservations in the region mapped.

VA Independent Cities
1 - Alexandria
2 - Fairfax
3 - Falls Church
4 - Fredericksburg
5 - Manassas
6 - Manassas Park
7 - Winchester

- Major Cities
- National Park Service units
- Major Highways
- State Boundary

Farmland

The relative importance of farming within a county can be indicated by the percentage of the county's total land area that is classified as farmland. Farming includes crop cultivation as well as pasturing and grazing of livestock. Because damaged or degraded natural resources present a long-term threat to the health and profitability of farming, farm operators are potentially key partners in local and regional resource protection issues. Park management can require close coordination with area farmers on many issues, such as control of non-native species, species reintroduction, preservation of scenic values, allocation of scarce water supplies, or management of agricultural runoff. Within the National Capital Parks region of interest, the percentage of total land area classified as farmland (1997) ranges from 4.9% (Fairfax) to 70.5% (Queen Anne's).[24]

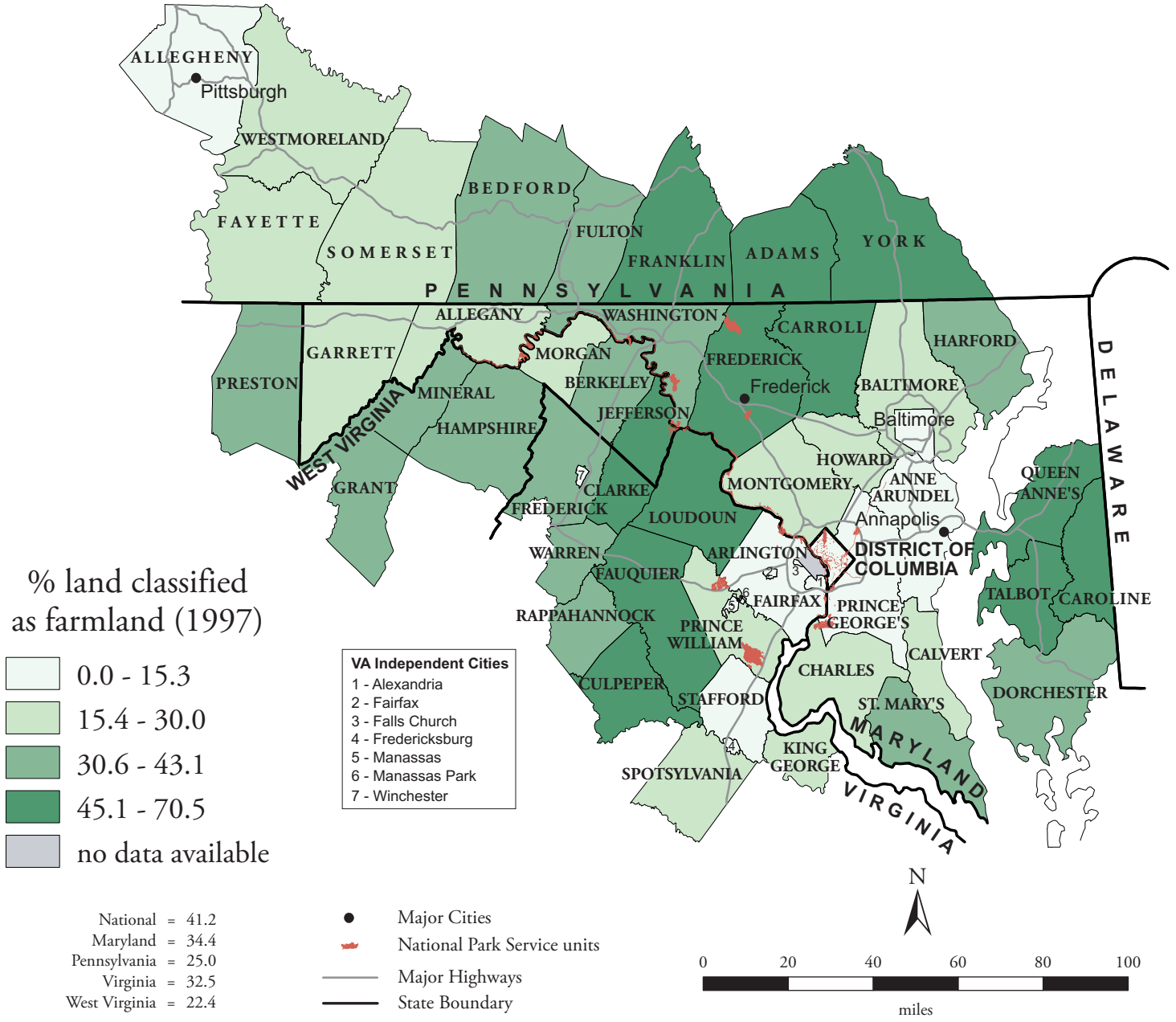


Number Line
showing distribution of data

% land classified as farmland (1997)

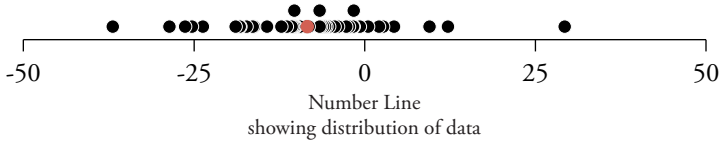
Fairfax	4.9
Allegheny	5.8
Stafford	11.5
Anne Arundel	13.0
Prince George's	15.3
Allegany	15.4
Prince William	16.6
Spotsylvania	18.7
Charles	19.0
Morgan	19.2
Baltimore	19.8
Fayette	21.5
Westmoreland	22.5
Calvert	24.3
Montgomery	24.4
Howard	24.7
Garrett	26.0
King George	29.7
Somerset	30.0
Bedford	30.6
St. Mary's	31.1
Warren	32.7
Harford	33.4
median	**33.6**
Fulton	33.7
Hampshire	34.2
Dorchester	34.4
Berkeley	35.3
Preston	36.6
Frederick	37.7
Mineral	38.0
Grant	39.9
Rappahannock	42.3
Washington	43.1
York	45.1
Culpeper	47.1
Franklin	48.1
Frederick	50.9
Adams	53.7
Caroline	54.3
Jefferson	54.4
Loudoun	55.6
Carroll	55.7
Fauquier	57.5
Clarke	63.2
Talbot	63.6
Queen Anne's	70.5
Arlington	N/A
D.C.	N/A
Baltimore City	N/A
Alexandria City	N/A
Fairfax City	N/A
Falls Church City	N/A
Fredericksburg City	N/A
Manassas City	N/A
Manassas Park City	N/A
Winchester City	N/A

Farmland


ALLEGHENY
Pittsburgh
WESTMORELAND
FAYETTE
SOMERSET
BEDFORD
FULTON
FRANKLIN
ADAMS
YORK
PENNSYLVANIA
ALLEGANY
WASHINGTON
CARROLL
HARFORD
GARRETT
MORGAN
FREDERICK
PRESTON
MINERAL
BERKELEY
Frederick
BALTIMORE
Baltimore
JEFFERSON
HAMPSHIRE
WEST VIRGINIA
HOWARD
QUEEN ANNE'S
GRANT
CLARKE
MONTGOMERY
ANNE ARUNDEL
FREDERICK
LOUDOUN
Annapolis
WARREN
ARLINGTON
DISTRICT OF COLUMBIA
FAUQUIER
TALBOT
CAROLINE
FAIRFAX
PRINCE GEORGE'S
RAPPAHANNOCK
PRINCE WILLIAM
CALVERT
CHARLES
CULPEPER
STAFFORD
ST. MARY'S
DORCHESTER
KING GEORGE
MARYLAND
SPOTSYLVANIA
VIRGINIA
DELAWARE
% land classified as farmland (1997)
0.0 - 15.3
15.4 - 30.0
30.6 - 43.1
45.1 - 70.5
no data available
VA Independent Cities
1 - Alexandria
2 - Fairfax
3 - Falls Church
4 - Fredericksburg
5 - Manassas
6 - Manassas Park
7 - Winchester
National = 41.2
Maryland = 34.4
Pennsylvania = 25.0
Virginia = 32.5
West Virginia = 22.4
Major Cities
National Park Service units
Major Highways
State Boundary
N
0 20 40 60 80 100
miles

Change in Farmland

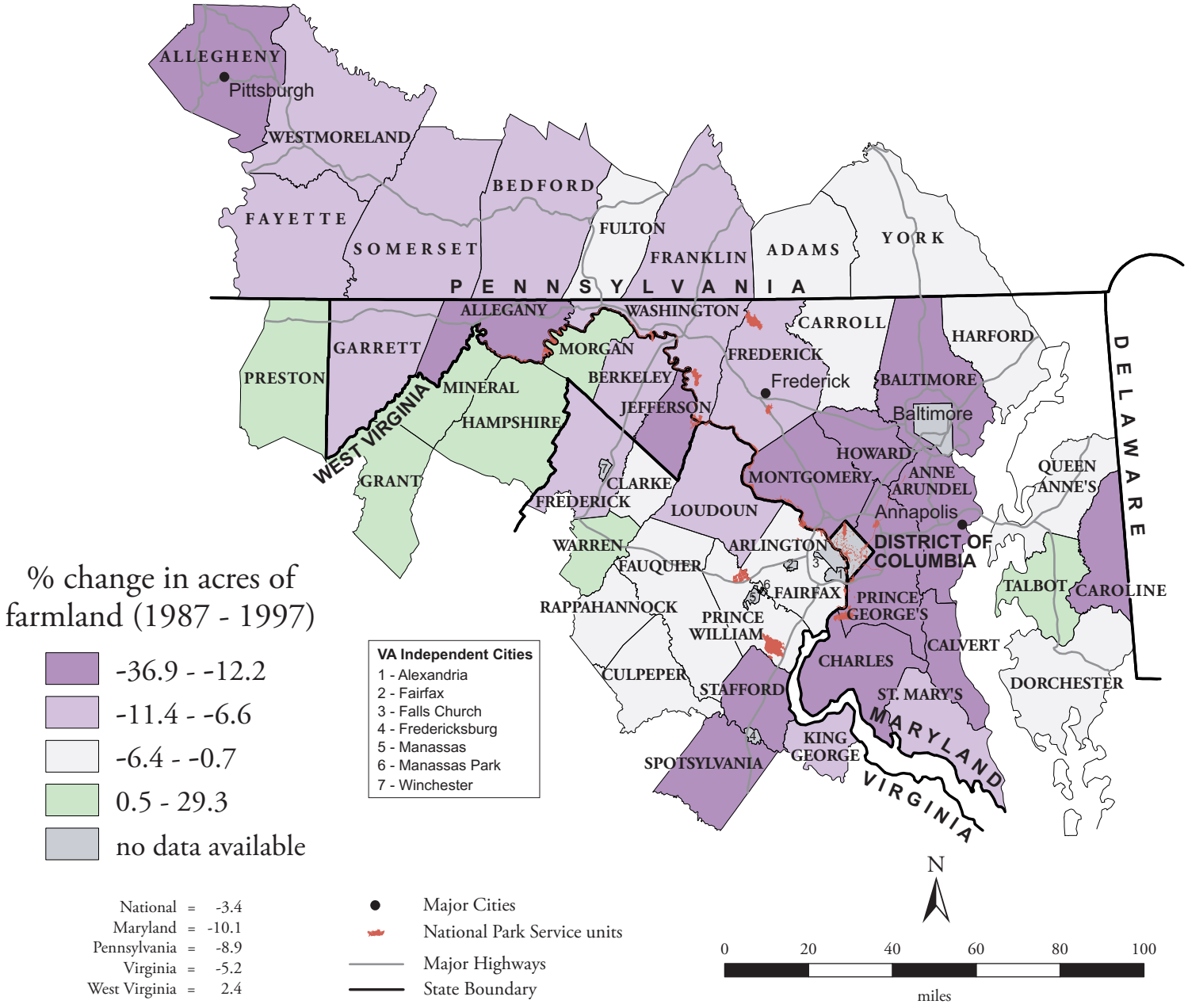
Changes in the amount of farmland provide an indication of economic and land use trends among counties in the parks' region. Land can be converted to farming because of increased demand for agricultural products or because new technology, business practices, or government programs make farming profitable. Land can be taken out of farming due to soil depletion, competition from growers elsewhere, loss of labor, or conversion of land to other (often urban) uses. Within the National Capital Parks region of interest (1987 - 1997), the amount of farmland decreased in all cases except seven. The change ranged from a decrease of 36.9% (Allegheny) to an increase of 29.3% (Morgan).[25]



% change in acres of farmland (1987 – 1997)

Allegheny	-36.9	Jefferson	-12.2	York	-6.1	Warren	9.5
Stafford	-28.6	Garrett	-11.4	Harford	-5.8	Preston	12.2
Howard	-26.3	St. Mary's	-10.7	Fulton	-5.6	Morgan	29.3
Montgomery	-25.3	Loudoun	-10.5	Culpeper	-5.2	Arlington	N/A
Prince George's	-23.7	King George	-10.3	Adams	-4.4	D.C.	N/A
Calvert	-18.9	Westmoreland	-10.3	Carroll	-3.9	Baltimore City	N/A
Baltimore	-18.3	Bedford	-10.2	Prince William	-2.7	Alexandria City	N/A
Anne Arundel	-18.2	Frederick	-10.1	Fairfax	-2.3	Fairfax City	N/A
Charles	-17.3	Berkeley	-9.5	Dorchester	-1.7	Falls Church City	N/A
Spotsylvania	-16.4	Somerset	-9.4	Clarke	-1.6	Fredericksburg City	N/A
Caroline	-16.2	Frederick	-8.6	Queen Anne's	-1.6	Manassas City	N/A
Allegany	-14.3	**median**	**-8.4**	Fauquier	-0.7	Manassas Park City	N/A
		Washington	-8.2	Talbot	0.5	Winchester City	N/A
		Franklin	-6.6	Hampshire	2.1		
		Fayette	-6.6	Grant	2.7		
		Rappahannock	-6.4	Mineral	4.3		

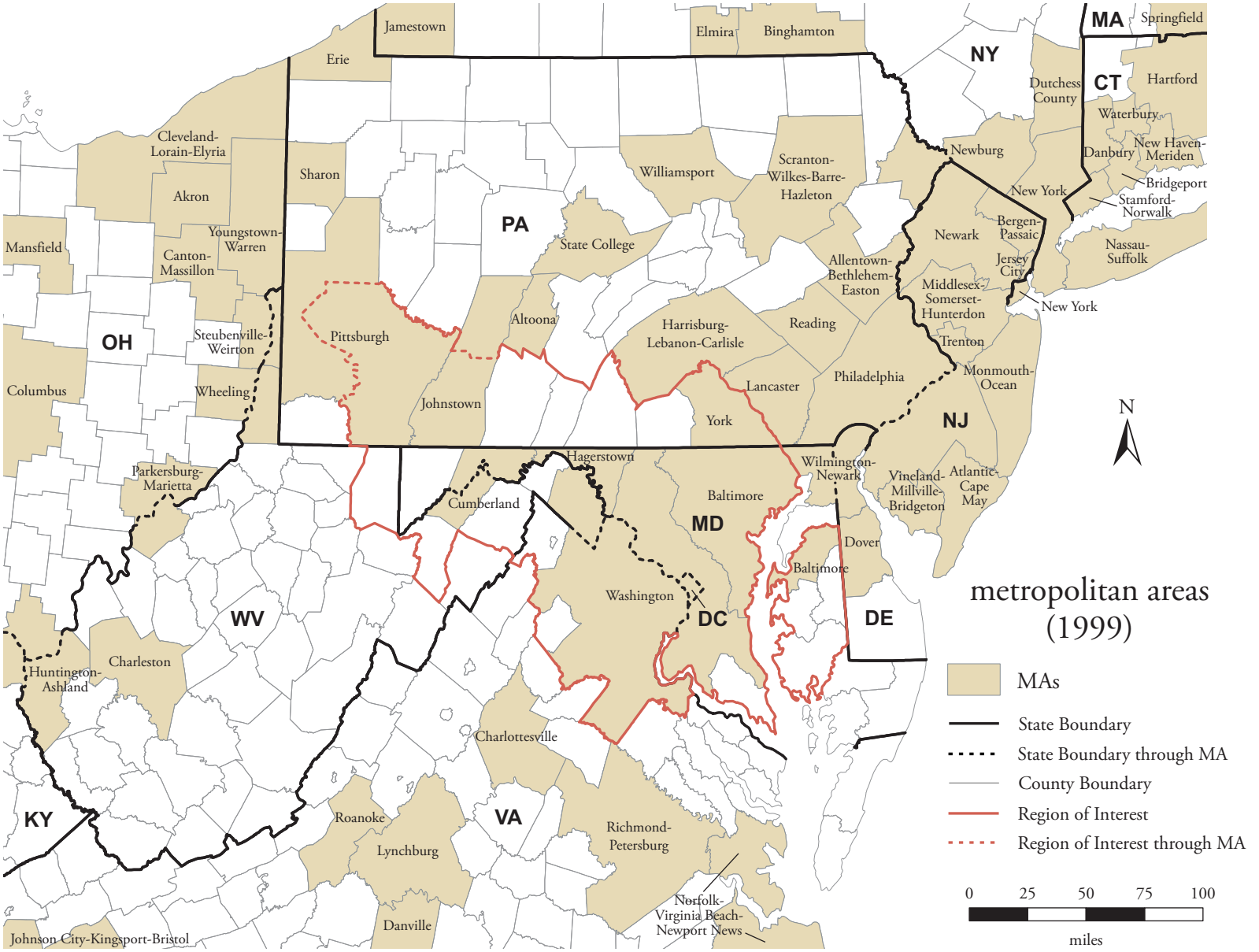
Change in Farmland



Metropolitan Areas

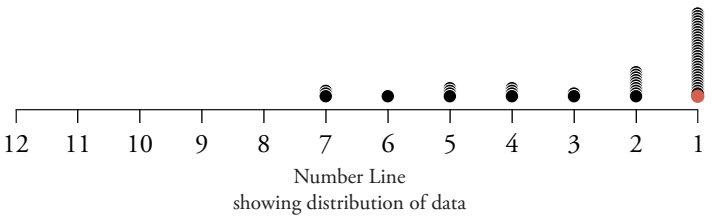
Maps of metropolitan areas show park managers densely populated urban areas that are near national park units. The Census Bureau defines a metropolitan area (MA) as having a large population nucleus, together with adjacent communities that have a high degree of economic and social integration with that nucleus. MAs are single counties or aggregations of counties. Most counties in MAs include both urban and rural land uses. For this map, a larger region around the National Capital Parks region of interest is provided to show the extent of nearby MAs.[26]

Metropolitan Areas



Urbanization

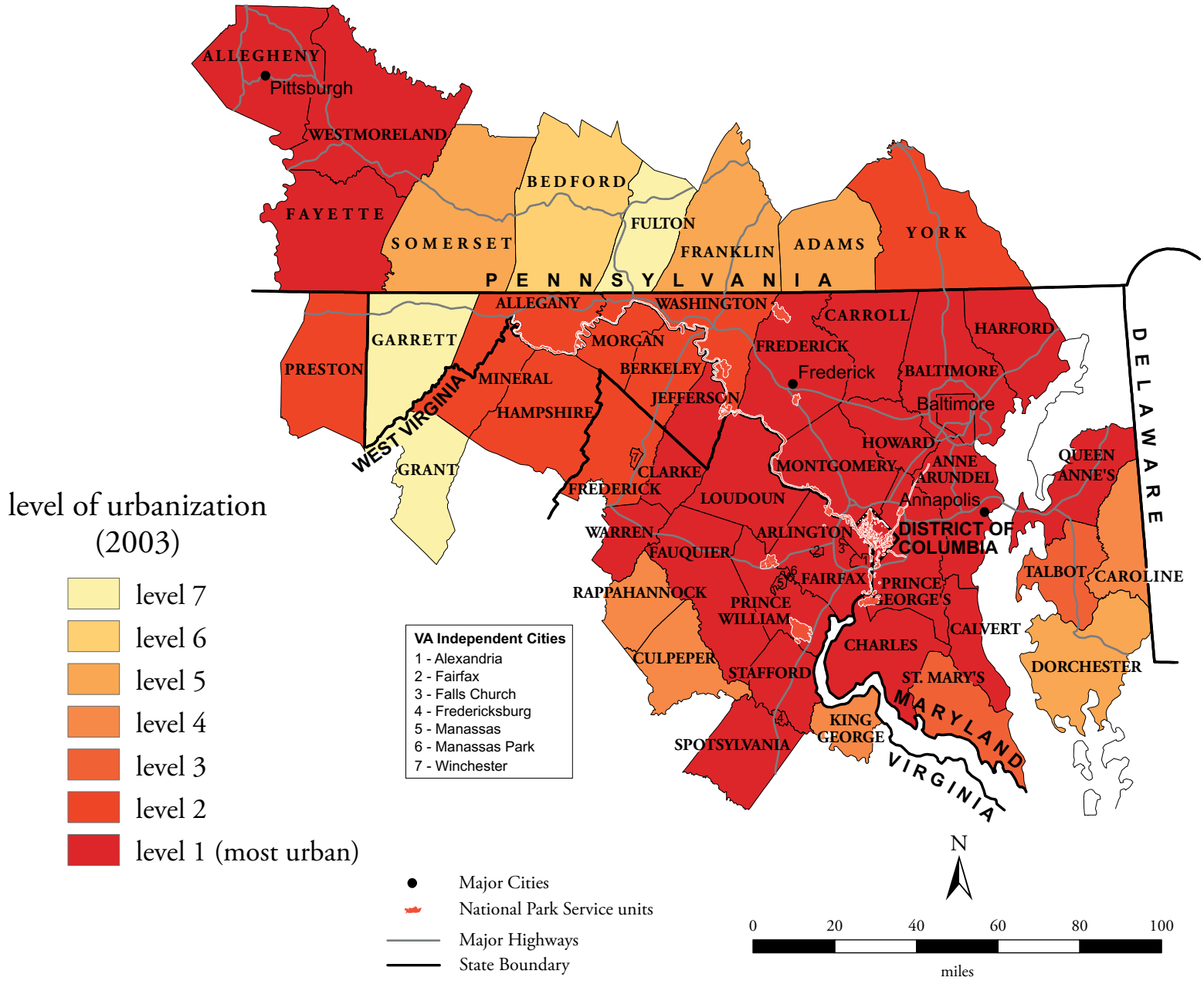
Urbanization is a measure of the degree to which counties are associated with metropolitan areas based on population and commuting patterns. The political and economic priorities of more urbanized counties tend to differ from those of less urbanized counties. The concentration of people in towns, cities, and large metropolitan areas creates opportunities for cooperative efforts (such as municipal water systems, public transportation, and a host of non-governmental organizations) but also can increase the incidence of problems such as congestion, air pollution, and habitat fragmentation. The Economic Research Service classifies counties' degree of urbanization along a continuum ranging from completely rural (not near metro area and small population size) to large metropolitan. Most of the National Capital Parks region of interest (2003) is classified as metropolitan.[27]



level of urbanization (2003)

Garrett	7
Fulton	7
Grant	7
Bedford	6
Dorchester	5
Adams	5
Franklin	5
Somerset	5
Caroline	4
Culpeper	4
King George	4
Rappahannock	4
St. Mary's	3
Talbot	3
Allegany	2
Washington	2
York	2
Frederick	2
Winchester City	2
Berkeley	2
Hampshire	2
Mineral	2
Morgan	2
Preston	2
District of Columbia	1
Anne Arundel	1
Baltimore	1
Calvert	1
Carroll	1
Charles	1
Frederick	1
Harford	1
Howard	1
Montgomery	1
Prince George's	1
Queen Anne's	1
Baltimore City	1
Allegheny	1
Fayette	1
Westmoreland	1
Arlington	1
Clarke	1
Fairfax	1
Fauquier	1
Loudoun	1
Prince William	1
Spotsylvania	1
Stafford	1
Warren	1
Alexandria City	1
Fairfax City	1
Falls Church City	1
Fredericksburg City	1
Manassas City	1
Manassas Park City	1
Jefferson	1

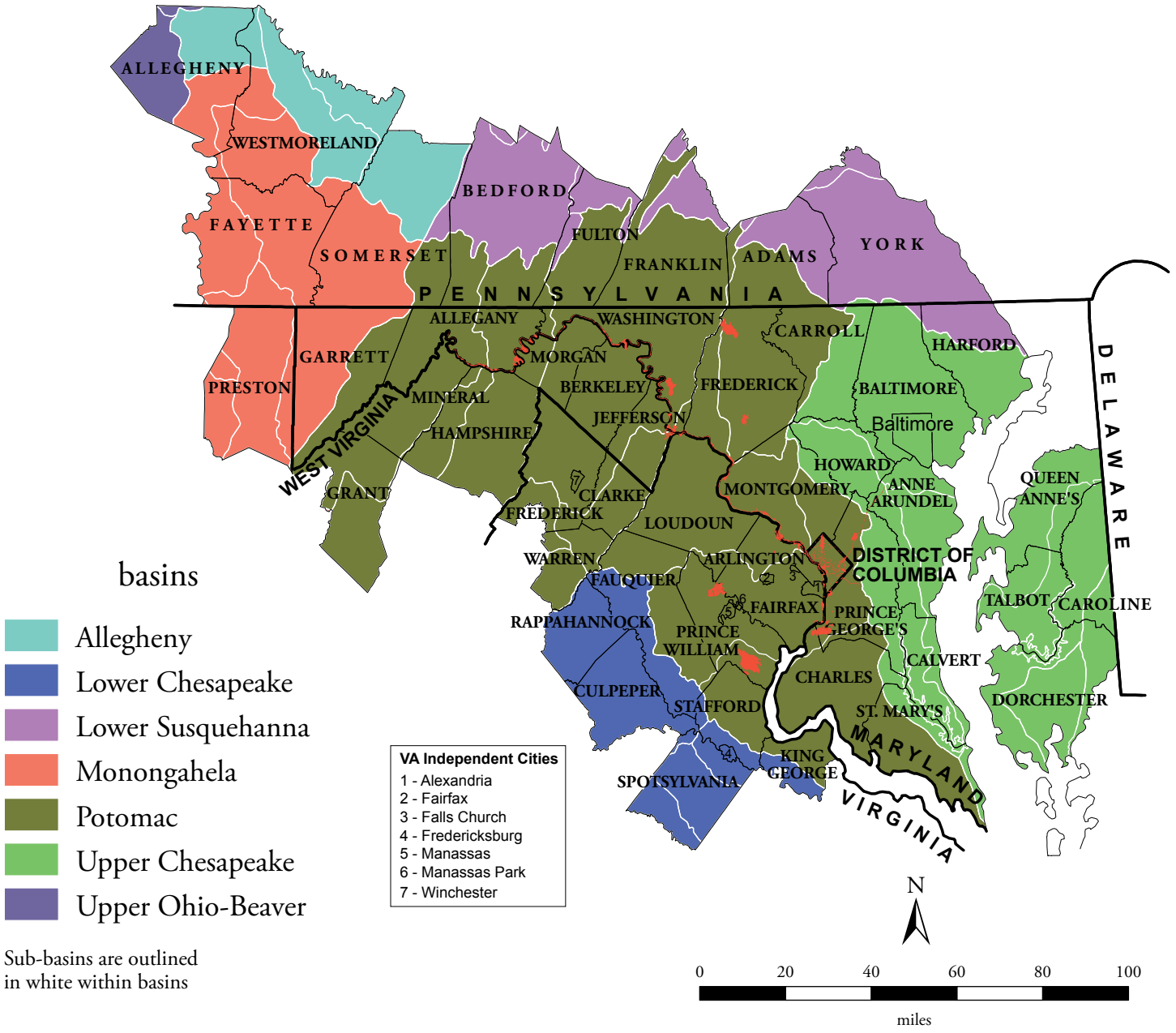
Urbanization



Watersheds

Watersheds are delineated by the U.S. Geological Survey using a nationwide system based on surface hydrological features. Watersheds are increasingly serving as the geographical units within which governments, institutions, and citizens organize to carry out initiatives for environmental protection and restoration. Familiarity with watershed boundaries is fundamental in developing educational programs and in mobilizing constituencies to protect water quality throughout the park region. The National Capital Parks region of interest includes all or portions of seven river basins.[28]

Watersheds


ALLEGHENY
WESTMORELAND
FAYETTE
SOMERSET
BEDFORD
FULTON
FRANKLIN
ADAMS
YORK
PENNSYLVANIA
ALLEGANY
WASHINGTON
CARROLL
HARFORD
GARRETT
MORGAN
PRESTON
MINERAL
BERKELEY
FREDERICK
BALTIMORE
Baltimore
JEFFERSON
HAMPSHIRE
WEST VIRGINIA
HOWARD
QUEEN ANNE'S
GRANT
CLARKE
MONTGOMERY
ANNE ARUNDEL
FREDERICK
LOUDOUN
DISTRICT OF COLUMBIA
WARREN
ARLINGTON
FAUQUIER
TALBOT
CAROLINE
FAIRFAX
PRINCE GEORGE'S
RAPPAHANNOCK
PRINCE WILLIAM
CALVERT
CHARLES
CULPEPER
STAFFORD
ST. MARY'S
DORCHESTER
KING GEORGE
SPOTSYLVANIA
MARYLAND
VIRGINIA
DELAWARE
basins
Allegheny
Lower Chesapeake
Lower Susquehanna
Monongahela
Potomac
Upper Chesapeake
Upper Ohio-Beaver
Sub-basins are outlined in white within basins
VA Independent Cities
1 - Alexandria
2 - Fairfax
3 - Falls Church
4 - Fredericksburg
5 - Manassas
6 - Manassas Park
7 - Winchester
N
0
20
40
60
80
100
miles

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 park natural and cultural resources. Just as parks may be concerned with upstream activities outside their boundaries yet inside their watersheds, 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 parks 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 National Capital park units. 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 parks;
- 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 parks, such as immigration or economic shifts. These human conditions and trends can have significant implications for park planning and management. For example, the atlas can be consulted to determine trends in educational attainment among regional residents. This information could be helpful in designing interpretive and public participation programs and materials that can increase access to and understanding of the role of parks in the region. The atlas can be used to gain knowledge about the overall structure of and local variations in the regional economy. This information could be important to developing a strong collaborative working relationship with regional business leaders. The atlas can be examined to recognize trends in land use. This information could support proactive planning to mitigate potential impacts of development such as habitat fragmentation, degradation of air or water quality, or intrusions upon historic settings and/or scenic values.

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

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

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

Appendices

Appendix 1: Data Sources for Indicators

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

INDICATOR	MEASURE	DATA SOURCE
General Population		
*Total Population	total number of people (2003)	U.S. Department of Commerce, Census Bureau, http://eire.census.gov/popest/estimates_dataset.php
Historical Population Change	% change in total number of people (1970 - 1990)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
*Recent Population Change	% change in total number of people (1990 - 2000)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/population/cen2000/atlas/all_00.xls
*Projected Population Change	projected % change in total number of people (2000 - 2020)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
Population Density Change	% change in average number of people per square mile (1980 - 2000)	1) U.S. Department of Commerce, Census Bureau. USA Counties 1998, http://censtats.census.gov/cgi-bin/usac/usasel.pl *(1980 population density)* 2) U.S. Department of Commerce, Census Bureau, http://www.census.gov/population/cen2000/atlas/all_00.xls *(2000 population density)*
Projected Population Density	projected average number of people per square mile (2020)	1) U.S. Department of Commerce, Census Bureau, http://www.census.gov/population/cen2000/atlas/all_00.xls *(county square mile data)* 2) Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com *(2020 projected population)*

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
Urban Population	% total population living in urban areas (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Table P2
Rural Population	% total population living in rural areas (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Table P2
Economy and Commerce		
*Earnings by Industry	% total earnings by industrial category (1999)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
*Employment by Industry	% employment by industrial category (1999)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
Change in Employment by Industry	% change in employment by industrial category (1990 - 1999)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
Projected Change in Employment by Industry	projected % change in employment by industrial category (2000 - 2020)	Woods & Poole Economics, Inc. 2002 Complete Economic and Demographic Data Source (CEDDS) on CD-ROM. Washington, DC. Woods & Poole Economics, Inc. provides long-term socioeconomic data projections at the state and local levels, in both hardcopy and electronic format. http://www.woodsandpoole.com
*Poverty	% total population in poverty (1999)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/hhes/poverty/2000census/poppvstat00.html

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
Personal Income	average personal income per capita ($) (1999)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 3 (SF3) Sample Data, Table P82
Social and Cultural Characteristics		
Racial and Ethnic Composition	% total population in each racial/ethnic category (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Tables P7, P8
*Racial Diversity	% total population belonging to minority race groups (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Table P7
*Educational Attainment	% total population 25 years old and over with some college or college degree (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 3 (SF3) Sample Data, Table P37
Language	households speaking a foreign language as % of all households—by category (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 3 (SF3) Sample Data, Table P20
Recreation and Tourism		
Recreation/Tourism Establishments	% of total establishments in arts, entertainment, recreation, and accommodation services (2001)	U.S. Department of Commerce, Census Bureau, http://censtats.census.gov/cbpnaic/cbpnaic.shtml
*Recreation/Tourism Employment	% of total paid employees in arts, entertainment, recreation, and accommodation services (2001)	U.S. Department of Commerce, Census Bureau, http://censtats.census.gov/cbpnaic/cbpnaic.shtml
*Recreation/Tourism Revenue	% of total sales from arts, entertainment, recreation, and accommodation services (1997)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/epcd/www/econ97.html
Seasonal Housing	% of total housing units classified for seasonal, recreational, or occasional use (2000)	U.S. Department of Commerce, Census Bureau, http://factfinder.census.gov – Census 2000 Summary File 1 (SF1) 100% Data, Tables H3, H5

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
Administration and Government		
*Congressional Districts	Congressional Districts (2000)	U.S. Department of the Interior, U.S. Geological Survey, http://nationalatlas.gov/cgd108m.html
*Federal Expenditures	federal expenditures per capita ($) (2002)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/prod/www/abs/cffr.html
Land Use		
Ecoregions	ecoregion divisions	1) USDA Forest Service, Inventory and Monitoring Institute, http://www.fs.fed.us/institute/ecoregions/eco_download.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 Land Management	% land under federal management (2004)	1) U.S. Department of the Interior, Bureau of Land Management. Payment in Lieu of Taxes, Fiscal Year 2004. Washington, DC. http://www.blm.gov/pilt/search.html *(federal land in acres)* 2) U.S. Department of Commerce, Census Bureau http://www.census.gov/population/cen2000/atlas/all_00.xls *(county square mile data to convert into acres)*
*Federal Lands and Indian Reservations	federal lands and Indian reservations (2000)	U.S. Department of the Interior, U.S. Geological Survey, http://nationalatlas.gov/atlasftp.html
Farmland	% land classified as farmland (1997)	U.S. Department of Agriculture, National Agricultural Statistics Service, http://www.nass.usda.gov/census/
*Change in Farmland	% change in acres of farmland (1987 - 1997)	U.S. Department of Agriculture, National Agricultural Statistics Service, http://www.nass.usda.gov/census/
*Metropolitan Areas	metropolitan areas (1999)	U.S. Department of Commerce, Census Bureau, http://www.census.gov/geo/www/cob/ma1999.html#shp
*Urbanization	level of urbanization (2003)	U.S. Department of Agriculture, Economic Research Service, http://www.ers.usda.gov/Data/UrbanInfluenceCodes/

Appendix 1: Data Sources for Indicators (continued)

INDICATOR	MEASURE	DATA SOURCE
Watersheds	basins	U.S. Department of the Interior, U.S. Geological Survey, http://www.nationalatlas.gov/hucsm.html

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

Appendix 2: Technical Notes on Map Design

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

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

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

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

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

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

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

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

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

- National Capital Parks – Central; http://www.nps.gov/nacc/pphtml/nature.html
- National Capital Parks – East; http://www.nps.gov/nace/
- Choose Maryland; http://www.choosemaryland.org/orientation/community.asp

Appendix 3: Technical Notes on Measurement of Selected Indicators

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

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

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

[4] See note above on population density.

[5] **Urban population** is measured as the percentage of the total population living in urban areas. An urban area includes all territory, population, and housing units in urbanized areas and in places of 2,500 or more persons outside urbanized areas. An urbanized area has a population concentration of at least 50,000 inhabitants, and generally consists of a central city and the surrounding, closely settled, contiguous territory

having a density of at least 1,000 persons per square mile. The complete criteria are available from the U.S. Census website at http://factfinder.census.gov/servlet/MetadataBrowserServlet?type=subject&id=URSF1&dsspName=DEC_2000_SF1&back=update&_lang=en.

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

[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] See note above on industry categories.

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

[12] **Personal income** is measured as the average per capita income. This is obtained by dividing the total personal income of county residents by the total population of the county.

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

[14] **Racial diversity** is defined for this measure as the percentage of the population classified as being non-White. Diversity by this definition does not necessarily measure the degree

of "variety" in the population. For example, a hypothetical county with a 90% Asian population would be considered more "diverse" than a county in which each of the six major race groups constituted 10% of the population (in the latter case, diversity would be measured as 60%). The Hispanic or Latino origin category was not included in this measure because persons of Hispanic or Latino origin may be of any race (including White). Data on the Hispanic population is included on pages 40 - 43.

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

[16] Household language is based upon self-identification by people responding to the U.S. Census. Census respondents were asked to indicate whether they sometimes or always spoke a language other than English at home, and then to print the name of the non-English language spoken at home. These write in responses were coded into categories. Four classifications were used for languages spoken at home in Census 2000. Spanish includes all Spanish and Spanish Creole. Other Indo-European languages include 20 sub-classifications, such as French, Hindi, Italian, Portuguese, Russian, and Serbo-Croatian. Asian and Pacific Island languages include 11 sub-classifications, such as Chinese, Japanese, Korean, Thai, and Tagalog. Other languages include seven sub-classifications, such as Arabic, African Languages, Hebrew, Hungarian, and Native American languages. In households where one or more people (5 years old and over) speak a language other than English, the household language assigned to all household members is the non-English language spoken by the first person with a non-English language in the following order: householder, spouse, parent, sibling, child, grandchild, in-laws, other relatives, stepchild, unmarried partner, housemate or roommate, and other nonrelatives.

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

[18] See note above on recreation/tourism.

[19] See note above on recreation/tourism.

[20] Housing unit is a house, apartment, mobile home or trailer, group of rooms, or single room occupied or, if vacant, intended for occupancy as separate living quarters. Seasonal, recreational, or occasional use refers to vacant units used, or intended for use, only in certain seasons or for weekend or other occasional use throughout the year. A housing unit is vacant if no one is living in it at the time of enumeration, unless its occupants are only temporarily absent. Units temporarily occupied at the time of enumeration entirely

by persons who have a usual residence elsewhere are also classified as vacant.

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

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

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

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

[25] See note above on farmland.

[26] Certain **MAs** are defined around two or more nuclei. Each MA must contain either a place with a minimum population of 50,000 or a U.S. Census Bureau-defined urbanized area and a total MA population of at least 100,000. For a complete definition, consult http://www.census.gov/geo/www/cob/ma_metadata.html.

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

METROPOLITAN COUNTIES

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

NONMETROPOLITAN COUNTIES

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

[28] **Watersheds** are delineated by the U.S. Geological Survey using a nationwide system based on surface hydrologic features and published in 1998. This system divides the country into 21 regions, 222 subregions, 352 accounting units, and 2,262 cataloging units. A hierarchical hydrologic code (HUC), consisting of 2 digits for each level in the hydrologic unit system, is used to identify any hydrologic area. The 6-digit accounting units and 8-digit cataloging units are generally referred to as basin and sub-basin (see http://water.usgs.gov/GIS/huc.html).

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