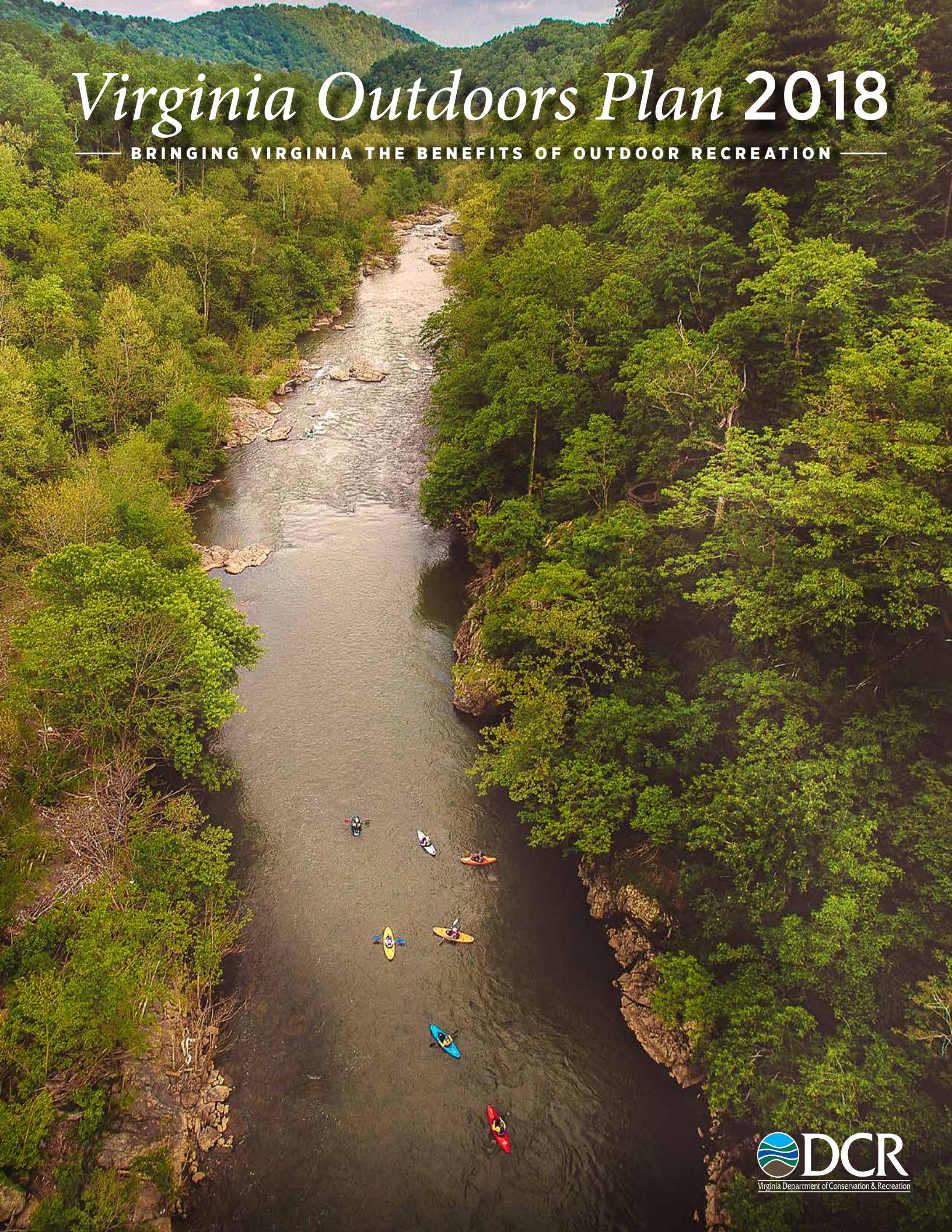


Virginia Outdoors Plan 2018

BRINGING VIRGINIA THE BENEFITS OF OUTDOOR RECREATION



Virginia Outdoors Plan 2018

BRINGING VIRGINIA THE BENEFITS OF OUTDOOR RECREATION



Virginia Department of Conservation & Recreation

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Citizens

Input from citizens, private partners and organizations who attended one of 42 public meetings held across the Commonwealth was instrumental to developing this plan.

Planning District Commissions and Regional Councils

Staff enabled extensive public outreach and identified featured regional projects in this plan.

State and Federal Agencies

Cooperative relationships with sister natural resource agencies, along with state health and tourism agencies, are essential to outdoor recreation and land conservation.

Technical Advisory Committee

An array of stakeholders and representatives from outdoor recreation and conservation interests helped shape the plan and continue to provide direction and vision for outdoor recreation and land conservation.

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Kayaking the Roanoke River | Sam Dean/Virginia Tourism Corp.

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CHAPTER 1

*Virginia's Plan
for Outdoor
Recreation and
Land Conservation*

Natural Bridge State Park | Virginia Department of Conservation and Recreation



The Tobacco Heritage Trail, Lunenburg County | Kelly J. Mihalco LLC/Virginia Tourism Corp.

The Benefits of Outdoor Recreation

The benefits of outdoor recreation to our health, well-being and quality of life have been documented for decades so it is not surprising that 70 percent of respondents to the 2017 Virginia Outdoors Demand Survey (VODS) believe that access to outdoor recreation is very important. Research on public health has confirmed what people seem to intuitively know, that being outside is good for your health.¹

The benefits of outdoor recreation do not stop with human health. Outdoor recreation is supported and is largely made possible through land conservation. These two important arms of land use planning dovetail to stimulate local tourism, which by extension, benefits Virginia's economy wherever there is an abundance of recreating opportunities.

2017 Virginia Outdoors Demand Survey Reports

Over two-thirds (70 percent) of those responding to the 2017 Virginia Outdoors Demand Survey consider it "very important" to have access to outdoor recreation opportunities. This response is a 15 percent increase from the 2011 Virginia Outdoors Demand Survey.

Background

The 2017 VODS provides guidelines for Virginia Outdoors Plan (VOP) development, helping the Virginia Department of Conservation and Development (DCR), regional planners and local governments understand the attitudes and desires of Virginians regarding outdoor recreation, thus assisting all of us in planning for a brighter, healthier future for all Virginians.

The VOP is Virginia's plan for outdoor recreation and land conservation and it meets National Park Service requirements for Virginia to participate in the Land and Water Conservation Fund (LWCF) program. This program provides 50 percent matching funds to state agencies and localities for the acquisition and

development of outdoor recreation resources. The VOP serves as a guide for protection of lands through actions of the Virginia Land Conservation Foundation. The plan also identifies resources, organizations and partners responsible for implementing plan goals and managing outdoor recreation, open space and conservation lands. Further, the VOP is a guide that:

- Assists local governments, local and regional planners and private sector partners with their recreation and land conservation planning.
- Highlights the importance of state-recognized scenic and cultural resources.
- Identifies trends.
- Identifies long-term recreation and land conservation needs.

Vision

The VOP guides communities in how to connect people with outdoor recreation opportunities and natural and scenic resources important to Virginians' quality of life. As we conserve these resources, Virginia will increasingly be recognized as a destination for exploring natural beauty and rich history.

Mission

To provide guidance and direction to local, regional and state recreation planners, land managers and land conservation practitioners who work to meet the need for outdoor recreation and land conservation important to natural, cultural and scenic resources and Virginians' quality of life.

Virginia Outdoors Plan Requirements

The legal authorities for Virginia to develop a broad-based land conservation and recreation plan may be found within federal and state codes.

Land and Water Conservation Fund Requirements

The Federal Land and Water Conservation Fund Act of 1965 (Title 16 U.S.C., Chapter 1, Subchapter LXIX, Part B, 460l-4 et seq.) establishes the Land and Water Conservation Fund. Section 4601-8(d) specifies, “[a] comprehensive statewide outdoor recreation plan shall be required prior to the consideration by the Secretary [of Interior] of financial assistance for acquisition or development projects.” The legal authority for Virginia to participate in the Land and Water Conservation Fund program is with DCR as stated in the Code of Virginia, §10.1-200.

According to the Code of Virginia §10.1-207, DCR is responsible for developing a long-range comprehensive outdoor plan for the Commonwealth. Additionally, to be eligible for grants, every state must prepare and regularly update a statewide recreation plan (sometimes called a SCORP). Most SCORPs address the demand for and supply of recreation resources (local, state and federal) within a state, identify needs and new opportunities for recreation improvements and set forth an implementation program to meet the goals identified by its citizens and elected leaders.

The VOP is the official state comprehensive outdoor recreation plan (SCORP).

Title 10.1, Chapter 10.2 of the Code of Virginia titled, “Virginia Land Conservation Foundation” (§§10.1-1017 et seq.), requires development of a comprehensive land conservation plan. In an effort to ensure that funds are expended in a guided manner, §10.1-1021 subsection 1 of state code directs the Virginia Land Conservation Foundation to prepare a comprehensive plan. The foundation determined these requirements would be met by

expanding the scope of the plan as directed by section §10.1-1021 of the Code of Virginia. Code §10.1-1018(E) states:

[t]he board shall seek assistance in developing grant criteria and advice on grant priorities and any other appropriate issues from a task force consisting of the following agency heads or their designees: the director of the Department of Conservation and Recreation, the commissioner of Agriculture and Consumer Services, the state forester, the director of the Department of Historic Resources, the director of the Department of Game and Inland Fisheries and the executive director of the Virginia Outdoors Foundation. The board may request any other agency head to serve on or appoint a designee to serve on the task force.”

In addition, §10.1-1026 establishes that

[a]ll state officers, agencies, commissions, boards, departments, institutions and foundations shall cooperate with and assist the foundation in carrying out its purpose and, to that end, may accept any gift or conveyance of real property or interest therein or other property in the name of the Commonwealth from the foundation.”

VOP Partnerships

Partnerships are critical to successful implementation of outdoor recreation and land conservation initiatives in Virginia. Partnerships and coordination with multiagency and nonprofit organizations need to expand for Virginia to realize continued success in outdoor recreation and land conservation. Partnership opportunities are recognized throughout this VOP. Partnerships include many local and regional organizations. Statewide organizations directly involved in implementing 2018 VOP recommendations include:

Agencies and Organizations Who Partner for the VOP Implementation

federal agencies	state agencies	statewide committees	regional organizations
National Park Service	Virginia Department of Environmental Quality, Coastal Zone Management Program	Virginia Outdoors Plan Technical Advisory Committee	Planning District Commissions
U.S. Fish and Wildlife Service	Virginia Department of Forestry	State Trails Advisory Committee	Virginia Recreation and Parks Society
U.S. Forest Service	Virginia Department of Game and Inland Fisheries	Virginia Land Conservation Foundation	Virginia Forever
U.S. Army Corps of Engineers	Virginia Department of Health		Virginia Master Naturalists
Federal Energy Regulatory Commission	Virginia Tourism Corporation		
Federal Highway Administration	Virginia Department of Historic Resources Virginia Museum of Natural History		

Features of the 2018 Virginia Outdoors Plan

Virginia Outdoors Demand Survey (VODS)

The VODS ranks the most popular outdoor recreation activities and identifies geographic differences. The survey informs recreation providers of growing needs and trends. The full VODS is under Appendix 2.

Interactive Mapper

The VOP Mapper is an online tool for mapping public access to outdoor-recreation and land-conservation information. The information is updated annually by coordinating with each of the 21 recreation regions.

Wetlands

Addressing wetlands in the VOP is a SCORP requirement. The definition of wetlands and protection of wetlands for outdoor recreation planning and development is in Appendix 1.

Importance of land conservation

The protection of natural areas was rated very important by 82 percent of those taking the 2017 VODS. Chapter 12 addresses the status of land conservation in Virginia and statewide land conservation goals for the coming years. Information about the protection of scenic resources is included in Chapter 10.

Development of the Virginia Outdoors Plan

Annual Regional Meetings

Annual meetings are held across Virginia in the 21 planning regions. These meetings provide DCR input on regional outdoor recreation and land conservation projects. A variety of stakeholders are involved in the meetings including: planners, local government employees, regional planning district staff, local state and federal land managers and outdoor recreation professionals, private citizens, community advocates, nonprofits, appointed planning commissioners and elected officials. Regional planning offices coordinate outreach and meeting logistics. The DCR planning staff prepares the agenda, meeting materials and facilitation. Attendees review regional featured projects, outdoor recreation initiatives and trends. Meeting input, conversations and networking result in ideas and plans for leveraging resources for outdoor recreation implementation.

Technical Advisory Committee

The VOP Technical Advisory Committee (TAC), a group of more than 25 external stakeholders, meets annually to discuss topics related to implementation of the SCORP. This group is knowledgeable about Virginia's successes and needs for outdoor recreation and land conservation. Specifically, the committee helps DCR staff identify resources, topics of importance to outdoor recreation and land conservation, and implementation strategies for the SCORP.

Review of Other State Agency Plans

Other state-level plans, including those from the Departments of Historic Resources and Forestry as well as the Virginia Tourism Plan and the Virginia Wildlife Action Plan are reviewed. Overlapping implementation strategies from these plans are considered to leverage grant funding and implementation resources.

Research and Evaluation for Outdoor Recreation Trends in Virginia

Statistics and case studies showing exemplary implementation are incorporated as examples throughout the plan.

State Recreation Inventory

Every five years, Virginia updates the recreation inventory data for each locality. This information is used to inform a statewide recreation survey.

Outdoor Industry Association

The Outdoor Recreation Participation Report tracks Americans' participation in outdoor recreation. An online survey captures responses from over 40,000 Americans ages 6 and older for 114 activities.

Virginia Outdoors Demand Survey

The survey was conducted by the University of Virginia Center for Survey Research contacting 14,000 Virginians with 3,252 responding. This survey report and data provide a basis for evaluating and making statewide and regional recommendations for outdoor recreation and land conservation. This report is posted on the DCR website along with a statewide tool that enables planners to query outdoor recreation activities and the public's perceived need for outdoor recreation.

Public Comment

There were multiple opportunities for the public to be involved in the development of the 2018 VOP. The 2017 VODS reached 14,000 randomly selected households; further, a crowd-sourced survey was posted on the DCR website for input from the general public. Annual regional meetings were open to the public and comments were collected and taken into account regarding outdoor recreation and land conservation needs and trends. The draft VOP was sent to the professional public that was involved in the annual meetings and the VOP Technical Advisory Committee for input prior to the final SCORP publication.

Final SCORP

The 2018 VOP is published at the DCR website.

Recommendations for Plan Implementation

The VOP highlights five-year recommendations for agencies, organizations and individuals that support outdoor recreation and land conservation. Tracking progress and implementation of the recommendations involves the following by DCR:

- An executive summary of the VOP will be published for distribution and the final document will be posted on the DCR website.
- The Virginia Outdoors Plan Technical Advisory Committee will meet annually.
- Annual updates will be obtained from DCR's Office of Land Conservation.

- The 21 recreation regions will meet with DCR staff to update progress on the featured projects.

Works Cited

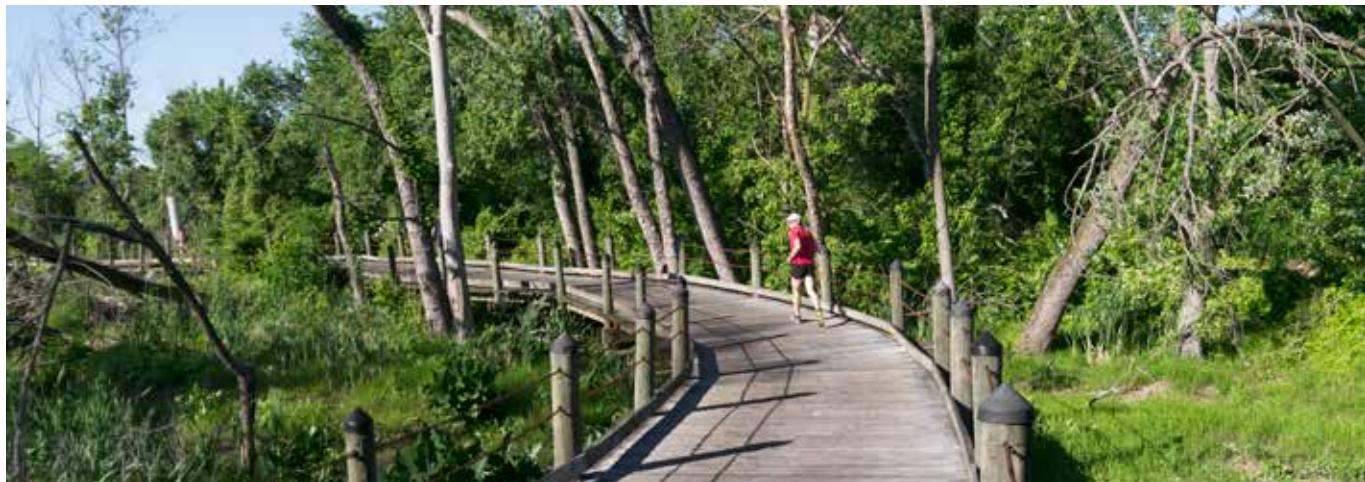
1. Godbey, Geoffrey, May 2009, "Outdoor Recreation Health and Wellness", Outdoor Recreation Review Group Resources for the Future of Background Study; <http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-DP-09-21.pdf>

A photograph of three people horseback riding on a grassy hillside. One person is in the foreground, another in the middle ground, and a third further back. They are riding away from the viewer. The sky is filled with white and grey clouds. A large, stylized number '2' is overlaid on the right side of the image.

CHAPTER 2

Virginia's Outdoors Demand Survey

Mount Rogers National Recreation Area | Virginia Tourism Corp.



Potomac Heritage National Scenic Trail, Arlington | Cameron Davidson/Virginia Tourism Corp.

Virginia Outdoors Demand Survey

The Virginia Department of Conservation and Recreation (DCR) conducts an outdoor recreation survey every five years. The University of Virginia Center for Survey Research (Weldon Cooper) conducted the survey for the 2018 Virginia Outdoors Plan (VOP). The Virginia Outdoors Demand Survey (VODS) is used to measure attitudes about outdoor recreation resources as well as participation in, and demand for, a variety of recreational activities.

Recreation providers use results of the survey to guide strategic planning of facilities. Some localities use the VODS results to prepare their own detailed outdoor recreation survey. Smaller, less populous localities use the data for comprehensive master planning and local park-planning projects.

Figure 2.1 Top 10 Outdoor Recreation Activities by Participation

statewide activity	% households
Visiting natural areas	71
Driving for pleasure	67
Walking for pleasure	67
Visiting parks (local, state & national)	56
Swimming/outdoor pool	48
Sunbathing/relaxing on a beach	47
Viewing the water	38
Swimming/beach/lake river (open water)	37
Visiting historic areas	35
Freshwater fishing	34

Source: 2017 Virginia Outdoors Demand Survey

The 2017 VODS obtained information on more than 100 activities. The number of activities surveyed doubled from those surveyed in 2011. Fourteen-thousand Virginians were contacted by mail and asked to participate in the survey. Of those contacted, 3,252 Virginians responded. Appendix B includes charts of activities 1) by participation for each region and 2) statewide by urban and rural parts of the state. Figure 2.1 shows the top 10 outdoor recreation activities based on participation reported in the 2017 VODS.

As part of the 2017 VODS, a non-probability “crowd-sourced” version of the survey was also made available to the general public. DCR solicited participation in the crowd-sourced survey by social media and contacts with interest groups. Unless otherwise noted, results in this report pertain only to the probability-based VODS.



Photo: Virginia Department of Conservation and Recreation

The 2017 VODS and national recreation data from the Outdoor Industry Association's Outdoor Recreation Participation 2017 Topline Report establish a baseline for analyzing trends in outdoor recreation. The recreation trends identified in this chapter, along with the projects and initiatives identified throughout the VOP, help Virginia's public and private sectors meet land conservation and outdoor recreation needs.

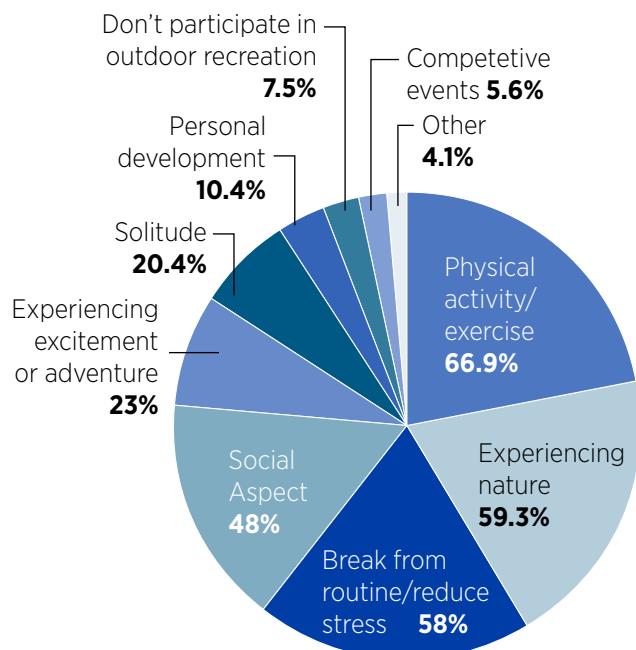
The Importance of Access to Outdoor Recreation

The 2017 VODS shows an increase across the state in the importance of outdoor recreation access. Younger respondents ranked the importance of access higher than those 65 and older. Seventy percent of Virginians consider it very important to have access to outdoor recreation. This is an increase of 15 percent since the 2011 survey.

Reasons for Participation in Outdoor Recreation

Physical activity and exercise are top reasons for Virginians to participate in outdoor recreation. Only 7.5 percent said they do not participate in any outdoor recreation. Figure 2.2 shows the reasons Virginians participate in outdoor recreation.

Figure 2.2 Main Reasons for Participation in Outdoor Recreation

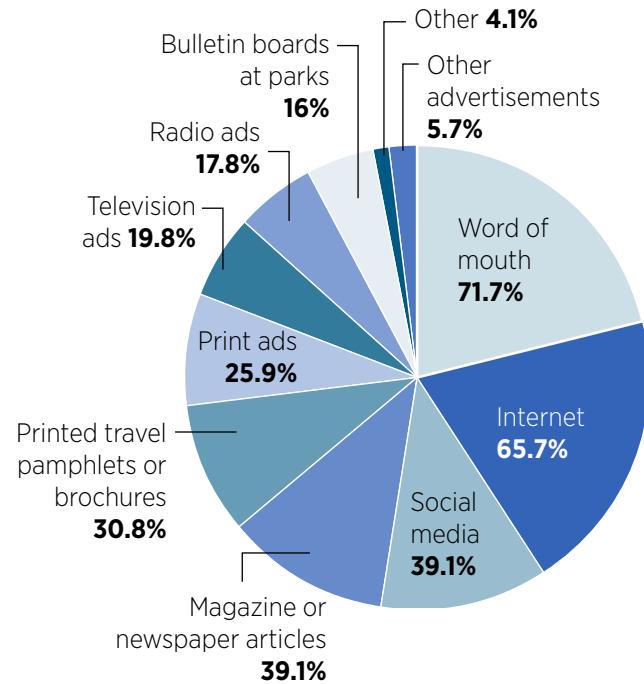


Source: 2017 Virginia Outdoors Demand Survey

Sources of Information About Recreation Opportunities

Almost three-quarters of respondents (71.7 percent) said they hear about recreation opportunities by word of mouth. Over half of respondents (65.7 percent) use the Internet to seek out outdoor recreation. Urban respondents were more likely to rely on the Internet for information. The use of newspapers and magazines for finding out about outdoor recreation dropped from 46 percent in 2011 to 40 percent in 2017. Households with children were more likely to use the Internet and social media compared to households without children. Older respondents were most likely to rely on printed sources and advertising, while respondents of Hispanic descent were less likely to use printed media.

Figure 2.3 Sources of Outdoor Recreation Information and Opportunities



Source: 2017 Virginia Outdoors Demand Survey

Trending Outdoor Recreation Activities

Over a three-year period, the Outdoor Foundation tracked activities with positive growth trends. Figure 2.4 compares the Virginia participation rates with the anticipated change for each trending activity.

Figure 2.4 Top Outdoor Activities for Growth

	Virginia 2017 VODS (percent participation)	Outdoor Foundation - US average change +
Hiking	21%	7%
Challenge events	19%	8%
Mountain biking	6%	13%
Stand up paddling	6%	18%
Cross country skiing	2%	13%
Sailboarding	1%	10%

Source: 2017 Outdoor Recreation Participation Topline Report, Outdoor Foundation and 2017 Virginia Outdoors Demand Survey

Virginia Outdoor Recreation Trends Over 15 Years

For the past 15 years, walking for pleasure, driving for pleasure, water access/swimming and visiting parks and natural areas have remained in the top five outdoor recreation activities.

Figure 2.5 Comparison of Top Five Activities for Virginia Households

top outdoor recreation activities		
	2006	2011
1	Walking for pleasure	Walking for pleasure
2	Visiting historic sites	Visiting historic sites or areas
3	Driving for pleasure	Visiting parks (local, state or national)
4	Water access and swimming	Visiting natural areas, preserves or refuges
5	Visiting natural areas and parks	Swimming in a pool

Sources: 2006, 2011 and 2017 Virginia Outdoors Demand Surveys

The 2017 VODS also polled the public's perceived need for outdoor recreation. The data received from this question is a good barometer to measure if recreation trends are changing but not reflected by outdoor recreation participation trends, possibly due to lack of access to more recently popularized activities. The perception of needs gives service providers an opportunity

to improve access and provide facilities and access to meet the immediate public demand for outdoor recreation. Statewide and in most regions, natural areas, parks, trails and water access rank as the most needed activities. Figure 2.6 shows the perceived need for recreation in both rural and urban areas.

Both urban and rural residents think natural areas, followed by parks, are the most needed outdoor recreation. Over 35 percent of those answering the survey agree that urban and rural areas need more trails, water access and historic areas.

Figure 2.6 Statewide Most Needed Outdoor Recreation Opportunities

statewide	%	rural	urban
Natural areas	54	55	53
Parks	49	48	51
Trails	43	42	46
Water trails	43	46	39
Historic areas	39	38	40
Scenic drives (driving for pleasure)	29	31	26
Playing fields, sports and golf facilities	22	19	25

Source: 2017 Virginia Outdoors Demand Survey

The 2017 VODS indicates participation in top activities by category. The following charts summarize categories of activities.

Figure 2.7 Top 3 Organized Outdoor Sports by Participation

statewide activity	% households
Basketball	15
18-hole golf	14
Soccer	11

Source: 2017 Virginia Outdoors Demand Survey

Figure 2.8 Top 3 Water-Related Outdoor Recreation By Participation

statewide activity	% households
Swimming in an outdoor pool	48
Sunbathing and relaxing on the beach	47
Viewing the water	38

Source: 2017 Virginia Outdoors Demand Survey

Figure 2.9 Top 3 Wheeled Activities By Participation

statewide activity	% households
Paved or gravel bicycle trails	11
Driving and ATV or UTV off-road	6
Driving 4-wheel off-road	6

Source: 2017 Virginia Outdoors Demand Survey

Figure 2.10 Equestrian Activities by Participation

statewide activity	% households
Equestrian activities	7
Equestrian events	5
Horseback riding on trails	4

Source: 2017 Virginia Outdoors Demand Survey

Figure 2.11 Top 3 Destination Activities By Participation

statewide activity	% households
Outdoor festivals	34
Visiting working farms	31
Music festivals	28

Source: 2017 Virginia Outdoors Demand Survey

Crowd-Sourced Virginia Outdoors Demand Survey

The crowd-sourced survey was identical to the juried VODS. The crowd-sourced survey was posted for a period of eight weeks on the DCR website. The survey was available to anyone with the link. The crowd-sourced survey should not be generalized to the full population of Virginia. It provides useful information about the activities and desires of outdoor recreation and land conservation advocates. Reports on the crowd-sourced survey are included in Appendix 2A.



Lake Anna State Park Gold Panning | Virginia Department of Conservation and Recreation

A photograph of three people paddleboarding on a lake at sunset. They are performing a yoga pose with their arms outstretched. The water is calm with some ripples, and the sky is a clear blue with a few clouds. A green hillside is visible in the background.

CHAPTER 3

Outdoor Recreation Trends

Claytor Lake State Park, Dublin | Sam Dean/ Virginia Tourism Corp.



A brisk dash on a woodland trail, Pocahontas State Park | Bill Crabtree, Jr./Virginia Tourism Corp.

Assessing Recreation Trends

Virginia's outdoor recreation trends are assessed by evaluating recreation resources, citizen survey results and tourism opportunities. Statewide meetings held in preparation for this plan identify statewide outdoor recreation trends. Emerging outdoor recreation topics identified in this plan include:

- Volunteerism, partnerships and landowner liability
- Government's role in land management, public recreation and conservation lands
- Use of technology in outdoor recreation
- Carrying capacity
- Mapping
- Climate change and sea level rise

Volunteerism, Partnerships and Landowner Liability

As volunteerism and partnerships for outdoor recreation and land conservation increase across the Commonwealth, so does the importance of the protections established in §29.1-509 of the Code of Virginia. This law protects private landowners from liability when private lands are open to the public. Protection encourages property owners to continue to open lands for outdoor recreation. As long as landowners do not charge a fee for access, and there is no gross negligence or "willful or malicious failure to guard or warn against a dangerous condition, use or structure" on the property, they are protected from liability due to injury or death when they provide public recreation access. The law also limits the liability of landowners who enter into a lease agreement with state agencies.

Government Role in Land Management, Public Recreation and Conservation Lands

During the annual Virginia Outdoors Plan (VOP) Technical Advisory Committee meeting on April 19, 2016, a subgroup provided input on government's role in land management and ownership of public recreation and conservation lands. This group advocates that outdoor recreation and natural resource management and protection are core functions of government. The 2017 Virginia Outdoors Demand Survey (VODS) indicates a high demand for publicly owned outdoor recreation lands. Continued education and steps to support governmental land management and ownership of public lands are key to implementing the recommendations in this plan.

Benefits of governmental land management and ownership of public lands include:

- Providing access for all people.
- Protecting conserved lands and parks over time.
- Developing partnerships between governmental agencies and supporting organizations.
- Establishing a protected, land-based legacy.
- Promoting resource-based protection that is not profit motivated.

Recommendations

- Through regional meetings, the Virginia Department of Conservation and Recreation will provide annual updates to planning districts on recreational trends.
- Planning regions will educate elected officials about the benefits of Virginia's public lands and advocate for local and regional land management and operations.



A relaxing canoe trip at Pocahontas State Park | Virginia Department of Conservation and Recreation

Use of Technology in Outdoor Recreation

Technology increasingly defines outdoor experiences. Local, regional, state and national outdoor recreation providers rely on technology for better park management and improved visitor experiences. Recreationists are capturing and sharing their experiences through social media and other online outlets. Wayfinding and outdoor education orient outdoor recreation users, maximizing outdoor leisure time. As generations become more reliant on technology, there is a need for technology to be seamlessly integrated into outdoor recreation experiences.

According to the 2017 VODS, over three-quarters of respondents (81.5 percent) used a smartphone during outdoor recreation activities. This is an increase from the 27.3 percent reporting smartphone use in the 2011 survey. Less than half (42.3 percent) used the Internet in connection with their outdoor recreation activities. About a third used some form of digital mapping (38.4 percent), social media (34.9 percent) or GPS (30.7 percent). A little over one in seven (15.1 percent) respondents used remote cameras (a weatherproof camera designed for extended and unmanned outdoors use to record images). Fewer than one in 10 used some other form of technology (7.6 percent) or a camcorder (5.7 percent) in connection with their outdoor activities.

Virginians living in the urban corridor reported a slightly higher use of technologies. However, GPS tracking was frequently used in the Chesapeake region, and remote camera use was reported in the Mountain and Piedmont regions (see Survey Appendix 2).

Urban respondents were generally more likely to use technologies during outdoor recreation compared to rural respondents, as were households with children (see Survey Appendix 2).

Technology and Recreation

Smart phone	81.50%
Internet	42.20%
Google Earth	38.40%
Social Media	34.90%
GPS tracking	30.70%
Remote cameras	15.10%
Other	7.60%
Camcorder	5.70%
Personal locator beacon	0.90%

Source: 2017 Virginia Outdoors Demand Survey

Carrying Capacity

Recreation experiences are increasingly related to how park carrying capacity is managed. Determining park carrying capacity is an integral part of the site design process and a precursor to park management and programming. By addressing carrying capacity before the user experience or the parkland is impacted, park degradation and some maintenance issues may be avoided.

While just under 10 percent of those surveyed in the 2017 VODS had been turned away from a Virginia State Park due to overcrowding, overcrowding concerns are growing among park management and park users. To assess the concerns of both local and state park and natural resource managers, an informal survey administered in October 2017 was completed by 69 local professionals in Virginia State Parks and local parks and recreation management. The survey can be found under Appendix B.

The following summarizes key points from the survey with regard to park carrying capacity issues.

- Approximately 30 percent of respondents experience some carrying capacity issues in their parks.
- During 2016 and 2017, 36 percent of respondents had to restrict use or close a park during the summer.
- Park managers identify carrying capacity by evaluating available parking, safety and overuse conflicts and damage to natural resources.
- Most park closures or restricted park use occurred in the summer, on holidays or during special events, or were due to construction or maintenance.
- Over 75 percent of park managers responded that an area of the park or parking facilities were closed when a park reached carrying capacity.
- Thirteen percent of park managers reported the need to close the park.

- Most often, carrying capacity concerns impact water-related outdoor recreation.
- Approximately 25 percent of the park managers reported natural resources were compromised by park carrying capacity issues.
- Approximately 32 percent of park managers experiencing carrying capacity issues felt the visitor experience was compromised.
- Twenty-two percent of respondents said their park resources were being used differently than originally planned. These included the need to accommodate large families and groups in the park for extended day use.
- User conflicts were mentioned by 18 percent of park managers.

Source: Virginia Department of Conservation and Recreation, "Carrying Capacity Survey Summary," October 2017

Recommendations:

In order of priority, the following recommendations were made by park managers completing the October 2017 carrying capacity survey.

- DCR and the Virginia Recreation and Park Society (VRPS) should convene a conference, a session at a VRPS conference or a webinar on park carrying capacity.
- DCR should pursue additional park carrying capacity studies in Virginia State Parks.
- VRPS should publish an article about carrying capacity in one of its publications.

Two Types of Carrying Capacity

- Physical carrying capacity related to sustainable park use correlates directly with park planning and maintenance guidelines.
- Social carrying capacity refers to user expectations for a desired type and quality outdoor recreation experience.

Mapping

There are a few statewide mapping tools that interface directly with outdoor recreation and land conservation. The VOP Mapper shows resources for developing feasibility studies and environmental documents for outdoor recreation and land conservation projects. The Conservation Lands Database provides mapped data and information on all protected lands in Virginia via a web-based mapping tool. The Coastal Geospatial and Educational Mapping System (GEMS) is a mapping tool focused on resources for planning and monitoring coastal communities. The National Recreation and

Parks Association's Park Metrics tool may in the future integrate parks data and support local parks and recreation departments.

Mapping recommendations

- DCR should complete local park recreational data in the VOP Mapper through an internship with a student familiar with GIS.
- DCR should develop a Virginia recreation needs assessment using a geographic platform that integrates results of the VODS and data from the 2017 inventory of outdoor recreation. Potential partners may include the Virginia Department of Health and Virginia Tourism Corp.

Climate Change and Sea Level Rise

Climate change is affecting all of Virginia. Some of the predicted impacts of climate change on outdoor recreation include:

- More frequent and extreme weather events and storms that threaten and destroy facilities and natural shorelines.
- Rising temperatures and increased drought stress resources and, as a result, outdoor recreation.
- A change in species diversity to favor increased invasive varieties of plants and animals.
- An increase in sea level rise.¹

Relative sea level rise is a direct result of climate change and land subsidence. Virginia's Coastal Zone Management Program reports that while 29 percent of Virginia's land area lies within the coastal zone, over 60 percent of Virginia's population lives there. The Virginia Institute of Marine Science (VIMS) Center for Coastal Resources Management publishes sea level rise planning maps for Virginia. This clearinghouse provides a number of guidance tools for localities. This information and guidance should be considered when developing outdoor recreation throughout coastal Virginia.

Recommendations

- Local, state and federal parks and recreation providers should consider climate change when developing parks facilities.
- Local, state and federal parks and recreation providers should research and plan for sea level rise as reported by VIMS in the coastal planning districts.
- Land conservation planners should identify climate as well as non-climate stressors and evaluate their impact on conservation targets. NOAA's Guide for Considering Climate Change in Coastal Conservation is a good resource for planning in the face of climate change.



Completing the Muddy Buddy course at Pocahontas State Park | Virginia Department of Conservation and Recreation

Resources

- Virginia Institute of Marine Science, Sea Level Rise Planning Maps
- McAuliffe Administration Report on Climate Change
- National Recreation and Parks Association, Resources for Climate Resilient Parks
- The Nature Conservancy's Resilient and Connected Landscapes project comprehensively maps resilient lands and significant climate corridors across Eastern North America. <http://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/terrestrial/resilience/Pages/default.aspx>

- Interagency Visitor Use Management Council, *Visitor use Management on Public Lands and Waters*, March 2013. <http://npshistory.com/publications/social-science/vum-position-paper-03-2013.pdf>
- Marion, Jeffrey and Jeremy Wimpey, "Assessing the Influence of Sustainable Trail Design and Maintenance on Soil Loss," *Journal of Environmental Management* 189 (2017) 46-57, www.elsevier.com/locate/jenvman.
- Marion, Jeffrey, Yu-Fai Leung, Holly Eagleston and Kaitlin Burroughs, "A Review and Synthesis of Recreation Ecology Research Findings on Visitor Impacts to Wilderness and Protected Natural Areas," May 2016. https://www.researchgate.net/publication/303730527_A_Review_and_Synthesis_of_Recreation_Ecology_Research_Findings_on_Visitor_Impacts_to_Wilderness_and_Protected_Natural_Areas

Works Cited

1. Rich Dolesh, "Climate Change, Parks and Health", *National Recreation and Parks Magazine*, June 1, 2017. <https://www.nrpa.org/parks-recreation-magazine/2017/june/climate-change-parks-and-health/>



A photograph of two people riding bicycles on a paved path next to a waterfall. The person in the foreground is smiling and looking towards the camera, wearing a grey hoodie and a helmet. The person in the background is also smiling, wearing a dark long-sleeved shirt and a helmet. The waterfall has multiple levels of cascading water. The scene is set outdoors with trees and foliage in the background, suggesting a park setting.

CHAPTER **4**

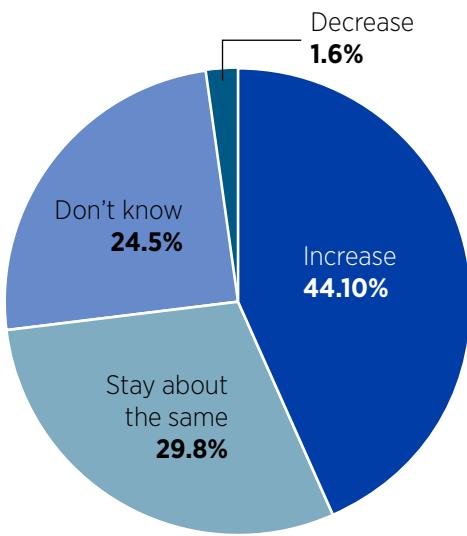
Funding Outdoor Recreation and Land Conservation

The Crystal City Water Park, Arlington | Todd Wright/Virginia Tourism Corp.

Support for Outdoor Recreation and Land Conservation Funding

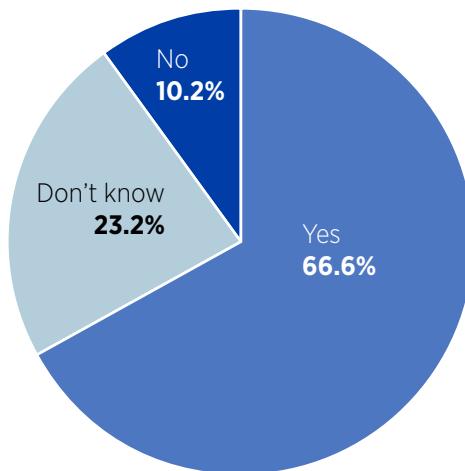
The 2017 Virginia Outdoors Demand Survey (VODS) asked Virginians if the state should increase, decrease or keep the current level of state spending for outdoor recreation. Almost half of respondents support an increase in state spending on outdoor recreation, and approximately 30 percent believe that state spending should stay about the same. Approximately one quarter do not know how or if state spending on outdoor recreation should change. The survey shows only 1.6 percent of respondents believe that state spending on outdoor recreation should decrease. This presents an opportunity for education about funding support to sustain state and local parks and recreation areas.

Figure 4.1 State Spending for Outdoor Recreation



The 2017 VODS also asked about spending public funds on natural areas and open spaces. Two-thirds support public spending to prevent the loss of natural areas and open spaces. Twenty-three percent of those surveyed had no opinion on such spending, while just 10 percent were opposed to spending to acquire natural areas as public lands. Younger respondents tended to favor increased spending. (See Appendix 2).

Figure 4.2 Spending to Preserve Natural Areas



Funding Needs

The Virginia Outdoors Plan (VOP) prioritizes outdoor recreation needs based on public, local and regional input and the 2017 VODS. Funding these needs is a challenge. State natural resource agencies and nearly every local government struggle to meet citizen and visitor demands because of a lack of funding for parks and trails. The reduction of available federal funding, combined with increased costs of construction and project development and the fiscal restraint experienced at the local level throughout the Commonwealth has resulted in fewer public outdoor recreation projects.

The General Assembly should re-establish an appropriation for public outdoor recreation that can be used for land acquisition, new development, rehabilitation and maintenance. The Virginia Recreation and Park Society (VRPS) legislative platform includes support for bonds or dedicated funds for local and state park acquisition, planning and development. VRPS advocates for this dedicated source of funding to be administered by the Virginia Department of Conservation and Recreation (DCR). A percentage of the outdoor recreation apportionment should be allocated to fund DCR staff for program administration.

Because there has been a shortage of funding for outdoor recreation over two decades, some recreation departments do not submit requests for capital improvements knowing that they have little to no chance of being funded. The tables below indicate outdoor recreation capital improvement requests submitted by a few Virginia localities. Each locality independently identifies and negotiates funds for outdoor recreation at the local level based on comprehensive master plans and outdoor recreation planning.

**Figure 4.3 Limited Locality Survey of 2017
Outdoor Capital Improvement Needs**

Virginia counties	FY 2017 outdoor recreation capital improvement needs
Chesterfield	\$23,026,000
Gloucester	\$4,237,173
Isle of Wight	\$7,950,000
James City County	\$7,836,500
Virginia cities and towns	FY 2017 outdoor recreation capital improvement needs
Alexandria	\$53,791,213
Fredericksburg	\$2,619,000
Harrisonburg	\$3,258,500
Herndon	\$4,897,000
Manassas	\$12,010,000
Newport News	\$17,674,000
Norfolk	\$3,800,000
Roanoke City	\$15,283,992
Virginia Beach	\$67,361,970
Williamsburg	\$3,188,000
Winchester	\$17,312,000

Source: VRPS Survey of localities by Carol Steele, VOP Technical Advisory Committee, December 2017

Resources

Grant funds are very specific and must be used to fulfill needs of the grantor programs. Not all the grant programs listed in this chapter will be applicable to every outdoor recreation or land conservation project.

- Funding for outdoor recreation and land conservation (Administering agencies)
- Federal
 - Land and Water Conservation Fund – (National Park Service and DCR)
 - Forest Legacy and other federal programs (U.S. Fish and Wildlife Service and Virginia Department of Forestry)
- State
 - State bonds
 - Virginia Land Conservation Fund (VLCF)
 - Recreational Access Program (VDOT)
 - Transportation Alternatives Set-Aside Program (VDOT)
 - Open Space Recreation and Conservation Fund (DCR)
 - Community Development Block Grant Program (CDBG)–(Virginia Department of Housing and Community Development)
 - Virginia Coastal Zone Management Program (DEQ)
- Local
 - Capital funds allocated by localities
 - Local bonds
 - Carry over funding at end of fiscal year closeout
 - Virginia Code §15.2-2316.2 - Transfer of Development Rights (TDR)
 - Purchase of Development Rights (PDR)
 - Private foundations
- Technical Assistance and Partnerships
 - NPS Rivers, Trails and Conservation Assistance Program (Technical assistance for planning)
 - Coastal Zone Management grants for public access
 - Partnerships to implement projects that meet recommendations in the following state plans:
 - [Virginia Tourism Corporation](#)
 - [Wildlife Management Plan](#)
 - [Virginia Department of Health Plan](#)
 - Today's Treasure – Tomorrow's Trust Virginia's Comprehensive Historic Preservation Plan 2016–2021



Bacon Hollow Overlook, Shenandoah National Park | Tony Hall/Virginia Tourism Corp.

Federal Funds

Rules and regulations associated with the use of federal funding are complex and time intensive, which can be a deterrent to prospective grantees. These programs require knowledgeable staff and extensive work associated with grant implementation and reimbursement. Smaller and rural localities, which have fewer staff to manage complicated grant requirements, have greater difficulty meeting these requirements. Reduced funding for technical support at the state level further complicates the use of these funds. Therefore, any potential grantee should consider if they have technical expertise to manage a grant program prior to seeking federal funds.

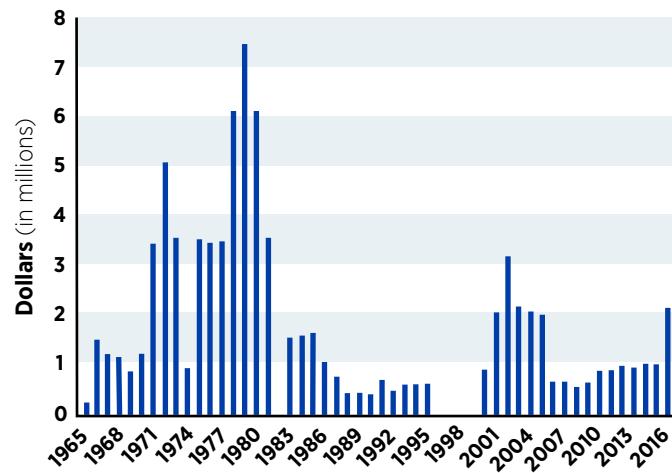
Land and Water Conservation Fund

The Land and Water Conservation Fund Act of 1965 established a federal reimbursement program for the acquisition and development of public outdoor recreation areas. The program represents a federal, state and local partnership. A key feature of the program is that all LWCF-assisted areas must be maintained and opened, in perpetuity, as public outdoor recreation areas. LWCF is administered in Virginia by DCR on behalf of the National Park Service.

Revenue for the Land and Water Conservation Fund (LWCF) program (both the federal side and state and local assistance program) is made possible from offshore oil and gas receipts and supplemented by revenue from the Gulf of Mexico Energy Security Act, Public Law 109-432, which was signed into law in 2006. At the beginning of the LWCF program, 1964-1965, the law set aside

\$100 million annually for the first four years for both sides of the program. Increases were made in 1968 to \$300 million and again in 1971 to \$400 million. In 1977, Public Law 95-42 increased the annual funding to \$900 million. While this amount has been authorized since 1978, appropriations and apportionments have been inconsistent. Virginia's highest LWCF apportionment amount of \$7.5 million was received in 1979. The average apportionment for Virginia between 2000 and 2017 was \$1,345,209. The average apportionment since 2010 was \$1,217,092. From 2006 to 2015 Virginia's apportionment was less than \$1 million, ranging between \$615,971 and \$966,874. In 2017 the apportionment was \$2,134,167.

Figure 4.4 LWCF Funding





Norfolk Botanical Garden | Kelly J. Mihalco LLC/Virginia Tourism Corp.

Recreational Trails Program

The Recreational Trails Program (RTP) is a matching reimbursement grant program for the building and rehabilitation of trails and trail-related facilities. The program is administered by DCR in partnership with the Federal Highway Administration. The RTP is an 80 percent federal and 20 percent local matching reimbursement program that supports projects with primarily recreational rather than utilitarian transportation value. Funding may be awarded to city, county, town or other government entities or registered nonprofit groups partnering with a governmental body. The RTP requires that 30 percent of funds be used for motorized (all-terrain vehicles, dirt bikes, etc.) recreational trail uses, 30 percent for non-motorized and 40 percent for multiuse trails.

State Funds

Conservation Grants

Funding for acquisition and easements through the Virginia Land Conservation Fund (VLCF) has continued through periods of reduced development grants across granting agencies. This funding has secured substantial open space for future generations. While much of this conservation work is solely for preservation, many sites are appropriate for public access. However, the lack of funding for development has prevented the next phase of conservation and public education for many conserved lands. Without public awareness and firsthand experience open spaces, the full benefit of these conservation efforts cannot be achieved.

[Click here to view a list of VLCF-funded projects.](#)

Open Space Recreation and Conservation Fund

DCR receives voluntary contributions of income tax refunds from the Open Space Recreation and Conservation Fund. The fund is used to:

- Acquire land for recreational purposes and preserve natural areas.
- Develop, maintain and improve state park sites and facilities.
- Provide funds for local public bodies pursuant to the Virginia Outdoors Fund grants program.

Half of these funds are granted to localities as 50-percent matching grants to support local recreation projects. The program was established in 1993 but, with the addition of numerous other programs now competing for the same dollars, contributions to this fund have declined in recent years.

Recreational Access Fund Grants

This VDOT program provides funds to develop access to state and local parks and historic sites across the state. Funding levels for this program have not changed in the last 40 years. Once constructed, these secondary roadways are often not given the same level of maintenance priority compared to other state transportation needs.

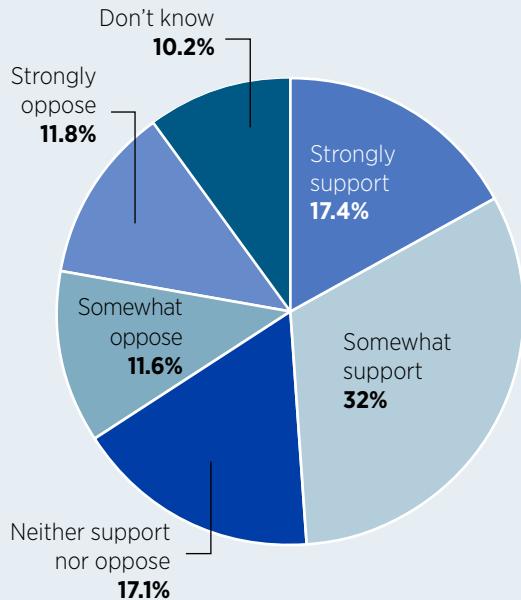
Challenges for Funding Outdoor Recreation and Land Conservation

- Most funding sources have specific targets for land acquisition, land conservation, outdoor recreation or park development and maintenance. While some grant funds may be used for multiple purposes, many are restricted and the maximum award amounts do not meet project needs.
- Many land conservation and recreation projects are funded using multiple revenue sources and grants. This requires intense planning and results in extended staging of funds until the full amount is secured to complete the project, thus jeopardizing rapid response projects. The ability to leverage resources is a key to funding success.
- There is no consistent funding source of state monies to sustain and grow outdoor recreation and land conservation.

What Virginians Think about a State Tax Increase to Fund Outdoor Recreation

According to the 2017 Virginia Outdoors Demand Survey, there is significant public support for such spending. Almost half (49.4 percent) of respondents said they would somewhat or strongly support an increased state tax to fund outdoor recreation in Virginia. (See Appendix 2) Households with incomes over \$100,000 were a little more likely to support a tax increase.

Figure 4.5 Support for a State Tax Increase to Fund Outdoor Recreation



Source: 2017 Virginia Outdoors Demand Survey

Potential assets and opportunities for funding outdoor recreation and land conservation

- Coordinate revenue sources to maximize leveraging opportunities.
- Encourage philanthropic giving to enhance citizen support and augment the ability for nonprofit organizations to accomplish land conservation and outdoor recreation projects.
- Enhance outdoor recreation tourism through destination marketing.

- Explore possibilities to establish regional or local special taxes to fund land conservation and outdoor recreation. An outdoor recreation program could be modeled after the 2013 Northern Virginia transportation special regional taxes.
- Develop innovative partnerships between local parks and recreation departments with the local chambers of commerce, industrial parks, local universities and hospitals to establish green spaces that support outdoor recreation and healthy living.
- Fund outdoor recreation in rural areas to support local citizens and tourism opportunities.
- Enable user fees to cover costs of environmental services such as available drinking water and waste management.¹

Recommendations

- Identify funding for both new and improved outdoor recreation facilities to include local, regional and state governments. (Virginia Recreation and Park Society [VRPS], VOP Technical Advisory Committee, State Trails Advisory Committee, DCR, Virginia Department of Game and Inland Fisheries (DGIF).
- Provide outreach, training and sources of available funding to local, regional and state government agencies and nonprofits to sustain and develop outdoor recreation resources. (DCR, DGIF).
- Develop a strategy and recommendations of how to reach elected officials and educate them about expanding the range of tools available for local government to implement outdoor recreation and land conservation. (VRPS, VOP Technical Advisory Committee, State Trails Advisory Committee, DCR, DGIF).

Resources

Headwaters Economics, a nonpartisan nonprofit, published a September 2017 report. The report provides a compendium of options used across the country to fund outdoor recreation. <https://headwaterseconomics.org/economic-development/state-recreation-funding/>

Works Cited

1. “Investing in the Commonwealth’s Land and Water,” Virginia Forever’s Five-Year Plan 2015-2019, www.virginiaforever.org.



CHAPTER

5

Economics and Tourism

Annual Vintage Car Show at Douthat State Park | Virginia Department of Conservation and Recreation



Farmer's market, Roanoke Valley | Cameron Davidson/Virginia Tourism Corp.

Overview

Local and regional recreation providers and the private sector are motivated by the strong economic benefits that outdoor recreation brings to their community. Local governments and regional planning commissions are key promoters of outdoor recreation as a means to increase tourism. The Virginia Tourism Corp. provides studies and resources to help communities enhance visitor experiences and expand opportunities to improve Virginia economies through tourism.

Land conservation is a primary way to assist tourism and strengthen economies across Virginia. Preserving landscapes and scenic views relates directly to the value of many Virginia destinations and enhances tourism and, thereby, local economies. Developing and maintaining quality parks, recreation and athletic facilities is important to attract and increase sports tourism events. When it comes to outdoor recreation, making connections to rivers and trails is a critical aspect of the tourism package. Parks that support the arts and special events programming also strengthen local economies.

Ways to enhance economic benefits of parks:

- Outdoor recreation programming
- Nature-based programming
- Trails
- Overnight facilities
- Sports tourism
- Arts in parks
- Special events and festivals
- Historic sites

Economics

The “Economic Impact of Domestic Travel on Virginia Counties” presents domestic travel economic impact on Virginia and its 133 counties and independent cities (county equivalents). This study was conducted by the U.S. Travel Association for the Virginia Tourism Corp. Estimates include travel expenditures, travel-generated employment and payroll income, as well as tax revenues for federal, state and local government. According to this 2016 study, domestic travelers spent \$23.7 billion on transportation, lodging, food, entertainment, recreation and retail shopping. This represents a 3.3 percent increase from 2015. In 2016, Virginia’s travel industry continued to be the fifth-largest employer among all non-farm industry sectors in Virginia.

Tourism economy

- Changes perspective of decision makers.
- Changes marketing strategies.
- Demonstrates the value of investing in natural and cultural resources.
- Enhances land values.

Agritourism is gaining momentum especially in rural areas. A recent study by the Virginia Tourism Corp. finds that Virginias’ agritourism makes significant contributions to the economic health and well-being of the Commonwealth.

- An estimated 1,400 establishments in Virginia classify as agritourism.
- Approximately 56 percent of agritourism venues are open year-round to the public.

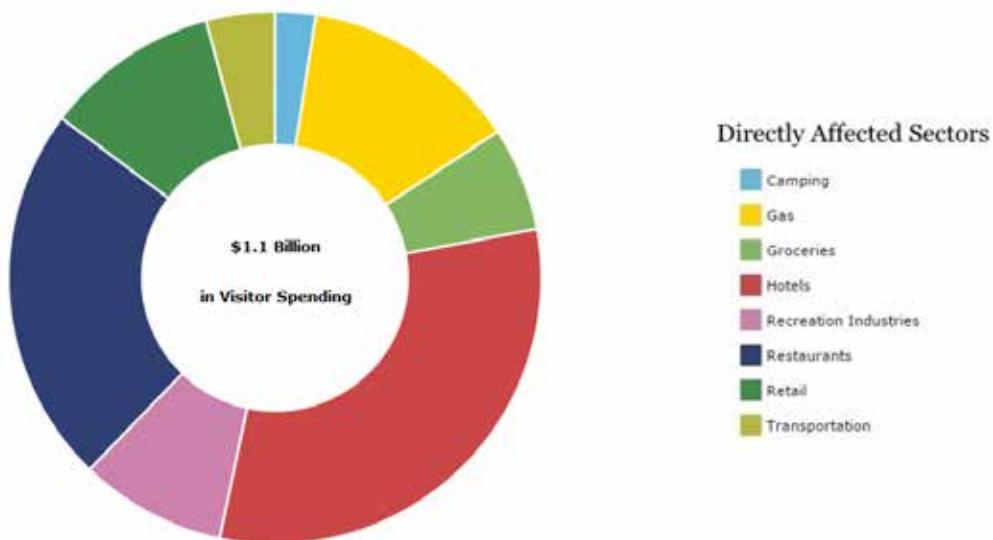
- Agritourism stimulated economic activity by approximately \$2.2 billion.
- Agritourism supported approximately 22,151 full-time equivalent jobs.
- Agritourism was responsible for roughly \$839.1 million in wage and salary income.¹

Visitors to Virginia State Parks trigger a large amount of economic activity throughout the state, as the 2017 Virginia State Park Economic Impact Report shows:

- Visitors to Virginia's State Parks spent an estimated \$226.1 million. Approximately 46% (\$104 million) of this spending was by out-of-state visitors.
- The total economic activity stimulated by Virginia State Parks was between \$292.2 million and \$301.2 million.
- The total economic impact of Virginia State Parks was approximately \$304.6 million.

- Regarding employment, the economic activity stimulated by visitation to Virginia State Parks supported approximately 3,598 jobs.
- In terms of wages and income, the economic activity spawned by Virginia State Parks was responsible for roughly \$113.6 million in wage and salary income.
- Economic activity created by Virginia State Parks was associated with approximately \$176 million in value-added effects, which is a measure of the park system's contribution to the gross domestic product of the Commonwealth.
- Economic activity stimulated by Virginia State Parks generated approximately \$21.3 million in tax revenue for the state. As such, \$1.17 of tax revenue were generated for every dollar of tax money spent in the park system.²
- In 2016, 27.1 million national park visitors contributed to Virginia's economy. These visitors spent an estimated \$1.1 billion and supported 68,000 jobs.³

Figure 5.1 National Park Contributions to Virginia's Economy



Source: National Park Service³

Challenges

- Funding is needed to study the statewide economic value of outdoor recreation.
- Rural and urban areas have different economic outcomes from outdoor recreation.
- Outdoor recreation economic outcomes and data are collected and reported differently across Virginia.

Assets and opportunities

- Virginia Tourism Corp., through implementation of the [Statewide Tourism Plan](#), identifies what brings value to communities.
 - The “Virginia Is For Outdoor Lovers” campaign targets young people through technology and branding. <https://www.virginia.org/outdoors>
- Community and business partnerships strengthen the connection between tourism and outdoor recreation.
- Sports tourism is an economic asset to localities.

Chesterfield County supports sports tourism with world-class facilities and fields. River City Sportsplex offers the largest collection of synthetic fields in the United States. Ukrop Park, home of the Richmond Kickers Youth Soccer Club, adds another 45 acres of synthetic turf. The Collegiate School Aquatics Center, also known as SwimRVA, is home to the pool used in the 2008 Olympic trials.

Source: The Chesterfield Chamber of Commerce

Recommendations

- Virginia Tourism Corp. should leverage the Virginia Tourism Development Plan, “Drive Tourism”, to accomplish statewide and regional goals for outdoor recreation. (Virginia Tourism Corp.)
- Develop a scope of work and plan to study the economic impact and financial outcomes for outdoor recreation and related tourism. The study should include:
 - Evaluation of “happiness” index – Happiness Attracts Tourists according to a 2016 publication in the *Annals of Tourism*⁴



Chatham Vineyards, Nassawondox | Sam Dean/Virginia Tourism Corp.

- Proposal for an educational campaign to communicate the value of outdoor recreation.
- Strategy for promoting outdoor recreation assets to elected officials. (Virginia Tourism Corp., Virginia Recreation and Park Society, DCR, Virginia Department of Game and Inland Fisheries, planning regions and localities)
- Benchmark the economic value of outdoor recreation with other states, especially those that have been recognized for their outdoor recreation benefits. (DCR, Virginia Tourism Corp. and academic specialist or university)
- Study the potential for statewide trail development as an opportunity to increase tourism. (DCR, Virginia Tourism Corp. and academic specialist or university)

Resources

- Outdoor Recreation Outlook by Outdoor Recreation Coalition (2018)
- “Economic Impact of Heritage Tourism in Virginia” prepared for Preservation Virginia by John Accordino and Fabrizio Fasulo (2017)

- “Economic Impact of James River Park System” by Victoria A. Shivy and I-Shian Suen, Urban and Regional Studies and Planning. Wilder School of Government and Public Affairs. Virginia Commonwealth University (2017)
- “The Outdoor Recreation Economy” by the Outdoor Industry Association (2017)
- “Federal Outdoor Recreation Trends: Effects on Economic Opportunities” by Eric White; J.M. Bowker; Ashley E. Askew; Linda L. Langner; J. Ross Arnold; Donald B.K. English (2016)
- “Economic Impacts of Fairfax County Park Authority” by Center for Regional Analysis, George Mason University (2016)
- “Virginia State Park Economic Impact Report” by Vincent Magnini & Muzalfer Uysal (2016)
- “The Economic Impact of Local Parks” by National Recreation and Park Association (2015)
- “Spearhead Trails Economic Impact Study” by Headwater Economics.org (2012)
- “James City County Parks and Recreation Economic Impact Study” by James City County (2010)

- “Quantifying the Benefits of Active Transportation” by Rails to Trails Conservancy (2008)
- “Banking on Nature” by Fish and Wildlife Service (2007)

Works Cited

1. Vincent P. Magnini, Esra Calvert and Martha Walker, “The Economic and Fiscal Impacts of Agritourism in Virginia”, Virginia’s Agritourism Industry – Economic Impact Report, Virginia Tech Pamplin College of Business, 2017.
2. Vincent P. Magnini, “Virginia State Parks Economic Impact Report”, Virginia Tech Pamplin College of Business, 2017, revised January 24, 2018.
3. “2016 National Park Visitor Spending Effects, Economic Contributions to Local Communities, States, and the Nation”, Natural Resource Report NPS/NRSS/EQD/NRR-2017/1421, National Park Service, <https://www.nps.gov/subjects/socialscience/vse.htm>
4. Gholipour, Hassan F. et al, “Happiness and Inbound Tourism” *Annals of Tourism* Volume 57, March 2016, Pages 251-253.



CHAPTER 6

Recreation and Health



Founders Park on the Potomac River, Alexandria | Cameron Davidson/Virginia Tourism Corp.

Introduction

In today's social climate, technology appears to be dominating time at work and social interactions. People spend a significant portion of the day sitting at computers or connected to a myriad of other devices. The end result is people sit more and move less. Health research is emerging that indicates unplugging is beneficial and that physical activity can counter-act the negative impact of long periods of inactivity. Regardless of why people choose to put down their devices and move, greater than 50 percent of Virginians who responded to the 2017 Virginia Outdoors Demand Survey (VODS) indicated that the outdoors was their destination for combining exercise and recreation.

In 2013, the National Institutes of Health published a literature review paper that looked closely at the benefits of heading outside to exercise. To summarize, outdoor environments for exercise appear to offer many health benefits such as increasing physical activity while lowering levels of perceived exertion, creating stress reduction, reducing mental fatigue and improving self-esteem. Outdoor exercise may also increase enjoyment and bring about positive behavioral changes in those who partake.¹

2017 VODS responses related to health and outdoor recreation:

- Sixty-seven percent of survey respondents report the main reason for participation in outdoor recreation is for physical activity and exercise.
- Almost 87 percent say their healthcare provider recommends exercise. Respondents of Hispanic descent were more likely to say their healthcare provider recommended recreation. Those between the ages of

18 and 24 were less likely to report that their healthcare provider recommended exercise or asked about exercise.

- Almost 65 percent of trail users report using trails for health and physical training.

State Partners in Health and Recreation

The Virginia Department of Health

The partnership between the Virginia Department of Conservation and Recreation (DCR) and the Virginia Department of Health (VDH) is growing. Both agencies have statewide plans to guide citizens, agencies and regional partners in implementing statewide initiatives related to outdoor recreation and health. VDH's [Virginia's Plan for Well-Being 2016-2020 \(VPWB\)](#) is a call to action for Virginians to create and sustain conditions that support health and well-being. The plan outlines four categories (AIMs) and 13 goals to address issues affecting Virginians' health.

There is an opportunity to integrate goals from the VPWB with the 2018 VOP. Achieving a healthier Virginia includes working together to address the challenges and implement recommendations for outdoor recreation and health.

Challenges for improving health through local recreation partnerships include:

- Identifying opportunities to interface regional outdoor recreation with health initiatives.
- Encouraging the VDH regional representatives to align outdoor recreation and the VPWB program goals.

- Addressing challenges that discourage outdoor physical activity such as lack of time, limited number of rural resources and safety.
- Aligning goals for both health and recreation to include outdoor recreation opportunities.

Recommendations

Health recommendations are primarily based on the VPWB program. Meetings of the VOP Technical Advisory Committee expanded upon VPWB recommendations in the categories of educating, engaging youth and envisioning communities for active lifestyles. Many of these recommendations may be achieved in partnership with the private sector and state and local governments. Opportunities to elevate these initiatives may be highlighted at annual regional meetings conducted by DCR.

- Envisioning communities for active lifestyles
 - Integrating health planning into local and regional comprehensive planning.
 - Improving connections to parks.
 - Encouraging community gardens, therapeutic landscapes and healing gardens.
 - Creating walkable/bikeable communities.
 - Creating parks, recreation facilities or open space in all neighborhoods.

Source: VPWB

The Complete Parks Systems concept originated in 2014 under the auspices of the Healthy Eating Active Living Cities Campaign and a series of statewide brainstorming sessions held with California Parks and Recreation Society leadership. Components of the Complete Parks framework that implement Virginia Outdoors Plan and VPWB program goals include:

1. Engage residents and stakeholders in planning for parks;
2. Connect parks to neighborhoods;
3. Locate parks where they are most needed and support nearby access to recreation;
4. Activate parks through robust, relevant programming;
5. Plant and maintain sustainable and aesthetically beautiful landscaping;
6. Make parks safe from real and perceived threats of criminal activity; and
7. Fund park creation, maintenance and programming.²

Source: <http://www.changelabsolutions.org/publications/complete-parks>

- Engaging youth
 - Providing walking paths.
 - Addressing water safety to reduce youth drownings.
 - Incorporating strategies to integrate use of electronics in outdoor recreation.
 - Promoting outdoor play.

Source: VPWB

- Educating the community about health through parks and recreation especially regarding:
 - Park programs
 - Tobacco control in parks
 - Youth education through sports programs by incorporating nutrition, exercise, well-being and good decision-making skills that influence positive behaviors.

- Risks of sun exposure

Source: VPWB



Display signage for tobacco-free parklands

LENOWISCO Health District increased opportunities for outdoor extracurricular activity for youth. They offer after-school and summer physical activity camp to low-income youth in the city of Norton. Participants are involved in archery, canoeing, fishing, hiking, and numerous other outdoor activities and classes. During the school year, the grant supports a walk-to-school event and offers bikes as a prizes to select students.

Crater Health District worked with the Friends of Lower Appomattox River to increase connectivity to local trails through newly designed community signage.

The Virginia Department of Game and Inland Fisheries

The partnership between DCR and the Virginia Department of Game and Inland Fisheries (DGIF) has been in effect for many decades through combined land conservation and water access programs.

Creating fishing opportunities is a primary function for DGIF. The department owns and manages 298 water access sites and 39 manmade lakes and ponds for public fishing. In order to improve the angling experience and respond to anglers' needs, DGIF is working to improve fish habitat, develop shoreline access and build fishing piers.

DGIF also manages the Virginia Birding and Wildlife Trail. "Find Birding" serves as the electronic, interactive version of this hugely popular program with more than 650 sites open to the public for birding, wildlife viewing, or simply enjoying the outdoors and nature.

Further, DGIF maintains 42 management areas totaling more than 203,000 acres for the benefit of all citizens for a variety of outdoor recreational opportunities. Many management areas are open for some type of hunting. These lands are purchased and maintained with hunting, fishing, and trapping license fees and with Wildlife Restoration Funds. The public is encouraged to utilize management areas and enjoy the bountiful natural resources found in each area.

DGIF recreation programs

- Angling education program - fishing in the schools
- Hunter education program
- National Archery in Schools Program
- Virginia Birding and Wildlife Trail
- Boating safety program

To learn more about all DGIF programs, visit:

<https://www.dgif.virginia.gov/>.

DGIF launched the Virginia Wildlife Grant Program in 2014, which provides a funding source to nonprofits, schools and government agencies with a focus to connect youth to the outdoors. It is a partnership between DGIF and the Wildlife Foundation of Virginia. In 2017, the Virginia Wildlife Grant Program awarded funding for 27 projects totaling just over \$55,000 that will impact almost 10,000 youth. Eleven projects will benefit at-risk youth. Projects spanned the entire Commonwealth and integrated activities including fishing, archery, wildlife viewing, boating, shooting sports, hunting and trapping. Support of the program is generated through the sale of gear and other merchandise from ShopDGIF.com, the One Shot Turkey Hunt Fundraiser and private contributions.

Source: Virginia Department of Game and Inland Fisheries



Archery at Bear Creek Lake State Park | Virginia Department of Conservation and Recreation

Resources

"Status Report for Step It Up! The Surgeon General's Call to Action to Promote Walking and Walkable Communities." Atlanta, GA: Centers for Disease Control and Prevention, U.S. Department of Health and Human Services; 2017
<https://healcitiescampaign.org/resources/>

Works Cited

1. Gladwell, Valerie F et al. "The Great Outdoors: How a Green Exercise Environment Can Benefit All." *Extreme Physiology & Medicine* 2 (2013): 3. PMC. Web. 28 Mar. 2018.
2. "The Health and Social Benefits of Recreations" Report, An Element of the California Outdoor Recreation Planning Program, www.parks.ca.gov/planning



CHAPTER

7

*Parks and
Recreation*

Morning fishing at Douthat State Park | Bill Crabtree, Jr./Virginia Tourism Corp.



Cozy cabins nestled in natural setting at Staunton River State Park | Virginia Department of Conservation and Recreation

Background

Local, regional, state and federal parks, recreation providers and land managers provide essential public services for outdoor recreation. Across the nation, there is growing interest in increased park funding. The Trust for Public Land reported in a 2017 article, “Voters pass \$1.5 billion for local parks,” that 88 percent of the 41 recreation and land conservation bonds proposed across the nation passed. These local parks and open space initiatives total more than \$2 billion.

Reasons citizens support parks spending are summarized in a National Recreation and Park Association article, “Why Parks and Recreation are Essential Public Services.” The contributions of parks to the economy, value, health, the environment and social opportunities are shown below.¹

Economic Value

- Increase property values and increase local tax base.
- Improve environmental quality and save community costs for stormwater management in urban areas.
- Attract businesses to communities.
- Provide indirect revenue to local economies (e.g., hospitality, tourism, fuel, recreation equipment sales).

Health and Environmental Benefits

- Provide places to exercise and opportunities to stay fit.
- Improve individual and community health.
- Protect and enhance the environment and natural conditions affecting health.

Social Importance

- Improve quality of life.
- Provide gathering places for all populations and generations.
- Reduce crime, vandalism and juvenile delinquency.
- Provide a sense of public pride and community cohesion.

Virginians Recognize the Importance of Publicly Owned Parkland

The 2017 Virginia Outdoors Demand Survey (VODS) asked Virginians their opinions about development of publicly owned parkland. Responses show Virginians support parks and land protection. Figure 7.1 indicates almost half (49.8 percent) want publicly owned parkland to be permanently protected. Another quarter (24.3 percent) think publicly owned parkland should be permanently protected only if the park is essential to water quality or threatened species. Less than 10 percent (6.70 percent) replied that publicly owned parkland should be available for conversion to private development.

Figure 7.1 Publicly Owned Parkland and Development

Permanently protect from conversion to private development in all cases	49.80%
Permanently protect from conversion to private development only if the park protects water quality or threatened species	24.30%
Don't know/prefer not to say	19.20%
Available for conversion to private development based on future community needs	6.70%

Source: 2017 Virginia Outdoors Demand Survey



There's nothing quite like a lunch in the great outdoors | Bill Crabtree, Jr./Virginia Tourism Corp.

The 2017 VODS results about parks include Virginians' preferences for access to parks, desired park improvements, types of parks needed, electronic accessibility in parks and park safety. According to the Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," the 2016 statewide parks and recreation per capita expenditure was \$71.06.

Access to Parks

To better understand how to meet the changing needs for parks, the survey asked why Virginians did not visit parks. The top two reasons, "lack of time" (57.4 percent) and "lack of money" (25.0 percent) cannot be changed by parks professionals. Twenty-one percent reported "a lack of parks nearby". This represents a call to action across Virginia. Eighteen percent, mostly older populations reported both health and physical mobility to be limiting factors for visiting parks. This means during the next five years, parks must continue to address accessibility and universal design. While only 6.1 percent of those surveyed reported that transportation was an issue for visitation, there may be a greater need, especially in rural areas, for park access.

Park Improvements Desired by Citizens

Over one-third of Virginians think hours of operations and parking are the most important park features. About 20 percent of Virginians asked for improved trail signage and trails that comply with Americans with Disabilities Act guidelines. The following park improvements were mentioned most in comments by survey respondents.

- Easy-to-walk, paved trails
- Restrooms
- Benches
- Access for mobility chairs
- Access to parks from neighborhood trails
- Special programming for people with disabilities
- Senior discount and low-cost access

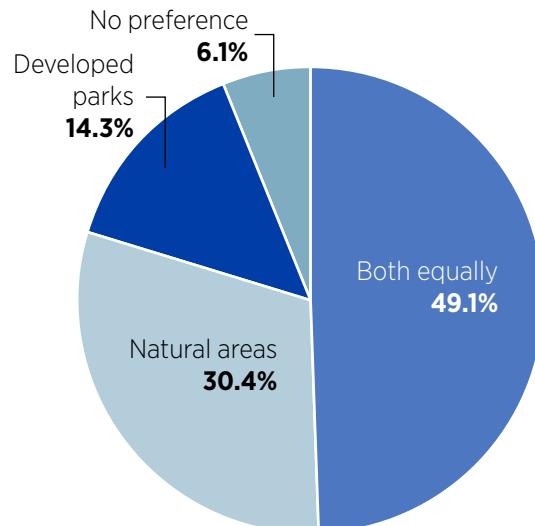
Defining a Close-to-Home Park

According to the 2017 VODS, over half of the respondents (63 percent) indicated that parks should be within a 15-minute walk or 15-minute bike ride. When it comes to driving distance, over half of the respondents indicated that a close-to-home park should be within a 20-minute drive.

Developed Parks vs. Natural Areas

Figure 7.2 shows the need for both developed parks and natural areas. Almost half (49.1 percent) of those surveyed prefer both developed parks and natural areas. Youth between the ages of 18 and 24 reported a higher preference (49.1 percent) for visiting natural areas. Those 25 years and older reported a 31.7 percent preference for natural areas over developed parks.

Figure 7.2 Developed Parks vs. Natural Areas



Park Safety

The 2017 VODS asked citizens to rank their top three park improvements for safety. Figure 7.3 shows park and trail maintenance and facility equipment as the highest priority.

Figure 7.3 Improvements for Safety

Well maintained parks, equipment and trails	71.40%
Lighting	54.50%
Park personnel out and about	43.60%
Signage	36.90%
Litter cleanup	29.90%
Law enforcement personnel visible	27.60%
Paper maps on site	22.10%
Age-appropriate facilities	17.10%
Online wayfinding	6.30%
Other	2.90%

Source: 2017 Virginia Outdoors Demand Survey

Wi-Fi, Internet and Cell Phone Service in Parks

Results of the 2017 VODS show many view cell service as a personal safety issue. More than half (57.3 percent) of park users would continue to use parks without cell phone service. Survey results also indicate that 85.3 percent of Virginians would likely use a park with no Wi-Fi or Internet access.

National Agencies and Organizations that Support Outdoor Recreation

While the survey addressed preferences at the state level, national agencies and organizations provide information related to specific programs and resources.

Outdoor Recreation Industry

The Outdoor Recreation Industry prepares an annual Outdoor Recreation Participation Report. This information may be used to supplement the 2017 VODS.

National Park Service

Virginia and the National Park Service have worked closely for many years to protect and conserve the state's important resources and rich heritage. The partnership has resulted in the creation of a network of river corridors, trails, heritage sites and conservation areas that bring numerous benefits to the citizens of Virginia. In Virginia, the National Park Service manages 22 parks with a combined acreage of approximately 400,000 acres. The park service prepares an annual summary of the 22 park facilities that attract over 25 million visitors in Virginia.

Figure 7.4 Park Area Standards

type	acres/1,000 People	urban/suburban service area	rural	minimum acres
Neighborhood park	3	2 Miles	1-1.5 Miles	5
Playground	no minimum	2 Miles	no minimum	no minimum
Community park	3	1 Mile	3-7 Miles	20
District park	4	5-7 Miles	10-15 Miles	50
Regional park	based on local guidelines	25 Miles	25 Miles	100
State park	10	1 Hour	50 Miles	600

Source: 2007 Virginia Outdoors Plan Appendix C, page 671

Forest Service

The U.S. Department of Agriculture's Forest Service administers the 1.8 million-acre George Washington and Jefferson National Forests in Virginia. This national forest constitutes nearly 50 percent of the public outdoor recreation land in the Commonwealth. It stretches the length of the western portion of the state and has acreage in 31 western counties.

Fish and Wildlife Service

The U.S. Fish and Wildlife Service manages 15 national wildlife refuges and one national fish hatchery in Virginia, which totals more than 161,032 acres. While the refuges are managed primarily to provide habitat and to protect valuable ecosystems, they also provide significant outdoor recreational opportunities.

Other Federal Lands

In addition to national forests, parks and wildlife refuges, the federal government manages more than 426,000 acres in Virginia. Although most of these areas are managed primarily for military purposes.

The U.S. Army Corps of Engineers operates Flannagan, Kerr and Philpott Reservoirs. These reservoirs comprise a total 99,000 acres. Legislation for the operation of these reservoirs requires consideration of recreation, fish and wildlife conservation, hydroelectric power, water supply, and the preservation and enhancement of natural beauty.

State Agencies Providing Outdoor Recreation

Virginia Department of Conservation and Recreation

On June 15, 1936, in one day, Virginia opened an entire state park system consisting of six parks that totaled nearly 19,000 acres. By 1965, there were nine state parks, three recreational areas, several historic sites and six natural areas. "Virginia's Common Wealth," the state's first comprehensive outdoor recreation plan, evaluated the demand for outdoor recreation and assessed resources.

Key reasons identified in the 1965 plan for developing state parks remain relevant today.

- Being in nature serves as a tonic to the mind, body and spirit.
- Parks protect significant natural and cultural resources for future generations.
- Parks serve as regional and community economic engines.

Identifying and addressing resources within state parks minimizes impacts and maximizes the public's enjoyment of parkland. Virginia follows the guidelines below to evaluate potential state parks. The acreage requirements for linear, urban and rural state parks may vary from this traditional guidance. Appendix 7 provides park planning guidance for different types of parks.

In 2017, Virginia State Parks attendance exceeded 10 million people who spent an estimated \$226.1 million in the Commonwealth. Compared to 2012, visitors to the Virginia State Parks exceeded 8.3 million with an economic impact of \$199 million. Figure 7.5 shows how survey respondents ranked State Park accommodations and camping amenities.

Figure 7.5 State Park Most Preferred Accommodations and Camping Amenities

preferred overnight accommodations	
Cabins	73%
Drive-in campsites with water and electric hookups	35%
Camp cabins or yurts	27%
Tent-only campsites	23%

popular drive-in camping amenities	
Flush toilets	85%
Showers	84%
Security patrol	70%

Source: 2017 Virginia Outdoors Demand Survey

DCR launched the Virginia Natural Area Preserve System in 1990. It now contains 63 Natural Area Preserves supporting some 760 exemplary natural communities and rare plant and animal populations on 56,648 acres. Twenty-one of the preserves offer public access facilities consisting in most cases of a parking area, 85 miles of self-guided hiking trails and water access. The 2017 Virginia Outdoors Demand Survey found the No. 1 activity is visiting natural areas.

Virginia Department of Game and Inland Fisheries

The Virginia Department of Game and Inland Fisheries has statutory responsibility to manage the Commonwealth's wildlife and inland fisheries, and to protect state and federally threatened or endangered species (excluding plants and insects). As a special fund agency, DGIF has specific authority to acquire and develop lands and waters for public hunting, fishing and public boating access to enhance recreational use of fish and wildlife resources. The Virginia Department of Game and Inland Fisheries maintains 42 management areas totaling more than 203,000 acres for the benefit of all citizens for a variety of outdoor recreational opportunities.

Virginia Department of Forestry

The Virginia Department of Forestry manages 24 state forests that total 68,626 acres. Citizens may hike in state forests by purchasing a permit. The state forests of Virginia are self-supporting and receive no taxpayer funds for operation. Operating funds are generated from the sale of forest products. In addition, up to 25 percent of the revenue received from the sale of forest products is returned to the counties in which the forests are located.

Regional and Local Parks Providing Outdoor Recreation

Local parks and recreation departments and regional supporting groups, like those for multijurisdictional trails and water trails, along with the regional planning district commissions, all work together to provide planning and identify funding sources for parks, trails and outdoor recreation implementation.

The Virginia Recreation and Park Society (VRPS) is a private, nonprofit professional organization, founded in 1953 and incorporated in 1956. Its purpose is to unite all professionals, students and interested laypersons engaged in the field of recreation, parks and other leisure services. Members work together to promote and improve the profession in all its diversity. VRPS is affiliated with the National Recreation and Park Association. Opportunities are growing for local parks and recreation professionals to connect and partner on statewide initiatives that promote and increase the visibility and accessibility of outdoor recreation for all Virginians.

Local and Regional Park Authorities

Separate from local government departments, these organizations can be multijurisdictional and are outdoor recreation providers.

Localities Without Parks and Recreation Departments

Not all localities have parks and recreation departments. Many of these localities rely on private facilities as well as federal, state and regional parks to meet local outdoor recreation needs. The caveat in this approach is the regional, state and federal agencies managing recreation lands in these localities are mission driven to meet their own land management needs and not necessarily the needs within the community.

Figure 7.6 Localities Without a Full-time Parks and Recreation Director



Assets and Opportunities

The Virginia Outdoors Plan Technical Advisory Committee identified the many assets parks and recreation bring to communities.

- Parks are places to meet and create a sense of community and belonging for every age group and gender, uniting cultural differences.
- Parks support healthy living and community wellness.
- While recreation funding has steadily declined, public-private partnerships, tourism and sports tourism are growing to broaden outdoor recreation opportunities.
- Protection of Virginia's lands and natural resources fosters citizen stewardship of land, trails and parks.

Three main benefits to parks and recreation in Virginia are:

1. The VRPS has an established system for networking and legislation advocacy to support local parks and recreation departments.
2. Public-private partnerships, tourism and sports tourism are growing to broaden outdoor recreation opportunities.
3. Land protection is a local issue that can support parks and recreation and increase stewardship of public land.

Challenges

There is a need for state funds to support parks across Virginia. Federal Land and Water Conservation Fund and Recreational Trails Program grants are inadequate to meet growing outdoor recreation needs. Localities are creative in seeking funding partnerships with the Virginia Department of Health, the Department of Game and Inland Fisheries and the Virginia Tourism Corporation, but to sustain the growing demand from both residents and tourists for outdoor recreation, additional sources of income are needed (see Chapter 4). Challenges include:

- Proposing bond referendums to support local parks and recreation, state parks and natural areas and collaborative regional recreation projects.
- Identifying a source of consistent, stable funding for local parks outside LWCF and federal dollars associated with transportation enhancement projects.

Recommendations

- The VRPS should host a statewide forum at a conference or VRPS webinars to engage forum participants in developing statewide strategies to address and advocate for local, regional and state recreation needs. Potential Outcomes: Advocacy document supporting increased state and local recreation funding.
 - Assessment of statewide recreation planning and technical assistance needs. (Virginia Outdoors Plan Technical Advisory Committee, VRPS, DCR)
- Develop partnerships with health professionals to integrate outdoor recreation into health initiatives. (VRPS, DCR, Virginia Department of Health)

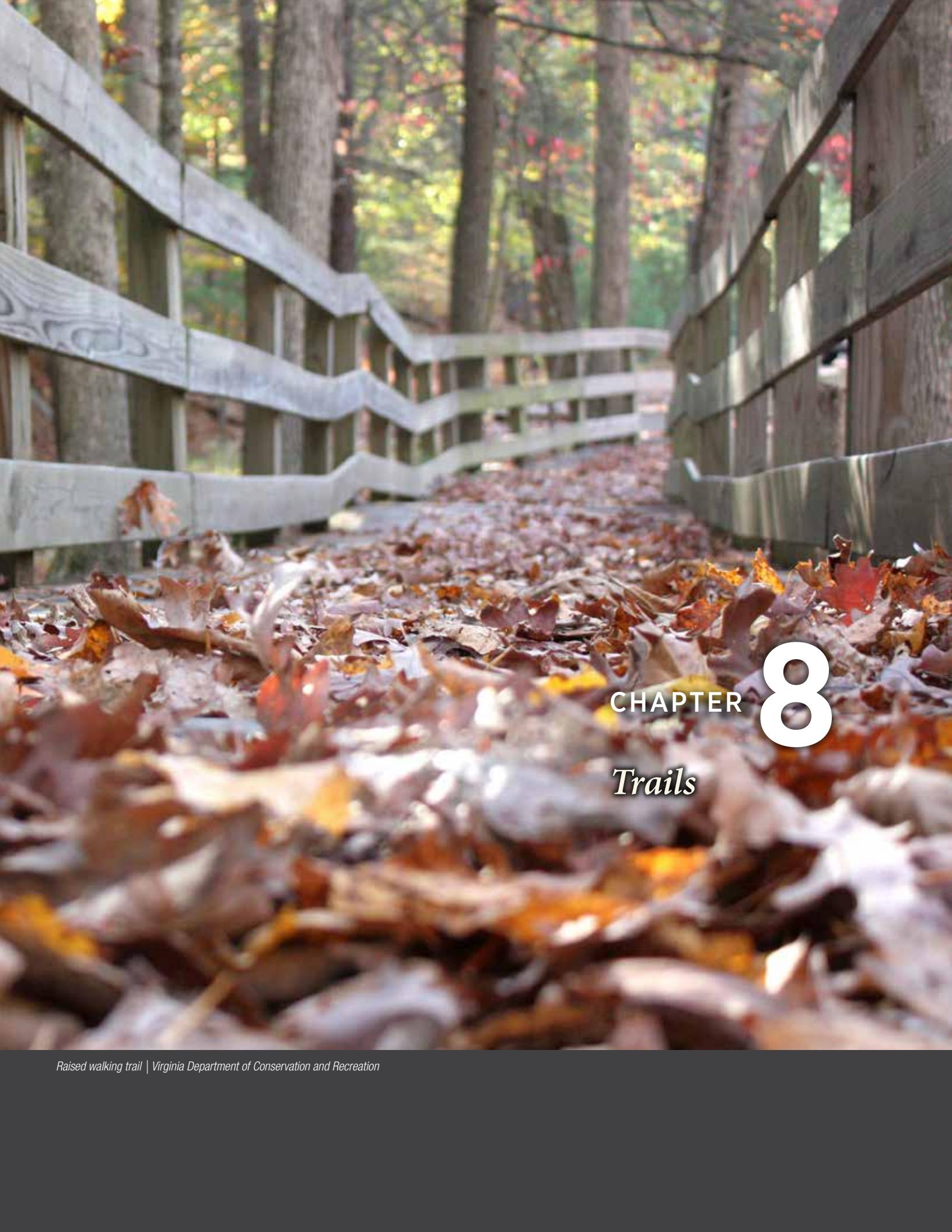


Vintage Photograph, Douthat State Park | Virginia Department of Conservation and Recreation

- Develop educational programs or a webinar series to support the needs of diverse populations and increase cultural awareness in outdoor recreation. (VRPS, DCR - Virginia State Parks)

Works Cited

1. "Why Parks and Recreation are Essential Public Services", National Recreation and Parks Association, 2010, <https://www.nrpa.org/uploadedFiles/nrpa.org/Advocacy/Resources/Parks-Recreation-Essential-Public-Services-January-2010.pdf>

A photograph of a raised wooden walkway made of grey horizontal planks, curving through a forest. The ground is covered in fallen autumn leaves in shades of brown, orange, and red. The background shows tall trees with colorful foliage.

CHAPTER 8

Trails

Raised walking trail | Virginia Department of Conservation and Recreation

Definitions

Trail-A linear route on land or water with protected status and public access for recreation or transportation purposes such as walking, jogging, hiking, bicycling, horseback riding, mountain biking, canoeing, kayaking, backpacking and vehicular travel by motorcycle or all-terrain vehicles. (from Trails for the Twenty-First Century)

Greenway-1) A linear open space established along either a natural corridor, such as a riverfront, stream valley, or ridgeline, or overland along a railroad right-of-way converted to recreational use, a canal, a scenic road, or other route. 2) Any natural or landscaped course for pedestrian or bicycle passage. 3) An open-space connector linking parks, nature reserves, cultural features, or historic sites with each other and with populated areas. 4) Locally, certain strip or linear parks designated as a parkway or greenbelt. (from Greenways for America).

Active Transportation- Any form of human-powered transportation that uses physical activity to travel from one destination to another. (Active Transportation Guidebook)

According to the 2017 Virginia Outdoors Demand Survey (VODS), 43 percent of Virginians ranked trails as the most needed recreational opportunity. A higher percentage of urban residents mentioned trails as most needed. Trail facilities support many popular outdoor recreation activities, including walking for pleasure, jogging and running, horseback riding, hiking and backpacking, and bicycling (Figure 8.1). For the first time in the survey's history, the popularity of walking and running challenge-based events were polled. Nineteen percent of respondents said they participate in these events, an important source of funding for event promoters.

Figure 8.1 Participation in Trail Activities Statewide

activity	% households
Walking for pleasure	67
Jogging/running	24
Hiking/backpacking day trips	21
Walks/runs/challenge-based events	19
Paved or gravel bicycle trails	11
Bicycle touring on roads	9
Fitness trails (not jogging)	9
Equestrian Events	7
Mountain biking	6
Driving 4-wheel off road (Jeep, truck)	6
ATV or UTV off-road	6
Horseback riding	4
Driving motorcycle off road/dirt bike	2
Segway on sidewalks and paths	1
Electric-assist bicycle on road or trails	<1

Source: 2017 Virginia Outdoors Demand Survey

Wheeled Activities

Different types of wheeled activities were included in the 2017 Virginia Outdoors Demand Survey. Results show that Virginians enjoy using trails in a number of ways and purchase or rent equipment to support their trail activities. While bicycling has the highest participation rates, motorized and ATV or UTV off-road driving is gaining popularity as more opportunities are developed.

Figure 8.2 Participation in Wheeled Activities

activity	% households
Paved or gravel bicycle trails	11
Bicycle touring on roads	9
Mountain biking	6
Driving 4-wheel off road (Jeep, truck)	6
Driving ATV or UTV off-road	6
Driving motorcycle off road/dirt bike	2
Segway on sidewalks and paths	1
Electric-assist bicycle on road or trails	<1

Source: 2017 Virginia Outdoors Demand Survey

Equestrian Activities

Of the households that participated in equestrian activities in 2017 (7 percent), the vast majority (77.6 percent) engaged in trail riding. Many of the equestrian activities measured in the survey rely on both public and private trail facilities (see page 18, VODS). As private facilities are lost to development, more pressure is placed on the public sector to meet demand.

Trail Usage

Figure 8.3 shows the top reasons trails remain one of the most popular and most needed outdoor recreation facilities—supporting a healthy mind, body and spirit.

Figure 8.3 Top Four Reasons for Using Trails

	% households
Pleasure and relaxation	88.2
Experiencing scenery and the natural environment	70.6
Health and physical training	64.8
Family and social outings	50

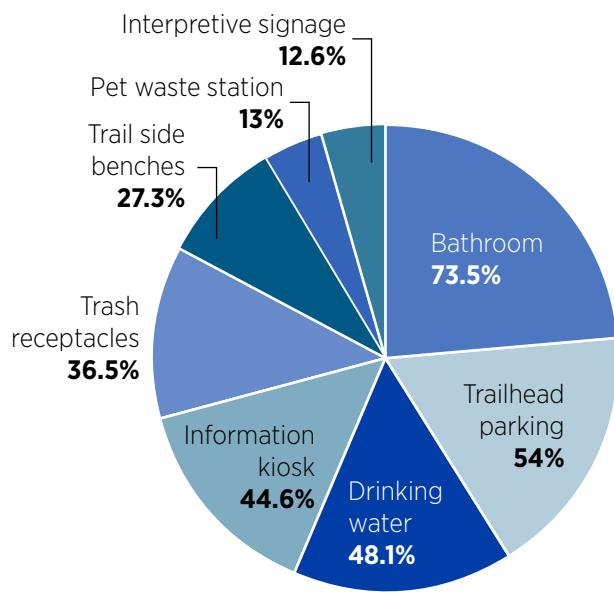
Source: 2017 Virginia Outdoors Demand Survey

Recreational Trail Amenities

Local, state and homebuyer surveys consistently affirm the desirability of trails, but there is less information on what facilities are needed along trails. Figure 8.4 ranks the importance of eight amenities that support trail users.

Bathrooms (73 percent) are the most important amenity for trail users. Over half (54 percent) of all trail users indicated trailhead parking was important. Less than half desired drinking water (48.1 percent), information kiosks (44.6 percent) trash receptacles (36.5 percent) and benches (27.3 percent). Thirteen percent of survey responses mentioned a need for pet waste stations and interpretive signage.

Figure 8.4 Trails Amenities Considered Most Important

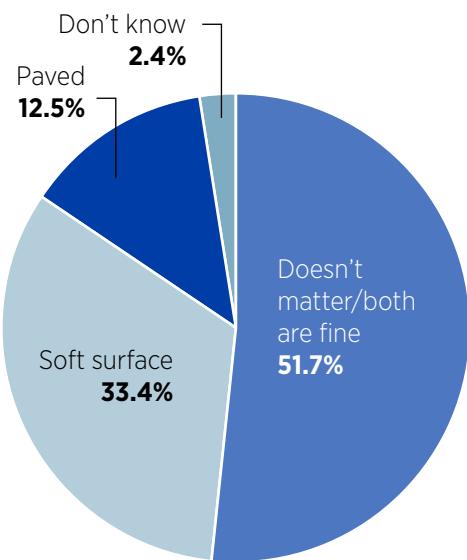


Source: 2017 Virginia Outdoors Demand Survey – Since responses could name multiple amenities, percentages were greater than 100

Trail Surfaces

Survey respondents did not indicate a strong preference for trail surface overall, but there may be strong preferences among user groups in specific settings. For example, hikers in scenic and remote areas may prefer unpaved, natural trails. Participants in wheeled activities may prefer paved surfaces. Trail planners should consider both supply and demand and short- and long-term cost constraints when determining the surface treatment for their trail project.

Figure 8.5 Trail Surface Preferences



Source: 2017 Virginia Outdoors Demand Survey

Trail Demand Based on Regional Input

Each year during development of the Virginia Outdoors Plan, DCR staff met with outdoor recreation stakeholders, professionals and trail advocates in the 21 recreation regions to monitor progress on recreation facility development. High priority “featured” projects are listed by region in Chapter 13. Fifty-six percent of all featured projects relate to trail development.

State Trails Advisory Committee – HB1542

Cumulative demand for trails across the state led the General Assembly to craft legislation in 2015 directing DCR to establish a State Trails Advisory Committee (STAC) to “assist the Commonwealth in developing and implementing a statewide system of attractive, sustainable, connected and enduring trails for the perpetual use and enjoyment of the citizens of the Commonwealth and future generations.”

Appointed by DCR’s director, the committee includes representatives from the Virginia Department of Game and Inland Fisheries, the Virginia Department of Transportation, the Virginia Outdoors Foundation, the U.S. Forest Service and the U.S. National Park Service; the director of the Chesapeake Bay Commission and non-legislative citizen members from the Virginia Outdoors Plan Technical Advisory Committee and the Recreation Trails Advisory Committee. Other members include individuals with technical expertise in trail planning, construction, maintenance, use and management. The committee meets twice a year and makes recommendations on these tasks outlined by the General Assembly:

- Closing the gaps in a statewide system of trails.
- Funding strategies and partnerships to leverage resources for trail development.
- Promoting and marketing trail values and benefits.
- Developing specialty trails, e.g., old-growth forest trails.
- Encouraging and creating community and open-space linkages.
- Fostering communication and networking among trail stakeholders.
- Increasing tourism and commercial activities related to a statewide trails system.
- Encouraging involvement of organizations promoting youth activities.
- Identifying and supporting practices, standards, statutes and guidelines enhancing statewide trail planning including input from adjacent and nearby property owners.

The committee identified the following major challenges related to trail development:

- Improving the availability of grant funding for trail development.

- Increasing resources for local trail development.
- Increasing funding for trail maintenance and operations, especially in rural areas.
- Providing guidance for prioritizing trail projects.
- Balancing trail user needs and conflicts including addressing surfacing to meet the Americans with Disabilities Act standards.
- Marketing trails through tourism—inside and outside Virginia.
- Meeting stormwater standards.

Assets and Opportunities

Statewide Connecting Trails

In 2007, the Virginia Outdoors Plan first mapped the six statewide trails that make up the state trail system. This state system of scenic, recreation and connecting trails is described in Virginia § 10.1-204. Although mapping the statewide trails was a significant step toward the goal of connecting the Commonwealth, some areas of the state were still not connected.

The STAC requested that additional work be completed on the statewide network. The committee developed goals to fill gaps in the statewide trails system and to encourage its inclusion in local and regional plans.

Figure 8.6 Statewide Trails and Bicycle Routes

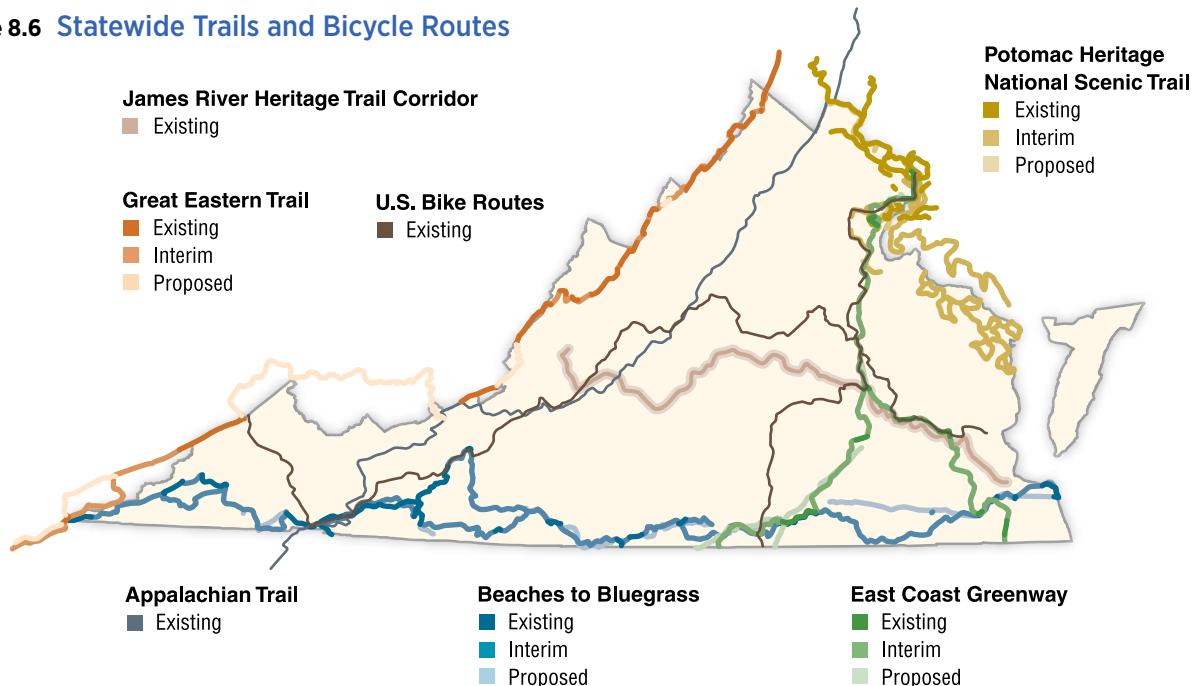
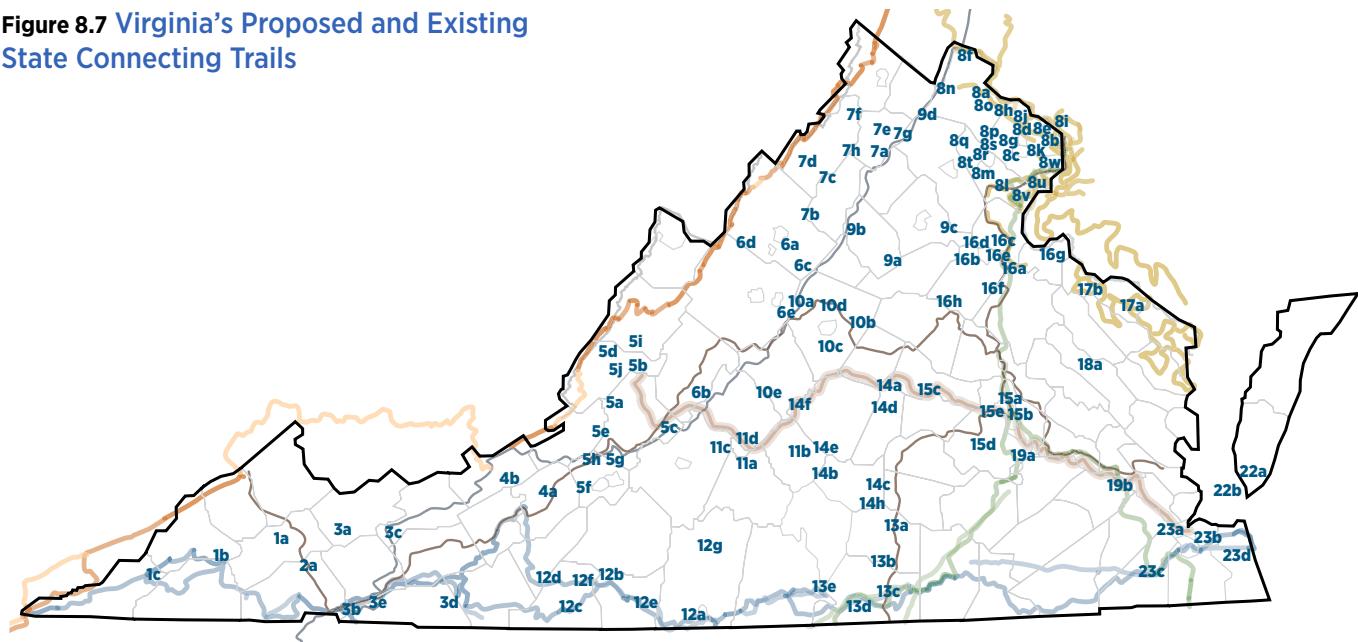


Figure 8.7 Virginia's Proposed and Existing State Connecting Trails



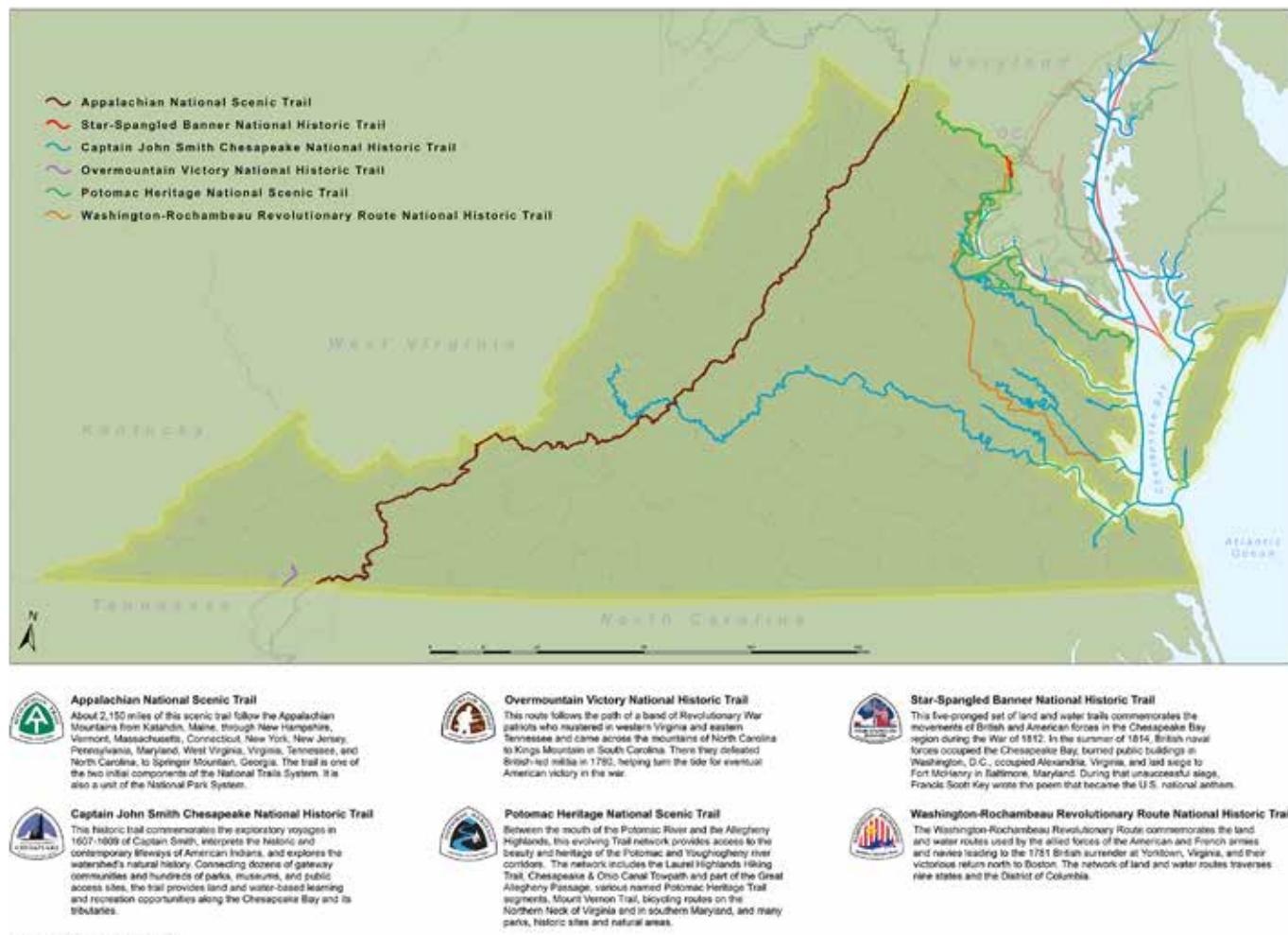
- | | | | | | |
|-----------|---|------------|--|------------|---|
| 1a | Clinch River Trail | 8e | Custis Trail | 13a | Tobacco Heritage -High Bridge Connector |
| 1b | Guest River Gorge Trail | 8f | Hill, Hops and Vine Bike Route | 13b | Tobacco Heritage Road Routes |
| 1c | Wallen Ridge Trail | 8g | I-66 Bikeway | 13c | Tobacco Heritage Future Off-road Trails |
| 2a | Clinch Mtn/Channels/Hidden Valley Connector | 8h | Northern Broad Run | 13d | Occoneechee State Park Trails |
| 2b | Cranesnest Equestrian Trail | 8i | Pentagon Memorial Circuit Trail (911 Trail) | 13e | Staunton River State Park Trails |
| 3a | Heart of Appalachia Bike Route | 8j | Pimmit Run Stream Valley Trail | 14a | Willis River Trail/Cumberland State Forest Roads and Trails |
| 3b | Virginia Creeper Trail (part) | 8k | Pohick Stream Valley Trail | 14b | High Bridge Trail |
| 3c | Walker Mountain Trail | 8l | Route 234 Bicycle and Running Trail | 14c | Prince Edward State Forest Roads and Trails |
| 3d | Matthews State Forest Roads and Trails | 8m | Southern Broad Run | 14d | Bear Creek Lake State Park Trails |
| 3e | Grayson Highlands State Park Trails | 8n | W&OD Connector | 14e | Holiday Lake State Park Trails |
| 4a | Valley to Valley Trail | 8o | W&OD Trail | 14f | James River State Park Trails |
| 4b | Poverty Creek/Huckleberry Connector | 8p | West County Trail | 14h | Twin Lakes State Park Trails |
| 5a | Craig Valley Scenic Trail | 8q | Mill to Mill Trail | 15a | Gillie's Creek Greenway |
| 5b | Fore Mountain Trail | 8r | Catharpin Greenway | 15b | Cannon Creek Greenway |
| 5c | Glenwood Horse Trail | 8s | Manassas Bridle Trails | 15c | Powhatan State Park Trails |
| 5d | Jackson River Trail | 8t | Conway-Robinson State Forest Roads and Trails | 15d | Pocahontas State Park Trails |
| 5e | North Price/Broad Mountain Trails | 8u | Mason Neck State Park Trails | 15e | James River Park Trail System |
| 5f | Roanoke River Greenway Network | 8v | Leesylvania State Park Trails | 16a | Dahlgren Connector |
| 5g | Tinker Creek Greenway | 8w | Capital Trail Coalition trail network | 16b | Virginia Central Rail Trail |
| 5h | Carvin's Cove Trails | 9a | Rapidan River Trail | 16c | Canal Path |
| 5i | Douthat State Park Trails | 9b | Rapidan horse/hiking trail | 16d | Fall Hill Avenue Trail |
| 5j | Dry Run Trail | 9c | Rappahannock River Trail | 16e | Rappahannock River Heritage Trail |
| 6a | Bike the Valley Bike Route | 9c | Sky Meadows State Park Trail | 16f | Spotsylvania Greenways |
| 6b | Chessie/Brushy/Buena Vista Connector | 10a | Crozet Tunnel Trail | 16g | Lake Anna State Park Trails |
| 6c | Madison Run horse/hiking trail | 10b | Rivanna River Trail | 16h | Caledon State Park Trails |
| 6d | Wild Oak NRT | 10c | Route 20 Sidepath | 17a | Northern Neck Heritage Bike Route |
| 6e | South River Greenway | 10d | Three-Notched Trail | 17b | Westmoreland State Park Trails |
| 7a | Dickey Ridge Trail | 10e | Route 29 sidepath | 18a | Middle Peninsula Bike Route |
| 7b | Massanuttan Mountain South | 11a | James River Heritage/Poplar Forest Connector | 19a | Appomattox River Trail |
| 7c | Massanuttan Mountain Trail | 11b | Appomattox Heritage/State Forest Connector | 19b | Chippokes Plantation State Park Trails |
| 7d | Shenandoah Town and County Rail Trail | 11c | Lynchburg Trail System and Riverside extension | 22a | Southern Tip Bike & Hike Trail |
| 7e | Royal Shenandoah Greenway | 11d | Lynchburg Bike Loops | 22b | Kiptopeke State Park Trails |
| 7f | Tuscarora Trail | 12a | Angler's Ridge Trail System | 23a | Birthplace of America Trail |
| 7g | Route 522 pedestrian path | 12b | Philpott Reservoir Trails | 23b | Elizabeth River Trail |
| 7h | Shenandoah State Park Trails | 12c | Mayo River/Dehart Trail System | 23c | Dismal Swamp Trails |
| 8a | Goose Creek Trail | 12d | Rocky Knob/Rock Castle Gorge | 23d | First Landing State Park Trails |
| 8b | Alexandria Heritage Trail | 12e | Smith River Sports Complex Connector | | |
| 8c | Bull Run-Occoquan Trail | 12f | Fairy Stone State Park Trails | | |
| 8d | Cross County Trail | 12g | Route 29 bike route | | |

To that end, DCR developed a Proposed and Existing State Connecting Trails map (see figure 8.7). Connecting trails were added to this map based on advisory committee recommendations, a region's featured projects, a review of historic Virginia Outdoor Plan (VOP) trail maps and an effort to reach into every planning district. Water trails are not included. To be included on the map, trails had to meet all of these criteria:

- Be at least 5 miles long (one way).
- Connect to a statewide trail directly or through another connecting trail.
- Cross barriers, boundaries or jurisdictions to connect communities or natural assets.
- Have an established management entity.
- Be identified in local, regional or state plans and have grassroots support.

While the effort to make trail connections is ongoing, this map may help plan for future connections across regional boundaries.

Figure 8.8 National Scenic and Historic Trails in Virginia



Author: Peter Bonnell - National Park Service

National Trails

2018 marks the 50th anniversary of the National Trails System Act "to promote the preservation, public access to, travel within and enjoyment and appreciation of the open-air, outdoor areas and historic resources of the nation." Virginia has six **National Trails** that offer outdoor recreation, transportation, education, enhance quality of life, economic development and heritage tourism to nearby communities.

Two national scenic trails, the Appalachian Trail and the Potomac Heritage Trail, are also scenic trails within the state trail system that meet the Code of Virginia's non-motorized requirement, and the latter employs different modes of travel. The John Smith Chesapeake National Historic Trail encompasses both land and water trail systems along Chesapeake Bay rivers and tributaries. Supporters of the Washington-Rochambeau Revolutionary Route National Historic Trail, which follows the old Kings Highway through eastern Virginia, are preparing for the 250th anniversary of the Revolutionary War. The Overmountain Victory National Historic Trail and the Star-Spangled Banner National Historic Trail have small but significant footprints in opposite corners of the state.

Working through memoranda of understanding and cooperative agreements and task agreements, trail partners in Virginia contribute to and reflect the character of the National Trails System. Many partners, often aided by volunteers, have planned, designed, constructed and maintained trail sections; identified scenic resources; developed trip itineraries; and promoted and led tours.

Case Study

The Northern Virginia Regional Commission has developed an interactive map based on a corridor analysis of the Potomac Heritage Trail through the region. This helpful tool provides information on the status of each trail segment and helps local planners close the gaps. <https://nvrc.maps.arcgis.com/apps/View/index.html?appid=d1757e45167d4f9caba41fcc88193e4f7>

Opening Private Lands to Recreation

Where landowner concerns create gaps in trail networks, some outfitters have been successful in negotiating access to private property through guided overnight trips. In these cases, the outfitter holds liability insurance and charges a camping fee that provides income for the landowner. The outfitter is responsible for clearing up any trash and ensuring that property damage does not occur. This arrangement has provided extra income to farmers along the James River Heritage Trail.

The Southwest Regional Recreation Authority/Spearhead Trails has added hundreds of miles of trail to the Spearhead Trails system, which is currently at 400 miles and growing at over 100 miles per year. Most of the trails are on private properties based on land-use agreements with large private landowners—primarily coal, gas and timber companies. These landowners appreciate knowing their

Prince William County has been actively closing the gaps through Potomac Heritage Trail segments at George Mason's Potomac Science Center, Locust Shade Park and the Neabsco Creek Boardwalk, a destination walkway through wetlands that connects residential communities to Leesylvania State Park.



Potomac Heritage Trail connecting to GMU Science Center
Prince William County Department of Parks, Recreation and Tourism

lands are policed by Spearhead rangers, and that the recreation authority holds liability insurance in case of injuries. Also because they donate the easement or land-use agreements to Spearhead Trails, they are protected from lawsuits by trail riders. The authority covers insurance and other costs through a permit system. Written agreements with each landowner provide flexibility in trail alignment in case acreage is put back into production, making otherwise unusable land a gateway to outdoor recreation.

The area is currently experiencing around \$15 million per year in economic impact and supporting about 168 full-time jobs, primarily in the private businesses that now cater to Spearhead Trails users. Spearhead Trails not only builds and maintains environmentally friendly ATV trails, but it helps build trail economies for local towns and communities. Next year, it will open its first equestrian trails and hopes to create horse towns and economies in the near future.

State code offers protection to landowners who open their lands for recreation without a fee. In the recreational use statute, a public entity is required by statute to “hold harmless” and indemnify the landowner for the cost associated with a claim brought by an injured recreational user if the public entity has an easement or license for the use of the land by the public.

Closing the Gaps

The Northern Virginia Regional Commission is helping close the gaps in the Potomac Heritage Trail through an interactive map that identifies each gap. Called the “[Corridor Analysis for the Potomac Heritage National Scenic Trail in Northern Virginia](#)”, this map offers a regional summary of current and planned amenities, gaps and plans for the trail network, identifying proposed projects to enhance trail communities and the trail experience in the region.



Locust Shade Park segment
Prince William County
Department of Parks,
Recreation and Tourism



Neabsco Creek Boardwalk
Prince William County
Department of Parks,
Recreation and Tourism

Case Study

Partnerships with Health Providers

Many parks and recreation agencies are exploring partnerships with health providers to increase physical activity within their communities.

The city of Hopewell joined the Healthy Eating Active Living (HEAL) Cities & Town's Campaign through the leadership of the Community Action Network, an initiative formed by the Virginia Department of Health's Crater Health District. In October 2017, the HEAL Campaign awarded Hopewell gold-level recognition for accomplishing its resolution goals in each of three priority areas:

1. Promoting physical activity through improvements in the physical environment.
2. Promoting access to healthy food in under resourced areas.
3. Increasing physical activity opportunities throughout the city. The goals were accomplished through city-wide programs and activities to get Hopewell residents eating better and moving more. This included a park renovation project to highlight the city's outdoor amenities and

redesign the waterfront area along the Appomattox River Trail. Through this initiative, the city has moved forward with additional park renovation projects to improve existing parks and increase use.

Efforts to increase healthy food access were spurred through a partnership with a Hopewell Girl Scout Troop. Along with the troop's help, the city established a community garden that donates fresh food to the Hopewell Food Pantry. Another Hopewell partner, the Fitness Warriors program, is working to increase opportunities for residents to be physically active. The program offers free fitness instructor training programs to the community with the understanding that instructors will adopt a "pay it forward" approach by offering their own free classes in under resourced areas in the community. These initiatives highlight Hopewell's HEAL program's successful community involvement, partnerships, and interdepartmental approach, which are essential ingredients to advancing the health and wellbeing of any community.

More information on Hopewell's HEAL initiative can be accessed through the Public Health Advocates' HEAL Cities Campaign webinar: "How HEAL Cities Are Advancing Health for All in Parks and Recreation."

Recommendations

Advocacy is essential in developing a statewide trails network. The STAC met annually, since its founding in 2015, to provide input for the 2018 VOP and annual reports to the General Assembly. Goals and objectives developed during these meetings are listed below, each with an agency or partnering organization identified for implementation. The STAC, along with staff from DCR, will track implementation.

- Develop strategies to enhance trails in communities and close the gaps in the statewide system of trails as described in §10.1-204.
 - Complete a statewide trails plan to summarize the work of STAC and guide trails development and priorities for grant awards. (DCR, STAC)
 - Develop multi-state trails connectivity goals and strategies in the statewide trails plan. (DCR, STAC)
 - Encourage partnerships through Virginia Economic Development Partnership and local economic development initiatives for trails development. Assist local communities to promote trails as economic initiatives. (Virginia Tourism Corp.)
 - Identify and close the gaps in the statewide trails system and create linkages between communities and open space. Gather data from trail counters to support trails projects. (Regions, localities with the Department of Transportation [VDOT], DCR and Virginia Tourism Corp.).

- Create a central clearinghouse of information to close statewide trail system gaps. Consider an interagency memorandum of understanding to facilitate information sharing. (DCR)
- Include recreation, scenic and connecting statewide trails in local and regional plans. (Local and regional governments)
- Obtain funds for a statewide trails needs assessment showing costs for system development. (DCR , STAC, advocacy community)
- Identify existing and potential old-growth forests in each region that tie into the statewide trail system. (STAC)
- Address maintenance and operations needs at the outset of trail development. (Federal, state and local agencies)
- Connect local and regional trail providers with health partners. (STAC, DCR, Virginia Department of Health, local health partners)



Old Rag Mountain, Shenandoah National Park | Nate Dennison/Virginia Tourism Corp.

Return on Investment – James River Park System

With more than 1.4 million visits in 2016 alone, the James River Park System is by far the most visited park system in the Richmond region. The results of an economic impact study confirmed that the James River Park System is extremely important not only to the social and health status of the Richmond region, but also to the economic status of the region. Some of the highlights of the study:

Based on the 2017 budget, every James River Park System budget dollar is related to \$60.26 in visitor spending

In interviews with local businesses, owners estimated a 32.7 percent loss in revenue if the James River Park System did not exist.

For every quarter-mile closer to the James River Park System, a single family property is, the property's assessed value increased by a total of \$8,963.1

- Develop creative public and private funding strategies and partnerships to leverage resources for funding trail development
 - Seek sources of funding for trail renovation and maintenance. (STAC, DCR, advocacy community)
 - Leverage funding for trails with other infrastructure. (Government agencies and business partners)
 - Educate localities about transportation funding for trails. (VDOT, DCR)
- Facilitate partnership and outreach with business and the private sector to enhance and build trails. (STAC or friends of trails)
- Foster programs for recognizing businesses that support trails. (DCR)
- Develop strategies for the state to encourage trail agreements through partnerships, programs and legislation. (DCR, STAC)
- Explore utility easements for trail connections. (DCR, planning districts and localities)
- Work with businesses to explore trail development through mitigation when impacts to resources are unavoidable. (Local and state agencies and land managers)
- Integrate approaches to promote and market trail values and benefits.
 - Obtain funding for a statewide study on the economic and other benefits of trails. (STAC)
 - Publicize and market trail-use data and other positive impacts. (DCR, Virginia Tourism Corp., local and regional trail leaders, Virginia Health Department)
- Foster communication and networking among trail stakeholders.
 - Develop a common vision for trails in Virginia. (STAC)
 - Develop a communications plan. (DCR, Virginia Tourism Corp., STAC)

- Expand distribution of Greenways and Trails e-news. (DCR)
- Establish a nonprofit statewide trails organization. (Friends of trails, STAC)
- Create a central place for trail stakeholders to share and learn, incorporating social media. (Advocacy community and statewide trails organization)
- Provide educational opportunities, e.g., trails workshops. (Regions and local governments with support from DCR and other state agencies)
- Increase tourism and commercial activities associated with statewide trail system.
 - Develop tourism branding for trails in Virginia. (Virginia Tourism Corp.)
 - Develop community strategies to sustain and expand trails and supporting businesses. (Statewide trails organizations, Virginia Tourism Corp., local governments and chambers of commerce)
 - Identify trail service gaps in regions and localities that could support new and expanding businesses. (Local governments, chambers, Virginia Tourism Corp., Virginia Economic Development Partnership with input from trails advocacy community)
 - Install trail counters and collect other data needed to identify business opportunities. (Local and regional governments, VDOT)
 - Develop an app for sharing trail data with users. (VDOT, DCR, Economic Development and Virginia Tourism Corp.)
 - Plan and conduct training to promote trail towns. Develop a “train the trainer” program for an annual greenway and land conservation conference to include towns along Virginia state trails and parks, Appalachian Trail, Tobacco Heritage Trail and Spearhead Trail communities. (DCR, public and private partners)
- Update the Greenways and Trails Toolbox and Trails Program webpage to provide practices, standards, statutes and guidelines that enhance the effectiveness of trail planning across the Commonwealth.
 - Update the Greenways and Trails Toolbox to include a trail signage plan; OHV trail development guidelines; strategies for overcoming barriers like highways, railroads and waterways; defining the corridor to reduce trespass; and best management practices for meeting stormwater standards. (DCR)

- Provide planners with resources needed to engage property owners. (DCR)

Resources

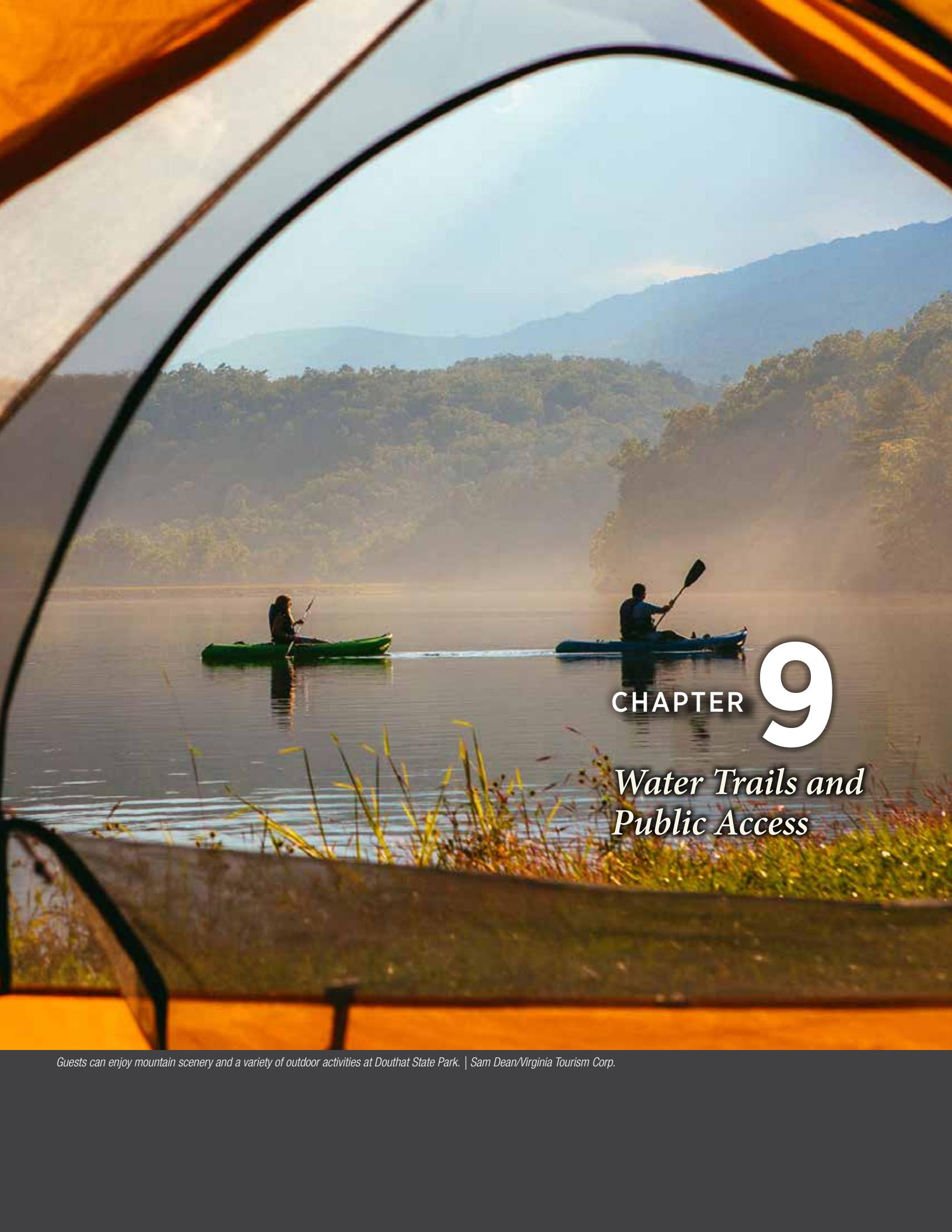
- The Greenways and Trails Toolbox, located on the DCR website, is a helpful resource for trail development.
- Active Living Research <https://www.activelivingresearch.org/taxonomy/parks-recreation>
- American Trails <http://www.americantrails.org/>
- Outdoor Industry Association Research and Tools <https://outdoorindustry.org/research-tools/>
- Pedestrian and Bicycle Information Center <http://www.pedbikeinfo.org/>
- Rails-to-Trails Conservancy <https://www.railstotrails.org/>
- Society of Outdoor Recreation Professionals technical resources <https://www.recpro.org/technical-resources>

Works Cited

1. Shivy, Victoria A. and Suen, I-Shian, “Economic Impact of the James River Park System,” Virginia Commonwealth University, April 2017, www.jamesriverpark.org/documents/JRPS-Economic-Impact-Study-4-17.pdf



Family hike on the Appalachian Trail | Jennifer Wampler/Virginia Department of Conservation and Recreation



CHAPTER 9

Water Trails and Public Access

Guests can enjoy mountain scenery and a variety of outdoor activities at Douthat State Park. | Sam Dean/Virginia Tourism Corp.

Background

Meandering among Virginia's water-rich coast, inland rivers and lakes are more than 2,268 miles of water trails. This is an increase from the 1,930 miles reported in the 2013 Virginia Outdoors Plan. Additionally, there are 426 established water access sites managed at the local level, 55 sites managed by the Virginia Department of Conservation and Recreation through its state parks and natural area preserves and 298 sites that are managed by the Virginia Department of Game and Inland Fisheries (DGIF). Over the past decade, the Captain John Smith Chesapeake National Historic Trail has increased awareness of public access along the Virginia rivers that flow into the Chesapeake Bay. It is a team effort, across all levels of government, to increase opportunities for meeting the citizen needs and desires for water-related recreation.

For the purposes of this plan, water access encompasses all forms of boating, swimming and fishing in freshwater and tidal salt waters, as well as access to shorelines and beaches for passive recreation and nature study. Over the past few decades, Virginia has seen a steady increase in the development of water trails (also referred to as blueways). Established water trails let users plan their trips with the confidence of knowing that there are take-outs and amenities within reasonable water miles. This allows for more flexibility when trip planning and a better overall experience.

Southern Virginia Wild Blueway

This water trail offers amazing scenery, fishing and paddling over 100 miles of navigable water, leading to 1,200 miles of beautiful freshwater lake shoreline. The water trail covers miles of unspoiled wilderness and abundant fish and wildlife.

What Virginians Believe is Needed

Water and land trails are tied as the third most needed activity, according to 43 percent of respondents to the 2017 Virginia Outdoors Demand Survey (VODS).

Seaside Water Trail

The Virginia Coastal Zone Management Program developed the 100-mile Virginia Seaside Water Trail as a series of day-use paddling routes. The Seaside Water Trail runs between the Eastern Shore of Virginia National Wildlife Refuge at Cape Charles and Chincoteague Island.

Most Popular Water Activities

Statewide, the fourth most popular outdoor activity is swimming in an outdoor pool, followed by the fifth most popular activity, sunbathing and relaxing on a beach. Figure 9.1 shows the percentage of Virginians participating in outdoor water-related activities.

Figure 9.1 Percent Participation in Water-Related Activities

activity	2011	2017
Swimming/outdoor pool	43	48
Sunbathing/relaxing on a beach	41	47
Viewing the water		38
Swimming/beach/lake river (open water)	38	37
Fresh water fishing	24	34
Canoeing/kayaking	16	25
Salt water fishing	14	15
Power boating	10	14
Tubing on water	8	12
Jet ski/personal watercraft	6	8
Water skiing or towed on water	4	6
Paddleboarding		6
Splash pads		4
Sailing	4	3
Whitewater rafting (guided or solo)	3	3
Surfing		2
Crew rowing		1
Sail boarding		1
Other water-dependent activities	2	2

Source: Virginia Outdoors Demand Survey

Virginia Department of Game and Inland Fisheries

DGIF evaluates and selects sites to provide boating access for hunters, bird watchers, anglers, paddlers, power boaters, wildlife enthusiasts and tourists. The agency's Boating Access Program provides access to all river systems, the Chesapeake Bay and the Atlantic Ocean.

There are 186,999 active registered boaters in Virginia. DGIF boating access facilities are regulated for boaters and anglers to fish or launch boats. Camping and swimming are prohibited, and violators are subject to arrest.

The DGIF Boating Access Program arose from the U.S. Fish and Wildlife Service. In 1950, Congress passed the Federal Aid in Sport Fish Restoration Act, also known as the Dingell-Johnson or D-J Program. This act created the Sport Fish Restoration Program administered by the U.S. Fish and Wildlife Service. The objective of the program is: "To support activities designed to restore, conserve, manage, or enhance sport fish populations and the public use and benefits from these resources and to support activities that provide



Lake Pelham, Culpeper | Culpeper Tourism Department.

boating access to public waters.” Since the revenue to support this program is generated from a federal tax on gasoline used to fuel motorboats, the funds from the program focus on boating facilities for motorboat access.

Since 1986, DGIF has invested more than \$14.8 million from the Sport Restoration Fund toward the development and maintenance of boating access facilities. These funds have been invested to develop or renovate 236 boating access sites and 62 public access fishing piers in more than 89 cities and counties, of which 184 sites provide access to freshwater and 52 sites provide access to saltwater. These facilities provide 124 lanes to launch and retrieve boats and approximately 3,165 spaces to park a vehicle with trailer. DGIF has invested more than \$1.27 million of program funds for the maintenance of existing boating access sites each year.

Virginia Boat Registration Trends

The number of boating registrations is trending downward regardless of boat size. The following chart shows registration trends over six years broken out by boat length.

Figure 9.2 Boat Registration Trends

year	< 16 feet	16 < 26 feet	26 < 40 feet
2011	66,441	129,752	8,331
2012	65,455	128,762	8,167
2013	64,824	127,699	8,072
2015	62,789	126,604	8,015
2016	59,310	121,689	6,874
2017	59,724	120,473	6,802

Source: Virginia Department of Game and Inland Fisheries

Beaches

The 2017 VODS lists relaxing on a beach as the second most popular water-related activity. However, beaches are a limited commodity and yet an enormous tourist attraction for counties and cities situated on the Chesapeake Bay and the Atlantic Ocean. The city of Virginia Beach has nearly 50 percent of its oceanfront in public ownership but most of Virginia’s shoreline remains privately owned. The Virginia Department of Health tracks and posts [swimming](#) advisories and beach closures based on water quality data.

Assets and Opportunities

- The Virginia Departments of Transportation, Game and Inland Fisheries, and Conservation and Recreation signed the 2015 “Agreement for Cooperative Action to Develop and Enhance Public Water Access at Bridge Crossings and Roads” (see Appendix 9).
- Since the completion of the 2013 VOP, more than 100 water access sites have been added to the DCR water access inventory database, along with 290 miles of water trails.
- Virginia Tourism Corp., localities, planning districts and nonprofit organizations are working locally and regionally to facilitate development and promote water trails.
- Public access authorities (PAAs), established by the General Assembly, create an avenue for local priorities to be addressed by local communities. PAAs can close on land deals more quickly than state and federal agencies and can own and manage land in perpetuity. There are two PAAs in Virginia: the Middle Peninsula Chesapeake Bay PAA (2003) and the Northern Neck PAA (2005). A third PAA is forming on the Eastern Shore.

- The Chesapeake Bay Watershed Public Access Plan was developed by the National Park Service in cooperation with federal and state agencies. The plan aims to increase public access to the bay and its tributaries by adding 300 new public access sites baywide by 2025.

Port Royal Water Trail Guide

The Port Royal Water Trail is made up of three paths along the Rappahannock River starting at the Port Royal Canoe/Kayak Launch. The trails overlap but are designed for the novice, intermediate and advanced paddler.

Challenges

- Virginia lacks a statewide committee or nonprofit organization to coordinate water trail advocacy and development.
- Virginia's waterfront is primarily in private ownership.
- There is a need to increase state staffing support for water access and water trails and for improved interagency coordination.
- There is no statewide source of funding for public water access and water trails maintenance.
- Coordination of water trails that cross jurisdictions can pose challenges at the local level.

Recommendations

- Create a web-based guide for water trail development. (DCR)
- Continue interagency coordination for public access along highways and bridges. (Virginia Department of Transportation, DGIF and DCR)
- Identify resources and funding to conduct a water and lands recreation opportunity study to evaluate Virginia's water trails based on physical, social and managerial attributes for all or a portion of Virginia's waters. (DCR, Virginia Tourism Corp. and university)
- Update the shoreline inventory to accurately identify how much coastal shoreline is in private ownership. (public access authorities, planning district commissions and localities)



Watershed education paddle on the Rappidan River | Bryan Hofmann/Friends of the Rappahannock

Resources

- Chesapeake Bay “Find Your Chesapeake” site: <https://www.findyourchesapeake.com/>
- National Water Trails System Toolbox: <https://www.nps.gov/WaterTrails/Toolbox>
- Michigan Water Trails: http://www.michiganwatertrails.org/downloads/water_trail_manual_20170609_web.pdf
- Iowa Water Trails: <http://www.iowadnr.gov/Things-to-Do/Canoeing-Kayaking/Water-Trail-Development>
- Prepare to Launch: <http://preparetolaunch.river-management.org>
- FishSwimPlay.com, Hampton Roads Planning District Commission interactive water access map



CHAPTER **10**
Scenic Resources

Mount Torry at Sunset | Scenic Virginia



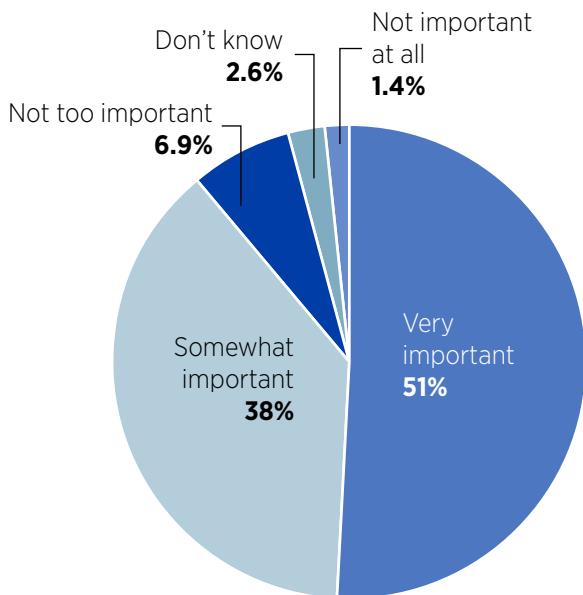
Blue Ridge Parkway | National Park Service

Introduction

The word “scenic” is in over 85 sections of the Code of Virginia. Scenic resources are important to both quality of life and the economy. Much of the scenery in Virginia is associated with agrarian and forested landscapes. Recognition of scenic resources in rural and suburbanizing regions of the state is particularly important for tourism and recreation.

Virginia’s scenic programs provide opportunities to have a relaxing, inspirational and comfortable outdoor experience. According to the 2017 Virginia Outdoors Demand Survey (VODS), nearly 90 percent of respondents think scenery is very important or somewhat important when making travel plans.

Figure 10.1 Importance of Scenery and Scenic Views



Community Influence Defining Scenic Resources

Scenic resource protection and management are the responsibilities of local governments. The Virginia Department of Conservation and Recreation (DCR) works with local governments and citizens to study potential scenic rivers and byways to encourage their participation in the evaluation process. Local land-use plans sometimes support the Commonwealth’s scenic resource recognition programs, the Virginia Scenic Rivers Program and Virginia Byways. Comprehensive plans, technical resource studies and local ordinances may establish parameters for protecting and enhancing the visual environment. Land conservation may also influence and protect community aesthetics and vistas.

Local and regional planning documents listed in Table 10.2 include some scenic resource protection techniques. State and local recognition programs will be strengthened if local governments incorporate scenic values into planning their process.

Figure 10.2 Scenic Resource Planning Tools

- Local comprehensive plans
- Local parks and recreation plans
- Visual and scenic resources inventories and assessments
- Open space and land conservation plans
- Natural and cultural resource inventories
- Greenways plans and studies
- Land-Use Tax Credits

Scenic Virginia is planning to develop a scenic resources toolbox as part of its 20th anniversary effort. The toolbox will include projects, codes, surveys and other references to help communities incorporate visual assets into their local plans.

Due to federal mandates, several federal agencies have developed their own visual resource programs. These programs are meant to meet the specific needs of each agency; however, various aspects of these programs can be useful to localities for identifying and documenting significant visual resources in their communities.

Figure 10.3 Federal Visual Resource Program Summaries

Bureau of Land Management (BLM)

The program provides mitigation for impacts on BLM lands, which might include or be dependent on views overlooking private land. It measures view quality. It is used to address alternative energy and facility placement. It includes public concern in its assessment.

U.S. Forest Service (USFS)

The program is a management tool for USFS lands or other federal lands. It includes inventory and management requirements. Its system defines scenic quality. It is used for forest management and utilization primarily to assess plan conformance and public concerns.

National Park Service (NPS)

The program is directed to conservation of views and management of a specific category of property on federal lands. It has a rating system that includes harmony and importance. It includes conservation, maintaining and interpretation without a specific management requirement. Public concerns are a big part of this process.

Federal Highways Administration (FHWA)

It includes an assessment of what the observer would see traveling through the landscape, including adjacent lands. The scoring system is limited to assessment needs as related to construction impacts and mitigation.

U.S. Army Corps of Engineers (USACE)

The program framework only looks at dam construction impacts for private and public lands. It is not a scenic conservation tool but a mitigation tool for construction impacts. The Corps can use this process in development plans, including parks, recreation facilities, visitor centers and other facilities.

Virginia Scenic Rivers Program

The [Virginia Scenic Rivers Program](#) was established in 1970 as a way to celebrate outstanding examples of Virginia's more than 49,000 miles of rivers and streams. The program is managed by the state in partnership with citizens and local government and focuses on enhancing the conservation of scenic rivers and their corridors. Recognized rivers and streams that gain this designation are honored by community groups, localities, DCR and Virginia's General Assembly as being Virginia's finest. Some of the characteristics for qualification are: scenic landscapes that include minimum development along the river corridor, historic features, unique flora and fauna, high water quality, strong fisheries, public access to the river and overall aesthetic appeal.

Communities like the Town of Buchanan are recognizing that scenic river designations are good for business. In 2010, Buchanan got the James River designation lengthened to take advantage of the recognition that the program provides.

The Code of Virginia provides that DCR may make recommendations to federal, state and local agencies regarding protected [scenic rivers resources](#).

The [Virginia Scenic Rivers Act](#) gives DCR these duties:

- DCR administers the scenic river system to preserve and protect its natural beauty and to assure its use and enjoyment for its scenic, recreational, geologic, fish, wildlife, historic, cultural or other assets, and to encourage the continuance of existing agricultural, horticultural, forestry, and open space land and water uses.
- Surveying each scenic river periodically to monitor existing and proposed uses along the river.
- Assisting local governments with problem solving associated with Virginia scenic rivers.
- After designation of a scenic river, no dam or other structure that impedes natural flow thereof shall be constructed, operated or maintained in a designated scenic river unless authorized by the General Assembly.

The Virginia Scenic Rivers Program is celebrating its 50th Anniversary in 2020. Follow the progress on the Virginia Scenic Rivers website.



Upper James River | Virginia Department of Conservation and Recreation

Virginia Scenic Rivers Recommendations

- Implement the 50th anniversary celebration strategic plan for the Virginia Scenic Rivers Program. (Scenic Virginia, DCR, Virginia American Society of Landscape Architecture [VASLA], other identified groups)
- Hold a workshop on Scenic Rivers and water trails. (DCR, Virginia Commonwealth University, River Management Society (RMS))
- Expand the number of designated Scenic Rivers, including representation of every watershed and/or planning district. (DCR, local communities)
- Establish a dedicated process for funding and installing “A State Scenic River” signs on all bridges crossing scenic rivers. (DCR, VDOT)
- Produce a “State of Virginia Scenic Rivers” brochure celebrating the accomplishments of the program. (Steering committee, DCR)
- Develop a manual on the scenic rivers program outlining the programs successes and preservation techniques. (DCR)
- Continue to coordinate with Virginia Department of Transportation and Virginia Department of Game and Inland Fisheries to provide access to scenic rivers.

Virginia Byways Program

The [Virginia Byways recognition program](#) began in 1966, with the Virginia General Assembly passing the [legislation](#) for the program. A scenic highway is a road designed and built within a protected corridor. The only roads that qualify for scenic highway designation are the four National Park Service parkways, which are also National Byways, with three of them being designated as All-American Roads. Virginia Byways are existing roads with relatively high aesthetic or cultural value, leading to or within areas of historical, natural or recreational significance.

Virginia Byways are roads that represent an exceptional example of a common regional landscape and have reasonable protection for aesthetic and cultural values. Byways are routes that bypass major roads for a leisurely motoring experience. Recommendations for Virginia Byway [designation](#) is initiated by localities.

According to the 2017 VODS, 67 percent of those who responded enjoy driving for pleasure as a way to connect with nature. This makes driving for pleasure equal with walking for pleasure as a top outdoor recreation activity. Additionally, on average, 30 percent of respondents stated that driving for pleasure is an outdoor recreational need.

Thanks to the partnership formed by the Prince William Conservation Alliance, Prince William County Board of Supervisors and the Commonwealth Transportation Board, several important roads in Prince William County have been designated as the first Scenic Byways in the county, adding nearly 40 miles to Virginia Byways network.

Source: <https://princewilliamliving.com/virginia-approves-first-scenic-byways-in-prince-william-county/>

The following figure highlights that driving is still a top recreation activity and underscores the need for a vibrant byways program in Virginia.

Figure 10.4 Top Three Recreation Activities

percent	
Visiting natural areas	71*
Driving for pleasure	67**
Walking for pleasure	67***

* Up from 50% in 2011

** Up from 55% in the 2006 VODS, question was not in 2011 VODS

*** Down from 82% in 2011



Spring Ride on Route 42, Goshen | Jack Beilhart

Virginia Byways Recommendations

- Update the byway designation process to make it more quantifiable and develop a process for benchmarking all byways to see if they still qualify for designation. (VDOT, DCR)
- Hold a workshop on scenic issues and assets as they relate to byways and develop a manual for continued management of byway corridors to promote byway designations. (VDOT, DCR, Scenic VA)
- Provide signage on bridges identifying where scenic rivers and byways intersect. (VDOT, DCR, Scenic Virginia)
- Dedicate funding for maintaining the safety, integrity and character of Virginia Byways. (General Assembly)

Assets and Opportunities

The Virginia Outdoors Plan (VOP) Technical Advisory Committee met in 2016 and identified important reasons for protecting scenic resources.

- Community identity – Scenic assets create community context in a variety of settings.
- Resources and landscape character protection – Scenic resources enhance valued resources.
- Economic value of scenic beauty – Scenic resources frame authentic experiences for tourists, support ecotourism, increase land values and attract new businesses.

- Conservation and ecosystem service values – Scenic resources are a component of land conservation and preserving healthy ecosystems.
- Accessibility – Through visual experiences, scenic resources frame regional character by featuring the natural and cultural environment.
- Health benefits – Scenic resources support psychological and social well-being.
- Light pollution is a developing concern, potentially affecting nighttime scenic resources. The Virginia chapter of the International Dark-Sky Association has been active addressing these concerns. See Appendix 10.

Challenges

The VOP Technical Advisory Committee identified three main challenges for the Commonwealth's scenic resources.

1. Identifying types of visual impacts to local, regional and state resources including direct, indirect and cumulative impacts.
2. Documenting scenic resources for protection and mitigation by:
 - a. Defining the value of scenic resources.
 - b. Implementing a protocol that identifies scenic resources.
 - c. Developing community-based scenic resource planning and protection strategies.
3. Identifying conservation tools appropriate on a parcel by parcel basis to protect scenic resources at a landscape scale.

Recommendations

- Develop an education and advocacy program, including a workshop, to identify and promote scenic resources and support state scenic rivers and byways programs. (Scenic Virginia, DCR, VASLA)
- Implement a social media platform for the public to share scenic views. (Scenic Virginia)
- Develop lists of local scenic resources for inclusion in local comprehensive plans. (DCR, Scenic Virginia, local government)
- Develop and fund a statewide register of scenic areas and a layer of scenic areas for the VOP Mapper. (DCR, state agencies, local government, nonprofits)

- Develop an information repository for: (DCR, Scenic Virginia, Virginia Tech)
 - visual resource programs,
 - techniques for localities to use in identifying resources;
 - ordinances and land management options for protecting resources, and
 - scenic resources mapping.
- Develop an annual recognition program for noteworthy and qualifying views that are endangered or spectacular. (DCR, Scenic Virginia, VASLA)
- Establish a statewide Scenic Resources Advisory Board (Scenic Virginia)
- Recommendations for dark skies
 - Develop a state parks nightscapes program modeled on the National Park Service program and support local designations. (DCR, Virginia Chapter of International Dark-Sky Association [IDA])
 - Encourage citizen involvement and contribution to sky quality data through Globe at Night: citizen science campaign.

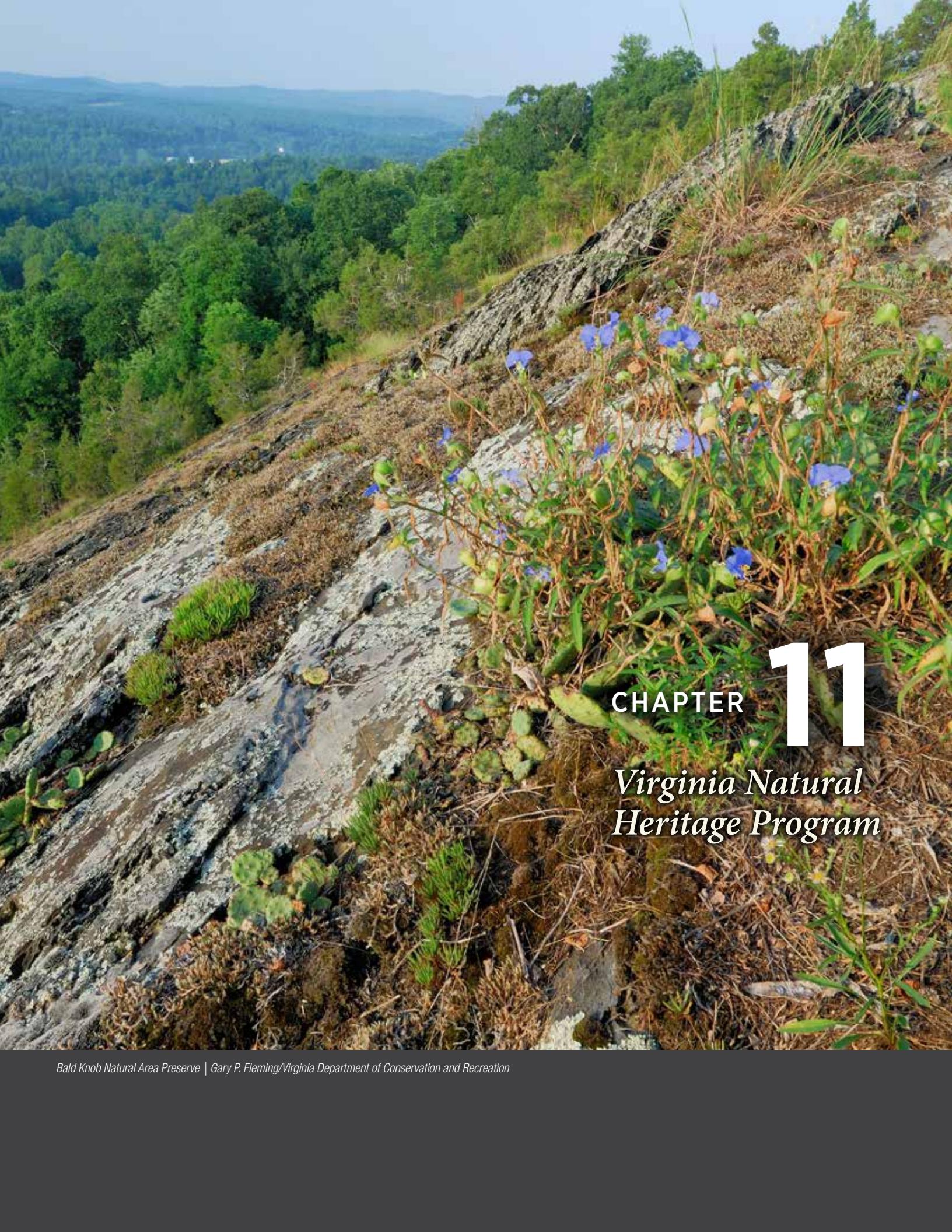
In June 2015, Staunton River State Park became the first IDA-certified Dark Sky Park in Virginia. This initiative began as a partnership between the Chapel Hill Astronomical and Observational Society (CHAOS) and park management. The park manager became a champion for IDA Dark Sky Park certification and forged an effective collaboration among the park, local officials and CHAOS to achieve and maintain the certification. The number of attendees at premier Star Parties has exceeded 200 visitors and in 2017 AstroCamp, a STEM-based summer camp for youth, purchased a nearby property because of its proximity to an IDA-certified Dark Sky Park. Other state parks are also working on certification.



A dark-sky campsite in Clarksville | Sam Dean/Virginia Tourism Corp.

Resources

- Huang, Guoping “Protecting Urban River Views with Geodesign Approach” Journal of Digital Landscape Architecture, February 2017, Vol. 2: 85-93, DOI:10.14627/537629009. This study examines the viewshed using a series of geodesign techniques and methods.
- Preserving Monticello’s Viewshed: <https://www.monticello.org/site/about/preserving-monticellos-viewshed> – outlines voluntary guidelines for development within the Monticello viewshed.
- Saving Washington’s View: <http://www.mountvernon.org/donate/reasons-to-give/save-washingtons-view/history-saving-the-viewshed/> – discusses the history of efforts to maintain the original view from Mount Vernon across the Potomac.
- VirginiaViewFinders—a website that enables users to submit photos of scenic views and rate their favorites. <https://virginiaviewfinders.org/>



CHAPTER **11**

*Virginia Natural
Heritage Program*



Antioch Pines Natural Area Preserve | Virginia Department of Conservation and Recreation

The Virginia Natural Heritage Program's mission is to conserve Virginia's biodiversity through inventory, data management and sharing, land protection, and stewardship.

The Virginia Department of Conservation and Recreation's Natural Heritage Program plays a central role in the Commonwealth's overall land conservation efforts as it is charged with protecting biodiversity by focusing on the most significant natural communities and rare and imperiled species. Working closely with other state, federal and local agencies, nonprofit conservation organizations and private citizens, the Natural Heritage Program collects and shares information on the state's biodiversity for the protection of sites that support significant natural communities and rare species.

DCR manages the state's growing Natural Area Preserve System, which supports many populations of rare species and some of the best examples of the state's diverse natural communities. Natural area preserves (Appendix 11 map) improve scientific understanding for conservation decisions, enhance public education on ecology and the environment, provide unique outdoor recreation experiences, and contribute to a sense of place by preserving the natural backdrop that has given rise to Virginia's rich cultural history.

Land Conservation Highlights

- Developing and managing Virginia's Natural Area Preserve System, which comprises 63 dedicated natural areas totaling 56,648 acres (as of April 2018). Figure 11.1 shows natural area preserves that offer public facilities.
- Identifying and maintaining information on approximately 700 globally significant conservation sites that total more than 1 million acres. Most are not adequately protected to ensure the long-term viability of the natural heritage resources they support and thus are important targets for conservation.
- Developing and maintaining the conservation lands database, which is used to map and track information on all lands protected for conservation throughout Virginia.
- Managing the [Natural Heritage Data Explorer](#), an interactive data and mapping service that provides citizens, conservation organizations, businesses and government agencies with information about the locations of priority conservation areas, sensitive habitats and conserved lands across the state.

Figure 11.1 Natural Area Preserves with Public Facilities

PDC	natural area preserve	county	birding and wildlife watching	boardwalk	canoe / kayak landing	hiking	observation deck	parking	self-guided trails	toilets
Central Shenandoah	Goshen Pass	Rockbridge	•			•		•		
Roanoke Valley-Alleghany	Poor Mountain	Roanoke	•			•		•	•	
Northern Virginia & Rappahannock-Rapidan	Bull Run Mountains***	Fauquier and Prince William	•			•		•		
George Washington	Crow's Nest	Stafford	•		•	•	•	•	•	•
Northern Neck	Bethel Beach	Mathews	•					•		
Northern Neck	Bush Mill Stream	Northumberland	•			•	•	•	•	
Northern Neck	Dameron Marsh	Northumberland	•		•		•	•		
Northern Neck	Hickory Hollow*	Lancaster	•			•		•	•	
Middle Peninsula	Hughlett Point	Northumberland	•			•	•	•	•	
Middle Peninsula	New Point Comfort**	Mathews	•				•	•		
Richmond	Cumberland Marsh**	New Kent	•			•	•	•	•	
Accomack-Northampton	Cape Charles	Northampton	•	•			•	•		
Accomack-Northampton	Magothy Bay	Northampton	•			•		•	•	
Accomack-Northampton	Mutton Hunk Fen	Accomack	•			•		•	•	
Accomack-Northampton	Savage Neck Dunes	Northampton	•			•	•	•	•	
Crater	Chub Sandhill	Sussex	•			•		•		
New River Valley	Buffalo Mountain	Floyd	•			•		•		•
West Piedmont	Grassy Hill	Franklin	•			•		•	•	
Cumberland Plateau	Pinnacle	Russell	•			•		•	•	•
Cumberland Plateau	Cleveland Barrens	Russell	•			•		•	•	
Cumberland Plateau & Mount Rogers	The Channels	Russell and Washington	•			•		•		

* Owned by Northern Neck Audubon Society

** Owned by The Nature Conservancy

*** Owned by Virginia Outdoors Foundation



Bush Mill Stream Natural Area Preserve | Zach Bradford/Virginia Department of Conservation and Recreation

- Working closely with land trusts to ensure the best possible protection of natural heritage resources on private lands protected with conservation easements.
- Partnering with other government entities and conservation organizations to protect the most biologically significant lands in Virginia.

Virginia ConservationVision is a suite of broadly applicable tools for guiding strategic conservation decisions. ConservationVision is maintained using GIS (Geographic Information System) analyses to model and map land conservation priorities in Virginia based on a variety of datasets from private, local, state and federal agencies. The models facilitate conservation by helping target conservation efforts and by guiding comprehensive planning. They are available on Natural Heritage Data Explorer, LandScope Virginia and LandScope Chesapeake and DCR's website.

Outdoor Recreation Highlights

- The 2017 Virginia Outdoors Demand Survey found that the most popular activity is visiting natural areas, up from fourth in 2011, fifth in 2006 and 11th in 2001.
 - Strategic public access to natural area preserves can provide unique opportunities for outdoor recreation and increased appreciation for Virginia's rarest and most special landscapes, without jeopardizing the often fragile natural communities and rare species populations on preserves.
 - Supporting some of the most spectacular scenery in Virginia, all 45 state-owned natural area preserves, as well as several owned by private organizations and local governments, are open to the public. Not all have parking areas and trails, so it is recommended people call before visiting.
 - The Natural Area Preserve System provides 85 miles of hiking trails.
- With more than 100 miles of frontage on rivers and tidal waters, many natural area preserves are well suited for exploring by canoe or kayak.

Recommendations

- DCR, other natural resource agencies and academic institutions should expand biological inventory efforts across the state to understand better the distribution, status and population trends of natural heritage resources.
- DCR should promote use of online natural area and land conservation information such as Natural Heritage Data Explorer and LandScope Virginia.
- The Commonwealth should continue its effort under Gov. Ralph Northam to develop and implement a comprehensive land conservation plan and expand the funding source for land conservation, including lands that support natural heritage resources, and ensure representation on protected lands for all of the state's natural community types and rare species.
- DCR should support and utilize Virginia Commonwealth University's [Interactive Stream Assessment Resource \(INSTAR\)](#) to better understand and conserve the Commonwealth's healthy waters.
- The Commonwealth should continue to implement the Virginia Department of Game and Inland Fisheries' Virginia Wildlife Action Plan.
- The Commonwealth should increase assistance to localities in their planning efforts for the protection of natural areas as a part of their recreational offerings.
- State and local land conservation organizations should strengthen natural-heritage resource protection through conservation easements.
- DCR should expand the Natural Area Preserve System to strengthen protection of natural communities and rare species, to increase public access, to increase the ability to manage the preserves in light of expanding pressures from invasive species and a changing climate and to better implement specific management actions, such as prescribed fire.
- DCR should increase awareness of the environmental significance of Virginia's karst regions (limestone areas with underground streams, sinkholes and caves) through the Virginia Cave Board, the Natural Heritage Karst Program and the Virginia Cave and Karst Trail.
- DCR should increase its capacity to assist public and private land managers and owners with the management and restoration of natural heritage resources on their properties.



Crow's Nest Natural Area Preserve | Gary P. Fleming/Virginia Department of Conservation and Recreation

- DCR should secure the resources necessary to meet the stewardship needs of an expanded system of lands supporting natural heritage resources. For example, improve resource management, increase public access opportunities and improve site security.
- Local and state natural resource agencies should enhance efforts to determine the distribution and status of invasive exotic species and to devise effective measures for their control, particularly where they threaten rare species or significant natural communities.

Program Overview

DCR's Natural Heritage Program is divided into five interdependent units listed here in logical order of their workflow – inventory, information management, environmental review, natural area and karst protection and natural area stewardship.

The Natural Heritage Program inventory scientists conduct the only comprehensive statewide inventory that documents the location and ecological status of natural communities and rare plant and animal species. This ongoing inventory is conducted by staff ecologists, botanists, zoologists, contract staff, volunteers and cooperators. These staff members assist private and public land managers with local and regional natural area surveys. Inventory ecologists continue to refine the state's natural community classification system with descriptions for Virginia's 82 ecological groups and 308 community types, including state and globally

rare limestone barrens, shale barrens, sea-level fens and tidal freshwater marshes, as well as outstanding examples of more common types such as Central Appalachian dry-mesic chestnut oak-northern red oak forests and coastal plain/piedmont floodplain swamps.

Since 1986, Natural Heritage Program scientists have discovered some 39 species new to science and more than 340 species not previously reported in Virginia. The rapid pace of changes in Virginia's landscape necessitates more comprehensive inventory of natural heritage resources.

Protecting and managing natural heritage resources requires cataloging and storing large amounts of data for a variety of users. DCR's natural heritage information management staff uses an assortment of GIS and database platforms to manage collected data. NatureServe's Biotics 5 is the backbone of this system and is used by natural heritage programs throughout the Western Hemisphere. Data maintained by DCR is used internally, as well as by other land and resource managers and citizens in order to set protection and management priorities and provide a scientific basis for land planning. Some examples of the data maintained are: detailed information on the location and condition of rare species populations, significant natural communities and caves; critical areas of Virginia's landscape, called conservation sites that should be considered for protection around the viable examples of these rare populations and boundaries; and other details for lands already protected in Virginia.

Natural heritage project review staff plays a key role in providing natural heritage resource information for land conservation and land planning decision makers. Project review staff also responds to requests from the public for information about rare species and natural communities and provides outreach to localities in their planning efforts. As Virginia's population grows, the importance of DCR's efforts to provide scientific data and readily interpreted information in a timely and cost-effective manner will be increasingly essential.

Key to natural area protection is careful conservation planning that ultimately leads to land protection. Natural area protection can involve nonbinding agreements, conservation easements or fee-simple acquisition of land to secure habitat for the rarest and most threatened examples of natural heritage. Protection methods are chosen based on the specific conservation goals for each natural area. Virginia's caves and associated karst landscapes receive special attention through DCR's karst protection program. Staff works closely with agencies, organizations and citizens to identify biologically significant caves, trace complex relationships between surface and underground water systems and educate planners and the public about the importance of these highly sensitive areas.

Natural area stewardship involves maintaining and enhancing natural heritage resources on natural area preserves managed by DCR. Key components of natural areas stewardship include development of site-specific management plans, prescribed burning, invasive-species control, habitat restoration, research and monitoring, public-access management, and site security. Stewardship staff members also provide expertise and assistance in natural-areas management to federal, state and local agencies, as well as to private landowners and land managers, and are involved in statewide efforts to better understand and control invasive species.

Natural Heritage Key Facts

- Virginia has more than 1,500 rare plant and animal species and 308 terrestrial vegetation community types.
- Five plants, six vertebrates and many invertebrates are found only in Virginia.
- At least 12 species of vertebrates and six species of freshwater mussels have been extirpated from Virginia.
- Due to habitat alteration from dam construction, water withdrawal, sedimentation, pollution and introduction of nonnative species, 75 percent of Virginia's freshwater mussels are at risk.

Virginia's Natural Heritage at a Glance:

- Founded in 1986, the Virginia Natural Heritage Program has three times been recognized as the most outstanding natural heritage program in the Western Hemisphere.
- Virginia supports more than 30,000 plant and animal species.
- Virginia ranks fourth among eastern states for the number of federally endangered and threatened species.
- Approximately 10 percent of Virginia's 1,500 rare species are protected under federal or state law.
- Virginia is rich in karst resources with more than 4,000 known caves. Karst springs support the base flow of most major rivers west of the Blue Ridge and are critical to the protection of water quality and quantity. More than 122 cave organisms tracked by the Virginia Natural Heritage Program are globally rare, and many live in only one or two caves.
- Southwest Virginia is the country's leading hotspot of aquatic diversity, but many of the freshwater mussels and fishes found there are at risk of extinction.
- A changing climate is bringing significant new stresses in the form of changing temperatures, rainfall patterns and sea levels to Virginia's native natural communities and species.
- Invasive exotic species are now the second greatest threat, after habitat loss, to biological diversity. More than 1,000 nonnative species have been reported in Virginia, many of which are invasive and outcompete native species.



CHAPTER 12

Land Conservation

Timber Hollow Overlook off Skyline Drive, Shenandoah National Park | Neal Lewis/Virginia Tourism Corp.

Introduction

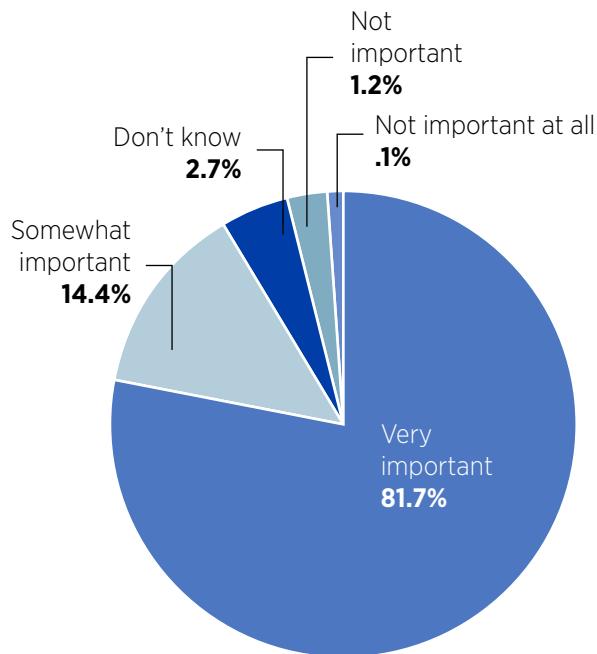
The conservation of Virginia's land and water resources is vital to the quality of life enjoyed by Virginians, and its importance is recognized by Article XI of the Constitution of Virginia. With population and associated development increasing at unprecedented rates, the conservation of these resources is essential to both the public well-being and the economic viability of the state. Land conservation is about more than just aesthetics; it is a strategy for improved water quality, safe drinking water supplies, resilience against sea-level-rise and other impacts of climate change, protection of our plant and animal communities, preservation of historic resources, maintaining viable working farm and forest lands, public health and wellbeing and maintenance of a thriving economy.

On April 24, 2018, Gov. Ralph Northam announced "I believe we need a land conservation strategy that is focused and targeted toward making measurable progress on our natural resource goals, from restoration of the Chesapeake Bay to providing resilience against sea-level-rise and other impacts of climate change."

This new strategy will rely upon innovative tools that the Virginia Department of Conservation and Recreation developed in concert with partners across Virginia to identify the conservation value of lands across the Commonwealth based on a number of metrics. This scientific analysis will provide a roadmap for where the Commonwealth should focus its land conservation efforts, as well as which lands would produce multiple benefits if conserved.

At the same time, Gov. Northam also announced that he would seek to increase state funding for conservation programs and agencies to at least two percent of the general fund, from the current level of 0.6 percent. Land conservation advocates have long noted the need for a dedicated, stable source of funding that would make it possible to plan strategically for conservation projects. Without a reliable, dedicated source of funds, conservationists must depend on intermittent grant funding or opportunistically work with landowners who are able to use land conservation tax incentives. Although much good land conservation is done under those circumstances, it is not as strategically focused as it might be with regular funding.

Figure 12.1 Importance of Protecting Natural Areas



Source: 2017 Virginia Outdoors Demand Survey

Over the last century, much of Virginia's landscape character has been transformed by sprawling development or fragmented by gray infrastructure (buildings, roads and parking lots) to serve a growing population. Planning for conservation is vital for protecting many of Virginia's shared community assets, such as biodiversity, outdoor recreation, water quality, historic and cultural resources, scenic resources and working farm and forestlands. Useful tools for the protection of these assets will be described later in the chapter.

Conserved open-space lands provide benefits in terms of resilience to climate change, working (agricultural and forested) landscapes, scenic landscapes, recreation, natural areas and parks, cultural and historic resource protection, natural resource protection, water quality improvement and maintenance, and carbon sequestration, along with the substantial economic benefits associated with these functions.

Conservation Planning

Conservation planning emphasizes the importance of connections between blocks of open space, between developed and undeveloped areas, and between society and the landscape. The use of a conservation planning model results in the protection of undeveloped land and waterways that provide essential benefits to society — clean air, clean water, food, fiber, open space for recreation and a sense of place. Conservation planning also seeks to identify and protect the integrity of large historic landscape areas that maintain the character and beauty of scenic vistas, along with significant blocks of productive farm and forestland that are essential to local and regional agricultural economies. Conservation planning is integral to long-term effective management of natural and cultural resources that support ecological health and quality of life for citizens of the Commonwealth.

Typically, communities carefully plan and fund “gray” infrastructure — roads, sewers, utilities and buildings — before development occurs. The same level of investment, public involvement and planning is needed for our green infrastructure, to steer development to suitable areas and encourage preservation of natural resources. Conservation planning identifies and prioritizes vital natural resources in concert with other community needs and alongside gray infrastructure before development occurs. This planning method guides land development and growth in ways that accommodate increased populations, but also plans for climate change resilience and protects natural resources providing long-term economic viability and community sustainability.

Conservation planning integrates outdoor recreation, open space, cultural resources and conservation lands into ongoing planning and land-use management decisions. Conservation planning supports cost-effective, sound economic development in harmony with land conservation, cultural resource protection and outdoor recreation. Conservation planning guides development to less sensitive and/or disaster-prone areas, which lowers the costs of development, protects water quality, reduces time needed for special permits and creates sustainable communities. Strategically linking undeveloped corridors and hubs of open-space land maximizes environmental, habitat and human benefits of development to meet the needs of growing populations.

The value of conservation planning lies in its comprehensive approach in providing direction for resource protection to all players in land-use issues. To be effective, the planning process must actively engage key players, groups and stakeholders in working together to reach a common goal. Achieving that goal will require a cooperative effort among federal, state and local public agencies, citizens, private conservation organizations, landowners and developers.

Conservation planning in Virginia incorporates a number of voluntary and regulatory resource-protection tools and strategies. These are available to local governments, private land-conservation

organizations, developers and individual landowners. Regulatory land-use tools may be delegated to localities by the state. Some mechanisms may be voluntarily negotiated with developers as a condition of development. Both governmental agencies and private organizations can utilize the growing number of voluntary mechanisms in negotiations with private landowners. More information about conservation tools, including information on state agencies and other organizations that are engaged in this work, is available at the [Virginia Department of Conservation and Recreation website](#).

Importance of Land Conservation

Virginia is fortunate to have played an integral role in the founding history of our nation. Even with the unprecedented population growth of the last century, there are still places in the state where much of the landscape remains as it was when it was inhabited by American Indians and in the 16th century, when European settlement began. Virginia's diverse habitats stretch from the mud flats and salt marshes of the Eastern Shore along the Atlantic Ocean to the forested mountains and agricultural valleys of the Blue Ridge and Appalachian mountains. As Virginia continues to grow and develop its lands, however, its long-treasured landscape character is being lost to sprawling development, fragmented by gray infrastructure and severely impacted by our changing climate.

Preservation of large expanses of landscape is essential to preserving the integrity of historic and scenic areas, and is necessary to provide the context and meaning of those resources. Historically important areas, especially, are best understood and appreciated when placed within the setting of the larger landscape that reveals and defines that history. The integrity of Virginia's scenic vistas, which often possess a combination of natural and historic features, is susceptible to incremental degradation — ranging from isolated development to large linear infrastructure projects — that endangers the character of viewsheds. Land conservation is vital for protecting many of Virginia's shared community assets, such as its rich biodiversity, outdoor recreation, water quality, historic and scenic resources, and working landscapes. Localities and stakeholders who wish to preserve essential landscape components will be well served by a comprehensive landscape-conservation strategy.

Principles of Conservation Planning

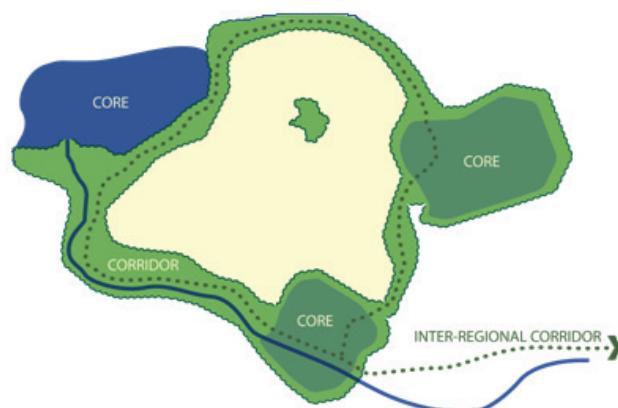
Conservation planning ideally produces a network of ecologically significant blocks of landscape, called cores or hubs, which are connected by linear bands of green space, called corridors. These landscape components vary in size, function and ownership. Cores may be comprised of public parks, natural areas, historic battlefields, working forests, farms and rural historic districts, while corridors may be scenic rivers, stream buffers, hiking trails and even scenic byways. Each component contributes to the economy, the physical and mental health of citizens and the long-term viability of natural resources and communities.

Large landscape cores are important for a number of reasons, including the following:

- Ecosystems function best on a large scale. The various natural communities and the many species that comprise them are highly interdependent. Take away a few species and many more may be lost.
- Many species require large blocks of interior habitat in order to prosper. Human development such as roads, housing, power and pipe lines and other utility connections fragment those interior habitats.
- Large blocks of diverse forest species provide the greatest resilience to climate change. Fragmentation of habitats creates opportunities for the introduction and spread of invasive species.
- Many ecological functions, such as cleaning the air and water of pollution, require large expanses of forest and wetlands.
- Businesses that rely directly on the land — primarily agriculture, forestry and tourism — are affected by economies of scale. Small, scattered farms and wood lots usually cannot support viable agricultural and forestal economies, nor are they as attractive to tourists.
- Large landscape preservation is essential to preserving the integrity of historic and scenic areas, essential to providing the context, meaning and appreciation of such resources.

Corridors connecting the cores are also vitally important as avenues of travel for animals, plants, and, in some cases, humans. Some environmentally sensitive features, such as stream courses, can only be protected with corridors. Corridors are important potential pathways for species migration in response to climate change. Linear corridors often offer scenic and recreational benefits, particularly when they follow rivers, trails or even roads.

Figure 12.2 Corridors and Cores



Virginia Department of Conservation and Recreation.

Both public and private lands make up these green infrastructure networks. Some of the land may be publicly accessible, while other land is not. It is important to understand that even though land may not offer public access, it will still provide tangible community benefits such as scenic vistas, historic landscapes, clean air, clean water, food, fiber and wildlife habitat.

Biodiversity

Virginia is home to more than 32,000 native species of plants and animals. Each is part of Virginia's natural tapestry, has intrinsic value and plays a role in the complex web of life. The loss of one may lead to the loss of dozens more, and it is difficult to know which may be keystones to entire ecosystems. Some 40 percent of all modern pharmaceuticals are derived from plants and animals. Wild organisms are important genetic reservoirs for improving domestic crops and livestock.

Much biodiversity protection can be accomplished by protecting habitat. For some highly specialized terrestrial species, a significant proportion of their habitat may be secured by protecting relatively small areas of land. One such example is the Virginia endemic vine, Addison's Leatherflower, which has a strong affinity for an unusual soil type on south to west-facing slopes. Other species, such as many forest-interior nesting birds, require large blocks of unbroken habitat in order to prosper. Most species benefit from corridors between population nodes in order to interbreed and to reoccupy vacated territory. Other key pieces of Virginia's landscape are critical habitat for brief periods of time. The southern tip of the Delmarva Peninsula, for example, supports millions of migrating birds each fall as they rest and feed in preparation for their flight south across the mouth of the Chesapeake Bay. Other species live out their lives in the dark in one of Virginia's more than 4,000 caves.



Addison's Leatherflower | Hal Horwitz

Protecting habitat for aquatic species is a significant challenge because much relies on protecting watersheds encompassing large land areas. Carefully focused watershed protection efforts will help secure the future for many rare aquatic species concentrated in specific river systems, such as the Clinch River in southwest Virginia. Efforts to protect riparian zones on farms

and working forests, and to implement other best management practices, will also significantly improve conditions for aquatic species throughout the state.

Outdoor Recreation

Most of the popular forms of outdoor recreation — hiking, water access, visiting natural areas and parks — are either dependent on resource lands and waters or are enhanced by their proximity to them. Land protection is essential for ensuring outdoor recreation opportunities for Virginia's growing population. If the citizens of the Commonwealth are not afforded opportunities to enjoy the outdoors and experience Virginia's diversity, the future of Virginia's outdoors will be jeopardized. Long-term support for land conservation and open-space protection is strongly tied to outdoor recreation experiences for children and adults. Both public and private lands are important for meeting the needs of outdoor recreation. Public recreation areas are increasingly in demand as large tracts of private land are subdivided and traditional local recreational uses are lost. Conserved private land is important, not only in providing much of the hunting opportunities east of the Blue Ridge, but also in maintaining scenic vistas and serving as buffer lands around major parks and natural areas.



Crow's Nest Natural Area Preserve | Gary P. Fleming/Virginia Department of Conservation and Recreation

Sea-Level Rise and Climate Change Resilience

The effects of climate change have, and will continue to have, a significant influence on Virginia's natural landscapes and the important natural, historic, cultural, scenic and agricultural resources they support. Changes in weather patterns and seasonality, driven by temperature and precipitation changes, rising sea-level and intensifying storm surge are changing the landscape. These effects are not simply new stressors to species and habitats, but are considered "metastressors." That is, in addition to their direct effects on species and ecosystems, they intensify the effects of other factors that are relatively well understood (e.g., sporadic extreme weather, direct habitat loss and alteration due to physical landscape changes, competition between native and nonnative or invasive species). Therefore, climate change must be taken into account both for our understanding of its direct impact on species and habitat, as well as for how it affects our ongoing efforts to conserve and manage the more familiar challenges to Virginia's biodiversity, natural landscapes and the working farms and forests upon which we depend.

Unfortunately, this is not easy. There is uncertainty just in predicting future climate patterns and then in projecting global predictions onto specific regions, states and local scales. This uncertainty is further multiplied when trying to anticipate how specific populations of plant and animal species will respond to climate change stressors. These species may or may not be able to move in response to changing climate, or the landscape itself will vary based upon changing combinations of abiotic and biotic characteristics. And the success of a given species' ability to move or adapt to some extent, also depends upon other species, which may or may not respond successfully to change. A great deal of research and modeling seeks ways to reduce these uncertainties, so that more confident conservation decisions can be made in the face of climate change stressors. These decisions will involve strategies for increasing the resilience of certain species populations to anticipated local change or focusing conservation and land management actions where impacts are thought to be least or outcomes of species best. The following provides a general snapshot of Virginia's anticipated climate change in light of biodiversity and natural lands conservation.

Temperature and Precipitation

In Virginia, increases in air and water temperature and changes in precipitation patterns, including more intense storm events, are expected to have varying impacts on plants and animal species (Kane et al. 2013). Average annual temperature is predicted to increase at least 4°F and as much as 11°F by the end of the century (Pyke et al. 2008). Precipitation is also predicted to increase by at least 10 percent (Pyke et al. 2008). While these averages may seem relatively small over decades and centuries, they are calculated from more unpredictable and extreme events such as heat waves, droughts, intense-storm events, and flooding (Kane 2013). These events, in addition to the relatively gradual changes in temperature and precipitation, can have destructive

impacts on plant and animal populations and habitats and thus the natural systems upon which our landscape values are built.

Species restricted to certain geographic areas or to habitat types that occur in vulnerable topographic positions have experienced more drastic impacts of temperature and precipitation changes. This is expected to continue. For example, high-elevation species, particularly those restricted to mountaintop microclimates and habitats following Pleistocene glacial retreat (i.e., glacial relict populations), would readily disappear with changes in their microclimates. For example, a rare plant or animal species persisting only in high-elevation rock outcrops or spruce-fir forests would have no accessible suitable habitat to escape to as temperature, precipitation and seasonality changed. Such species will be lost from Virginia as they are extirpated from these more vulnerable and isolated habitats.

Similarly, increasing water temperatures would have such an effect on cold-water fish species, such as brook trout (Kane et al. 2013). This species requires rivers and streams that do not regularly reach temperatures above 70°F. This temperature might be exceeded too often due to decreasing snow cover, warmer air temperature and more frequent, relatively intense storm events in Virginia. As a result, freshwater temperatures would rise in streams harboring brook trout, whose reproductive success may gradually decrease, and populations would dwindle over time, to eventual loss from Virginia.

As another example, shifts in temperature and rainfall will continue to impact native tree species to varying degrees and patterns. Some such as longleaf pine will benefit and the suitable habitat range for this valued timber species will increase. Oaks such as northern red oak, white oak and black oak are expected to occur at much reduced frequency by mid-century (Kane et al. 2013).

Predicting the finer-scale changes in patterns of temperature and precipitation, and how assemblages of plant and animal species (i.e., natural communities) might respond over longer time frames is more complex. It is generally accepted that the plant and animal species that make up an affected community will not respond in concert, but that differing species' tolerances and responses to different climate change stressors will result in a reshuffling of communities: some species will move out, some will move in, and those unable to move will no longer persist there. Based upon patterns of change in assemblages of plant species to date, climate effects may be expected to be more drastic at higher elevations than in lowland areas, due to different lag times between the point at which change occurs and that at which a species population responds. For example, species in high-elevation habitats tend to have less tolerance to change because they inhabit areas relatively more exposed to the elements (Bertrand et al. 2011). Conversely, lowland areas inherently have more physical space, and thus more options for species to move their location in response to changing habitat availability and quality (Bertrand et al. 2011). A great deal of research and modeling is under way to elucidate how this

reshuffling may occur and how conservation and management might help ensure a landscape in which species and habitats are more likely to be resilient.

Sea-Level Rise and Storm Surge

Sea level in the Chesapeake Bay region rose an average of 1.8 millimeters per year between 1900 and 2000, and displayed an increase in rate with a 3.5 millimeters per year rise between 1950 and 2000 (Pyke et al, 2008). Based upon an assessment of global climate models, the National Oceanic and Atmospheric Administration's Climate Program Office projects a global mean sea-level-rise of 0.2 meters (8 inches) to 2 meters (6.6 feet) by 2100 (Parris et al. 2012). This projection is based on estimates of ocean warming (i.e., expansion of warming water) and the melting of glacial ice sheets. But in coastal Virginia these causes of sea-level rise are compounded by continental subsidence (i.e., the sinking of the land mass due to glacial retreat) (Zervas 2009). In coastal areas of the mid-Atlantic region, this includes the Hampton Roads region, where it is estimated that sea-level rise will be as much as three times the global average (Sallenger et al. 2012).

To translate such predictions into practical information for use by policymakers and planners, scientists at the Virginia Institute of Marine Science conducted a recurrent flooding study (VIMS 2013) for coastal Virginia. This study, seeking to frame a nearer-term scenario for planning and action in coastal areas, is based on the expectation that in the next 20 to 50 years sea-level for Virginia will be 1.5 feet higher than it is at present. Sea-level rise will cause inundation of some coastal ecosystems, while others may migrate inland if natural corridors and processes exist to allow migration of natural communities. Tidal ecosystems will be increasingly altered by man-made infrastructure such as dikes to hold back rising waters and protect infrastructure. At varying rates, the upper limits of plant species ranges are shifting to higher altitudes and latitudes. Whole vegetation communities will not pick up and move in response to climate change. Instead, their component species will respond differently to changes in natural processes and will dissociate as conditions change. Climate change also will exacerbate threats already faced by Virginia ecosystems, such as invasive species, pathogens and pollution.

Water Quality

The condition of the land has a direct and highly significant impact on water quality. A naturally vegetated landscape provides the greatest benefits to water quality. Undeveloped lands, especially forests, filter both surface water and groundwater. Developed lands usually become predominantly impervious surfaces, such as sidewalks, buildings, parking lots and roads that don't allow water to filter directly into the ground. Water that cannot soak into the ground runs over the hard surface and eventually ends up in a waterway, often picking up sediment as it flows.

The amount of impervious surface in a watershed directly affects the amount of runoff, altering natural drainage patterns, eroding stream banks, increasing flooding and harming sensitive aquatic life with sediment and other pollutants. Not only does impervious surface accelerate stream erosion and degrade surface water quality, but it also greatly reduces recharge of groundwater supplies. [The Center for Watershed Protection](#) reports that streams in watersheds with as little as 10 percent impervious cover have significantly reduced water quality and the more impervious cover there is, the more impaired the streams.



Riparian buffer | Virginia Department of Forestry

Protecting large tracts of land as open space through watershed planning and land conservation sustains and improves water quality. By and large, Virginians take for granted the water quality benefits provided by privately held forestland — land that is rapidly being converted to other uses. Several other states, such as Florida and New York, have recognized the importance of protecting significant portions of watersheds, primarily as a means of ensuring adequate drinking water supplies. Investing in green-infrastructure lands can often be more cost effective than conventional public works projects and can protect existing infrastructure investments. Virginia's conservation-lands strategy should also include the protection of significant watershed areas.

Historic and Cultural Resources

Preservation of historic resources is linked with land conservation and open-space protection. As development spreads, it becomes even more important to protect cultural resources, which provide insight into the social, cultural and economic development of Virginia and give citizens a tangible link to the past. These resources include historic houses, commercial buildings, factories, mills, churches, battlefields, archaeological sites and cultural landscapes. It is sound environmental policy to protect these resources, which preserve important examples of the past needed to inspire and inform future generations.

Historic resources are also important to Virginia's economy. Attractive financial incentives spur private investment in historic structures, resulting in the rehabilitation and revitalization of neighborhoods and cities. At the same time, heritage tourism draws thousands of people to Virginia's towns and cities each year. The 2017 VODS reports that visiting historic areas is the fifth most needed outdoor recreation activity. Thus, protecting Virginia's historic and cultural resources in their landscape settings is essential to maintaining the quality of life in the state.

Historic land protection can take a number of forms. One commonly recognized form is the protection of actual historic sites, such as battlefields, settlements, plantations and historic homes, many of which have retained their original characteristics. Other sites of historic value may be obscured, but not obliterated, by changes in the landscape. Archeological sites often fall into this category and need to be protected from further damage. Many natural landscapes across Virginia are of invaluable cultural significance to the American Indians who called Virginia home long before Europeans arrived.



This a recreation of a Monacan village at Natural Bridge | Virginia Department of Conservation and Recreation

There is also historic value in preserving representative portions of Virginia's landscape. Cotton fields, pine savannahs, expansive mountain forests and long stretches of wild rivers are all part of Virginia's history. Preserving them is important for helping people reconstruct and visualize the past. For example, a small patch of an ancient swamp forest, protected by The Nature Conservancy, yielded important data from cypress tree growth rings. This data helped historians understand drought conditions during the settlement of Jamestown. Virginia's history will continue to be discovered as additional landscapes are protected.

Protecting Virginia's Open Spaces Supports its Tourism Industry

Tourism has an annual economic impact of \$24 billion and sustains 230,000 jobs in Virginia. In 2016, tourism provided \$1.7 billion in state and local taxes. Conserving the lands that represent the character of the Old Dominion preserves the landmarks, battlefield sites, public parks, mountain vistas and beaches that tourists travel from all over the world to visit.

Outdoor recreationists spend more than \$8 billion within the state annually, making recreation a highly significant factor in attracting travelers to the Commonwealth, according to a 2011 study by Aaron Paul of the Yale School of Forestry and Environmental Studies. Most of the popular forms of outdoor recreation for tourism are either dependent on resource lands and waters or enhanced by their proximity to them. Land protection is essential for ensuring outdoor recreation opportunities for visitors and for Virginia's growing population, and to afford opportunities to enjoy the outdoors and experience Virginia's diverse landscapes and landmarks. Long-term support for land conservation and open-space protection is strongly tied to outdoor recreation experiences for children and adults.

Both public and private lands are important for meeting the needs of outdoor recreation. Public recreation areas are increasingly in demand as urban and suburban residents seek respite through enjoyment of open spaces.



Route 250, Highland County | Robert Coles/Scenic Virginia

Scenic Resources

The tapestry of Virginia's landscape ranges from mountain overlooks, to hardwood forests, to the coastal plain. Virginia's scenery, particularly in rural and agrarian settings, is an important part of what draws people to the Commonwealth. Protecting these scenic landscapes and resources is another reason for land conservation. Scenic areas need to be targeted as special priorities for protection.

Land conservation can maintain a region's sense of place and the local character of communities. Preserving a clear boundary between cities or towns and countryside safeguards the rural character of Virginia.

Land conservation can serve to protect open space on the edge of urban areas while encouraging more compact, walkable communities. In an urban context, land conservation can serve to maintain community identity and character by encouraging infill development on vacant, underused or overlooked land, including brownfields. For more information on scenic resources, see Chapter 10.

Working Landscapes

Together, agriculture and forestry are Virginia's largest industries. The economic impact of agriculture and forestry-related industries in Virginia was over \$91 billion in total industry output in 2015, the base year used for this study. The industries also provide approximately 442,260 jobs in the Commonwealth, representing 8.7 percent of total state employment, according to the Weldon Cooper Center for Public Service at the University of Virginia. The total value-added impact was \$45.5 billion, which made up 9.5 percent of state gross domestic product.

As a result of a combination of factors including population growth, development patterns and an aging farming population, Virginia's agricultural land shrunk by 882,000 acres from 1982 to 2007. Real estate cycles affect the rate of farmland lost to development, but the overall trend clearly reflects a declining number of agricultural acres.

With more than 16 million acres of forested land, Virginia is 62 percent forested. According to the Virginia Department of Forestry, since 1977 an average of more than 16,000 forested acres has been converted to non-forest uses annually, a trend that is projected to continue. The rate of forest loss has decreased in recent years in response to the decline in the economy and the related diminished pressures of land development, according to the Virginia Department of Forestry's 2016 "State of the Forest" report.

A bright spot for both agriculture and tourism is Virginia's growing wine industry. Virginia's wine industry contributes more than \$1.37 billion annually to the state's economy, an increase of 82 percent since 2010. In 2017, Virginia ranked fifth in the number of wineries in the nation with more than 287. In 2016, Virginia had 3,173 acres of wine grapes, making it the nation's fifth-largest producer of wine grapes. Visits to wineries helped bring in more than \$750 million for the state's economy.

Nonetheless, numerous economic factors are causing many traditional farms and forestlands to be developed. Depressed commodity prices due to competition from other countries, land costs (and by extension property taxes), dwindling interest in the upcoming generation to pursue demanding careers on the land and the farm-as-pension-fund approach to retirement all lead to many farms and forests being sold for development. Eventually, as forests become smaller and farms more widely separated, the land-based economy slows. As supporting businesses disappear, more working lands grow idle or are converted to other uses. Therefore, an important part of supporting our land-based economy is to preserve the most productive lands and areas with supporting infrastructure. Protecting the Commonwealth's working lands ensures that the necessary land base for these important industries will be preserved for future use.

Economic Benefits of Land Conservation

A vibrant economy ensures the financial resources to maintain healthy ecological systems and environmental quality. Preserving land and natural resources is critical to a community's economic vitality. Natural open space and trails are prime attractions for potential homebuyers, increasing property values and thereby local tax revenues. More than 77 percent of potential homebuyers rated natural open space as "essential" or "very important," and walking and bicycling trails are among the list of attributes most desired by homebuyers. Open space, outdoor recreation and a clean, visually attractive environment draw and retain businesses and improve quality of life.



Jefferson Park, Richmond | John Murden

Studies demonstrate that open spaces can boost the value of neighboring commercial properties. Businesses seeking an area in which to locate report that quality of life is a major factor in their decision-making, and cultural and recreational open spaces are important components in creating that quality of life (Trust for Public Land, 2009). Recognizing this concept, many local governments strongly support land conservation, understanding that protected, undeveloped land generates more direct tax revenue than the services it requires. The direct effect of conservation land on major industries such as agriculture and forestry in Virginia is important to long-term economic stability of the Commonwealth.

Costs of Not Conserving Open-Space Land

A number of localities have calculated the fiscal impact associated with different types of land use and found that increased growth brings new area residents who require services — roads, sewage and water-supply infrastructure, fire and police services, schools, libraries, etc. — that increase local government costs at a level greater than the additional local revenue they contribute. "While it is true that an acre of land with a new house generates more total revenue than an acre of hay or corn, this tells us little about a community's bottom line" (American Farmland Trust, 2010). Increased population density in a locality eventually requires increasingly complex public services that increase per-capita costs.

Since the cost to a locality to provide services to undeveloped land is relatively low, a net positive tax cash flow is achieved. Conversely, the costs to provide schools for the children in housing developments, plus other municipal costs, may be much greater than the tax and non-tax revenue that residential lands provide.

A 2012 study in Albemarle County found that, for every dollar of local revenue generated, the public costs for residential and institutional (hospitals, libraries, churches) development ranged from \$1.29 to \$1.59, a negative ratio. Commercial and industrial uses have a positive ratio, around \$0.50 in costs for every dollar of revenue generated, and farmland generates even greater surplus revenue at \$0.20 in costs for every dollar of revenue generated. However, the revenue-cost ratios associated with residential properties create a net deficit for Albemarle County, and for most other localities.

The primary objective of this report is to provide decision makers at the State of Virginia, Accomack County, and Northampton County with a high-level analysis of the fiscal and economic impacts of conserved land on the Eastern Shore of Virginia. The findings shown in this report are based on existing land-use and fiscal conditions in each county as of fiscal year end 2016. The results of this analysis provide a fiscal baseline against which any future development policy, strategy, plan, or project approval can be tested. The full report can be found at: <http://www.dcr.virginia.gov/land-conservation/document/lc-es-econimp-2014.pdf>

Tools for Conservation Planning

Virginia ConservationVision

The Virginia Department of Conservation and Recreation's Division of Natural Heritage, working with partners across the Commonwealth, has been developing ConservationVision to identify and prioritize natural-resource conservation targets across the state. Virginia ConservationVision has broad applications for conservation planning and is available to local and regional agencies and conservation organizations. It is a flexible, widely applicable tool for integrating and coordinating the needs and strategies of different conservation interests, using Geographic Information Systems to model and map land-conservation priorities and actions in Virginia. ConservationVision uses GIS to map significant natural features. By choosing specific models and data sets, analysts can use ConservationVision to highlight areas that are important for conservation.

This computerized system allows for analysis and identification of location and data on:

- Large, unfragmented natural habitats
- Concentrations of natural heritage resources
- Key outdoor recreation areas
- Prime agricultural lands
- Significant cultural and historic resources
- Important areas for sustainable forestry
- Critical areas for drinking water protection and water quality improvement
- Scenic resources

ConservationVision can be used to identify conservation lands that would be most economically beneficial to communities.

Coastal GEMS

Virginia Coastal Zone Management Program's [Coastal Geospatial and Educational Mapping System](#) (Coastal GEMS) is designed to present spatial (maps) and nonspatial (textual information, fact sheets and links) information focused on the "best remaining" land-based and aquatic resources within Virginia's jurisdictional coastal zone. The first version of this application was released in 2006. It is continually updated and improved through advisory workgroups, training sessions and ongoing interactions with stakeholders. Coastal GEMS provides a growing inventory of water- and land-based natural resources, conservation planning tools and planning examples that can help to protect Virginia's coastal ecosystems and promote community involvement and environmental education.

Resilient and Connected Landscapes

The Nature Conservancy's Resilient and Connected Landscapes project is the first study to comprehensively map resilient lands and significant climate corridors across Eastern North America.

<http://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/reportsdata/terrestrial/resilience/Pages/default.aspx>

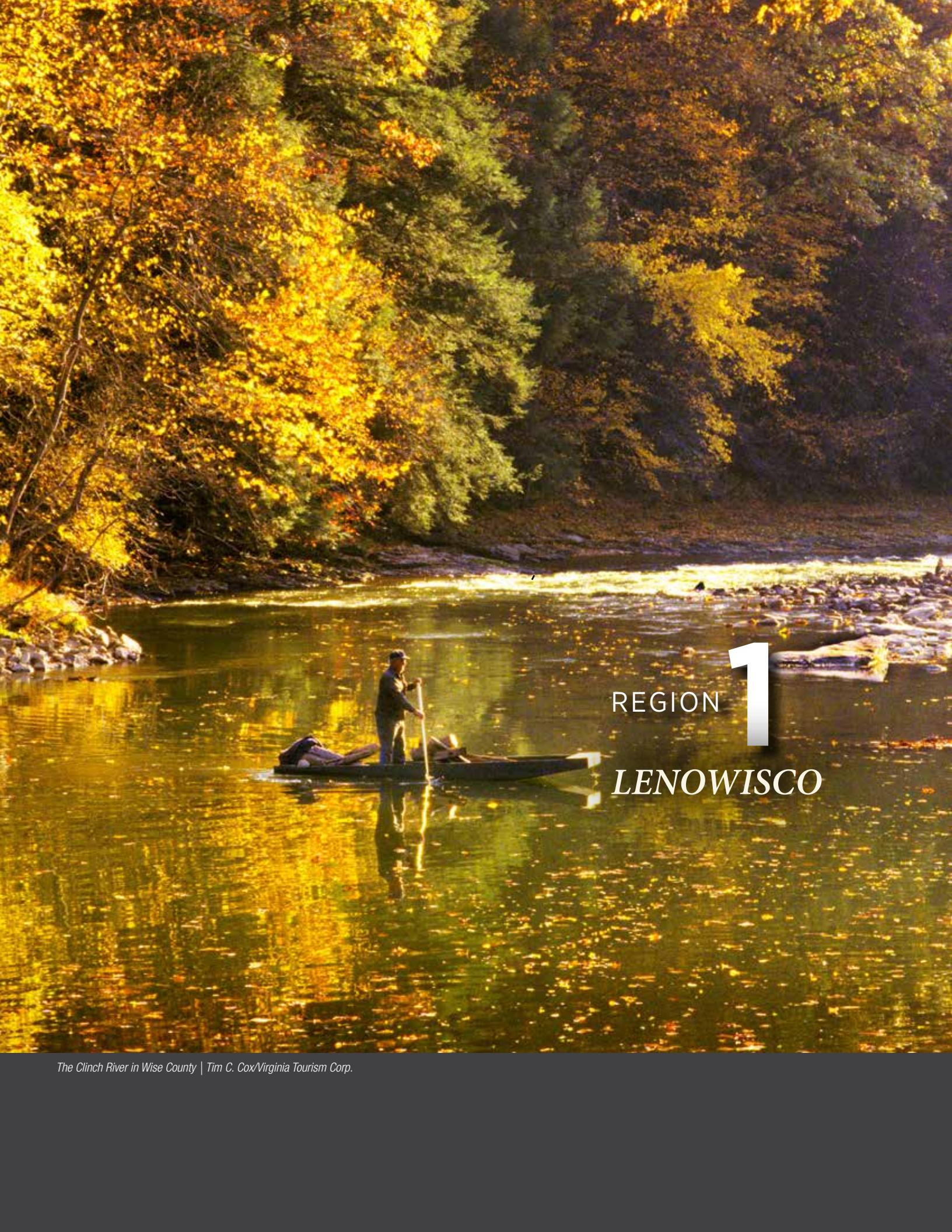
Virginia Wildlife Action Plan

The Virginia Wildlife Action Plan is a 10-year strategic plan, developed by the Virginia Department of Game and Inland Fisheries, that provides a common vision for the conservation of the Commonwealth's wildlife and the habitats in which they live. Virginia's plan identifies 925 species of greatest conservation need, representing a broad array of wildlife, and it focuses on the habitats that support these species, such as caves, high-elevation forests, coastal marshes, barrier islands, grasslands, small headwater streams, vernal pools and many others. The Wildlife Action Plan provides a common vision for wildlife conservation across the Commonwealth, identifying the important steps that we must all take to keep common species common and to prevent further decline, or possible extinction, of imperiled species. The plan can be found at <http://bewildvirginia.org/wildlifeplan>.

References

- American Farmland Trust. "Cost of Community Services Studies: Making the Case for Conversation" <https://www.farmlandinfo.org/>
- Benedict, Mark A., and Edward T. McMahon. "Green Infrastructure: Linking Landscapes and Communities." Washington: Island, 2006.
- Bertrand, R., J. Lenoir, C. Peidallu, G. Riofrio-Dillon, P. de Ruffray, C. Vidal, J.C. Peirrat, and J.C. Gegout. 2011. Changes in plant community composition lag behind climate warming in lowland forests. *Nature* 479: 517–520.
- Craighead, Lance F., and Charles L. Convis Jr. "Conservation Planning: Shaping the Future." Redlands, Calif.: ESRI, 2013.
- Evans, Craig. "Counting the Costs and Benefits of Growth: A Fiscal Impact Analysis of Growth in the City of Charlottesville and Albemarle County, Virginia," 2012. <http://privatelands.org/DOWNLOADS/>
- Kane, A., T.C. Burkett, S. Klopfer, and J. Sewall. 2013. Virginia's climate modeling and species vulnerability assessment: how climate data can inform management and conservation. National Wildlife Federation, Reston, Virginia.

- National Park Service. "Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors: Real Property Values, National Park Service," 1995. <http://www.nps.gov/pwro/rtca/econ1.pdf>
- Parris, A., P. Bromirski, V. Burkett, D. Cayan, M. Culver, J. Hall, R. Horton, K. Knuuti, R. Moss, J. Obeysekera, A. Sallenger, and J. Weiss. 2012. Global sea-level-rise scenarios for the U.S. National Climate Assessment. NOAA Tech Memo OAR CPO-1. National Oceanic and Atmospheric Administration.
- Pyke, C.R., R.G. Najjar, M. B. Adams, D. Breitburg, M. Kemp, C. Hershner, R. Howarth, M. Mulholland, M. Paolisso, D. Secor, K. Sellner, D. Wardrop, and R. Wood. 2008. Climate change and the Chesapeake Bay: state-of-the-science review and recommendations. Chesapeake Bay Program Science and Technical Advisory Committee, Annapolis, Maryland.
- Rephann, Terance J. "The Economic Impact of Agriculture and Forestry on the Commonwealth of Virginia." Weldon Cooper Center for Public Service, U of Virginia, 2008.
- Rouse, David C., and Ignacio F. Bunster-Ossa. "Green Infrastructure: A Landscape Approach." Chicago: American Planning Association, 2013.
- Sallenger, Asbury H., K.S. Doran, and P Howd. 2012. Hotspot of accelerated sea-level rise on the Atlantic coast of North America. *Nature Climate Change* 2: 884-888.
- Trust for Public Lands. "Conservation: An Investment That Pays." <https://www.tpl.org/conservation-investment-pays-0>
- Trust for Public Land. "The Economic Benefits of Parks and Open Space," 2012. <http://www.tpl.org/publications/books-reports/park-benefits/conservation-pays.html>
- Virginia Department of Forestry. "2012 State of the Forest," 2012. https://dof.virginia.gov/wp-content/uploads/SOF-2012_pub.pdf
- VIMS (Virginia Institute of Marine Science). 2013. Recurrent flooding study for Tidewater Virginia. Gloucester Point, VA. Online at http://ccrm.vims.edu/recurrent_flooding/Recurrent_Flooding_Study_web.pdf
- Zervas, C. 2009. Sea level variations of the United States: 1854–2006. NOAA Technical Report NOS CO-OPS 053. National Oceanic and Atmospheric Administration, Center for Operational Oceanographic Products and Services, Silver Spring, Maryland.

A photograph of a man in a small wooden boat on a river, surrounded by vibrant autumn foliage. The water reflects the warm colors of the trees. The man is standing and holding a long pole or oar.

REGION 1
LENOWISCO

The Clinch River in Wise County | Tim C. Cox/Virginia Tourism Corp.

Introduction

The LENOWISCO Recreational Planning Region includes the municipalities of the LENOWISCO Planning District, which is made up of Lee, Scott and Wise counties, the city of Norton, and the town of Pennington Gap. It is located in far southwestern Virginia and shares borders with Tennessee to the south and Kentucky to the west. The mountainous land is a beautiful setting for living and recreation. Coal, natural gas, forestry and agriculture provide the economic base for this region.

Natural beauty is abundant here and can be enjoyed in many public recreational areas, parks and forests. Natural resources are diverse and abundant, making this region one of the most important for environmental and conservation planning in the state. Horseback riding, hiking and bicycling trails crisscross the national forest lands offering visitors access to breathtaking scenic vistas and remote mountain hideaways. Sections of the Guest and Clinch rivers are state scenic rivers that, along with other rivers in the region, provide opportunities for water-related activities.

Regional Focus

Table 1.1 Most-Needed Outdoor Recreation Opportunities

LENOWISCO Recreational Planning Region

activity	region	state	% of households in
Water access	55	43	
Parks	52	49	
Natural areas	49	54	
Trails	45	43	
Scenic drives (driving for pleasure)	43	29	
Historic areas	37	39	
Playing fields, sports and golf facilities	15	22	

Source: 2017 Virginia Outdoors Demand Survey.

For sampling purposes, data from the LENOWISCO and Cumberland Plateau regions were grouped.

Table 1.2 Top 10 Outdoor Recreation Activities By Participation

LENOWISCO Recreational Planning Region

activity	% household
Driving for pleasure	79
Visiting natural areas	74
Walking for pleasure	61
Freshwater fishing	58
Visiting parks (local, state & national)	56
Swimming/outdoor pool	47
Hunting	39
Visiting working farms, petting zoos, corn mazes, etc.	38
Sunbathing/relaxing on a beach	37
Picnicking away from home	35

Source: 2017 Virginia Outdoors Demand Survey.

For sampling purposes, data from the LENOWISCO and Cumberland Plateau regions were grouped. Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated able to be initiated within the next five years.

Featured projects for the LENOWISCO recreation planning region:

- Continue to move forward the Clinch River Valley Initiative in Wise, Russell, Tazewell and Scott counties.
- Construct Powell River boat access and a bridge.
- Increase the Big Cherry Reservoir trail system.
- Expand the Spearhead Trail system.
- Upgrade access and facilities at the Flag Rock Recreation

Area on the lower slopes of High Knob.

- Implement the Breaks Interstate Park master plan.
- Implement the Beaches to Bluegrass Trail.
- Initiate the Powell River Trail North
- Connect towns through trails in Appalachia, Big Stone Gap and St. Paul.

Outdoor Recreation Economic Impact

Table 1.3 Per-Capita Spending on Parks and Recreation

LENOWISCO Recreational Planning Region

locality	dollars
Lee County	4.68
Scott County	16.29
Wise County	1.30
Town of Big Stone Gap	146.69
Town of Wise	31.94
City of Norton	105.23
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.

Table 1.4 Virginia State Parks 2017 Attendance and Economic Impact

LENOWISCO Recreational Planning Region

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Natural Tunnel	Scott County	17,728	244,321	262,049	\$6.4M
Southwest Virginia Museum	Wise County	395	131,473	131,868	\$2.5M
Wilderness Road	Lee County	0	173,874	173,874	\$5.0M

Source: Virginia State Parks

Regional Health

Table 1.5 Health Trends

LENOWISCO Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Lee County	20	29	31	52	9.6
Scott County	18	31	33	47	10
Wise County	21	31	35	76	9.3
City of Norton	19	26	23	99	8.9
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation



Views from High Knob | Lynn Crump/Virginia Department of Conservation and Recreation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

The LENOWISCO region is set apart by a wealth of historic resources that reflect the significance of mining, timber, and other extractive industries to the growth of this area. Larger towns such as Wise and Big Stone Gap contain excellent examples of mid-19th through early 20th century residential and commercial buildings, many exhibiting the use of exotic materials and sophisticated design elements intended to convey the importance of both owners and industries. Smaller “company towns” such as Stonega and Derby contain the rows of identical houses that defined such towns, as well as the schools, churches, and company stores that supported those who worked in the mines. Along the steep mountainsides are caves and rockshelters that contain evidence of early human use and habitation, while the river valleys are home to farms and homesteads representative of immigrant settlement from the early 19th century onward.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places, and placement of historic preservation and open space easements. Conservation targets include: 19th century farmsteads, dwellings, and commercial buildings/districts; late 19th and early 20th century company towns and coal camps; coke ovens and other processing facilities; and significant prehistoric habitation sites. Information about historic buildings, structures, and archaeological sites is maintained in the permanent files of the Department of Historic Resources and is available to local planners.

Table 1.6 Regional Historic Resources

LENOWISCO Recreational Planning Region

resource	location
Cumberland Gap Historic District	Lee County
Southwest Virginia State Historic Museum	Big Stone Gap, Wise County
Carter Family Fold	Scott County
Stonega and Derby Historic Districts	Wise County
Hotel Norton	City of Norton

Source: Virginia Department of Historic Resources.

Land Conservation

Table 1.7 Conserved Lands

LENOWISCO Recreational Planning Region

locality	easement acres	ownership acres
City of Norton	0.00	298.73
Lee County	615.74	21,621.56
Scott County	1,486.32	35,214.27
Wise County	279.41	39,797.27
Total		110,916.73

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory.

Natural Area Preserves and Natural Heritage Resources

The LENOWISCO region is located in one of the most biologically rich areas in the world. The Powell, Clinch and Holston rivers and associated streams support a great variety of mussels, fishes and other aquatic species found nowhere else on the planet. Much of the district is underlain with limestone, which supports many rare plants and plant communities above ground and an abundance of caves and cave-dwelling animals below ground. While three natural area preserves have been established here — all in the Cedars region of Lee County — the majority of the critical habitat remains unprotected.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance include:

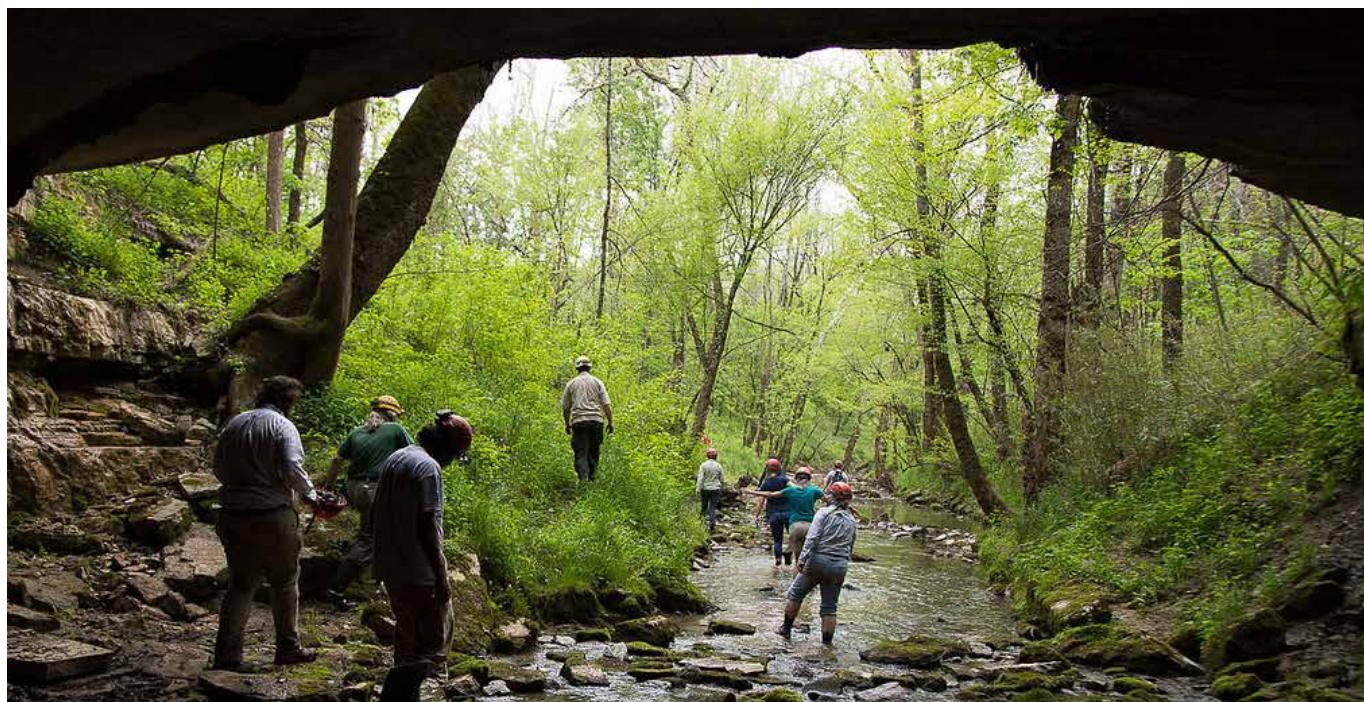
- Significant caves and karst areas
- Improving water quality for globally rare aquatic communities
- Terrestrial limestone communities
- Establishment of segments of the Virginia Karst Trail at The Cedars Natural Area Preserve and other public lands on significant karst areas.

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 1.8 Natural Area Preserves

LENOWISCO Recreational Planning Region

preserve name	owner	locality
Fletcher Ford	The Nature Conservancy	Lee County
The Cedars	DCR and The Nature Conservancy	Lee County
Unthank's Cave	DCR	Lee County



The Cedars | Irvine T. Wilson/ Virginia Department of Conservation and Recreation

Table 1.9 Natural Heritage Resources*LENOWISCO Recreational Planning Region*

Number of occurrences of rare species and significant natural communities	1,078
Number of different rare species and significant community types (natural heritage elements)	275
Number of globally rare natural heritage elements	97
Number of species listed as federally endangered or threatened	39
Number of species listed as state endangered or threatened	39
Number of terrestrial conservation sites identified by DCR	72
Number of conservation sites with little or no protection	32
Number of partially protected conservation sites	25
Number of well protected conservation sites	15



Cedars Appreciation Day | Virginia Department of Conservation and Recreation

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program.



CHAPTER 13

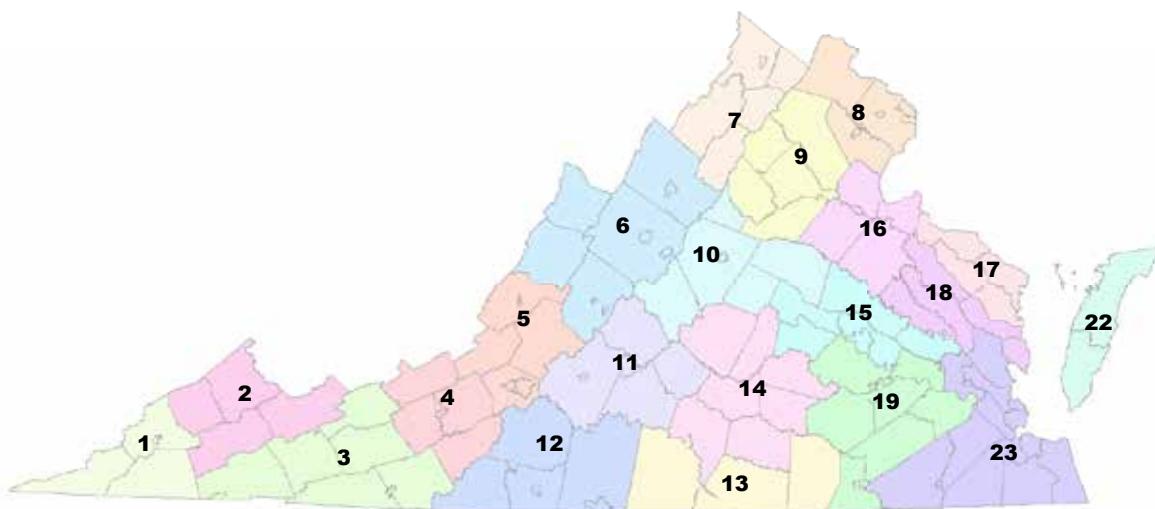
Regional Recommendations

A farmer's market in Courtland | Carolyn Lowe/Virginia Tourism Corp.

Recreation Plan Implementation

The Virginia Outdoors Plan (VOP) provides an opportunity to meet regionally to discuss and prioritize parks and recreation and land conservation needs and goals. Increasingly, regional leadership recognizes that establishing recreation planning and land conservation strategies based on the detailed regional data is important to Virginians health and the long-term viability of the Commonwealth. Results from the 2017 Virginia Outdoors Demand Survey (VODS) and the Outdoor Recreation Areas and Facilities Inventory are important for prioritizing future outdoor recreation needs. Featured projects for each region, if implemented, will address these needs.

Map 13.1 Recreation Planning Regions



- | | | |
|-------------------------------------|-------------------------------|--------------------------------|
| 1 LENOWISCO | 8 Northern Virginia | 15 Richmond |
| 2 Cumberland Plateau | 9 Rappahannock-Rapidan | 16 George Washington |
| 3 Mount Rogers | 10 Thomas Jefferson | 17 Northern Neck |
| 4 New River Valley | 11 2000 | 18 Middle Peninsula |
| 5 Roanoke Valley-Alleghany | 12 West Piedmont | 19 Crater |
| 6 Central Shenandoah | 13 Southside | 20 Accomack-Northampton |
| 7 Northern Shenandoah Valley | 14 Commonwealth | 21 Hampton Roads |

Recreation Planning Regions

The 2018 VOP divides the Commonwealth into 21 outdoor recreational planning regions. These regions coincide in name, area, number and boundaries with existing planning districts. For the purposes of this plan, when a jurisdiction is a member of multiple planning district commissions, one planning region is selected to avoid duplication of inventory data and resource recommendations.

Regional Public Input

Recreation planning meetings were held in 2014, 2015 and 2016 across the 21 recreational regions. Planners, recreation and conservation advocates and local, regional and state agencies participated in these meetings to provide input for the VOP. These annual meetings engaged 744 individuals, enabling the Virginia Department of Recreation and Conservation to identify the featured projects for each region.

Table 13.2 Recreation Planning Meetings

meetings	attendees
2014	183
2015	218
2016	343
Total	744

Criteria for Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- The project is able to be initiated within the next five years.

Recreation Mapping

Mapping tools available to assist with recreation planning include:

- The VOP Mapper, an interactive map tool useful for recreation and land conservation planning.
- The Natural Heritage Data Explorer, a map tool for land conservation, natural resource and planning.
- The Virginia Coastal Geospatial and Educational Mapping System (GEMS) provides extensive information on coastal resources in Virginia in the form of detailed descriptions and interactive spatial data.



REGION

2

*Cumberland
Plateau*

Powell Valley, the Orby Cantrell Highway, Norton | Liz Clayton/Scenic Virginia

Introduction

Cumberland Plateau in southwestern Virginia includes the counties of Russell, Dickenson, Buchanan and Tazewell. The region borders Kentucky on the west and West Virginia on the north. This rugged and beautiful mountainous area contains spectacular scenery and unique natural habitats of national and statewide significance. Inhabitants and visitors to the area enjoy a variety of natural resource-based recreational opportunities along with several parks and forest recreation areas.

Regional Focus

Table 2.1 Most-Needed Outdoor Recreation Opportunities

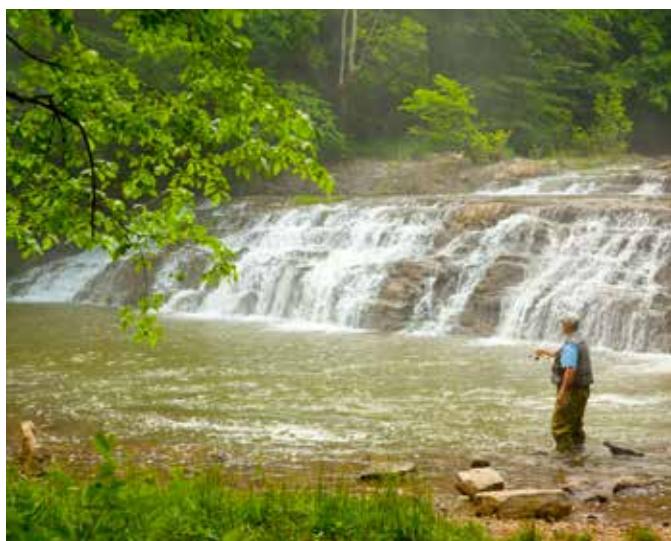
Cumberland Plateau Recreational Planning Region

% of households in

activity	region	state
Water access	55	43
Parks	52	49
Natural areas	49	54
Trails	45	43
Scenic drives (driving for pleasure)	43	29
Historic areas	37	39
Playing fields, sports and golf facilities	15	22

Source: 2017 Virginia Outdoors Demand Survey.

For sampling purposes, data from the Cumberland Plateau and LENOWISCO regions were grouped.



Big Cedar Creek | John Henley/Virginia Tourism Corp.

Table 2.2 Top 10 Outdoor Recreation Activities By Participation

Cumberland Plateau Recreational Planning Region

activity	% household
Driving for pleasure	79
Visiting natural areas	74
Walking for pleasure	61
Freshwater fishing	58
Visiting parks (local, state & national)	56
Swimming/outdoor pool	47
Hunting	39
Visiting working farms, petting zoos, corn mazes, etc.	38
Sunbathing/relaxing on a beach	37
Picnicking away from home	35

Source: 2017 Virginia Outdoors Demand Survey.

For sampling purposes, data from the LENOWISCO and Cumberland Plateau regions were grouped. Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the Cumberland Plateau region:

- Connect the Cranesnest Trail to Breaks Interstate Park.
- Move forward the Clinch River Valley Initiative in Wise, Russell, Tazewell and Scott Counties.
- Expand the Spearhead Trail system to include the Dante Trail.
- Connect trails to the Haysi Trail Center.



Breaks Interstate Park | Scenic Virginia

- Extend the Pocahontas Exhibition to the downtown Pocahontas Trail and to Bramwell in West Virginia.
- Connect the Laurel Bed Lake Trail to the Channels, Hidden Valley Trail and Clinch Mountain Trail.

Outdoor Recreation Economic Impact

Table 2.3 Per-Capita Spending on Parks and Recreation

Cumberland Plateau Recreational Planning Region

locality	dollars
Buchanan County	37.36
Dickenson County	12.07
Russell County	5.13
Tazewell County	5.54
Town of Bluefield	65.86
Town of Richlands	57.56
Town of Tazewell	86.7
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.

Table 2.4 Virginia State Parks 2017 Attendance and Economic Impact

Cumberland Plateau Recreational Planning Region

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Breaks Interstate	Dickinson County	76,253	337,878	414,131	N/A

Source: Virginia State Parks

Regional Health

Table 2.5 Health Trends

Cumberland Plateau Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Buchanan County	21	32	34	27	9.3
Dickenson County	18	35	26	38	9.2
Russell County	19	29	27	45	9.2
Tazewell County	18	30	30	52	8.8
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation



White water | Virginia Department of Conservation and Recreation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

The Cumberland Plateau region contains an iconic, historic transportation route. It is home to one of only three natural “gaps” in the Appalachian Mountains, one that served as a gateway between Virginia and Kentucky and later as a route west for determined settlers. As in other Appalachian regions, this area’s historic resources reflect the importance of extractive industries and railroad transportation to its late 19th and early 20th century prosperity. Historic districts contain residential and commercial buildings constructed during this period, a time of economic boom. County seats include large, imposing courthouses designed to convey both the power of the law and wealth of the community. Small company towns and the mines that anchored them are found throughout this region. The region is also rich in prehistory, with small encampment sites on ridges and beneath rockshelters and large settlements on the floodplains below.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events,

placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 19th century farmsteads, dwellings and commercial buildings/districts; late 19th and early 20th century company towns and coal camps; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 2.6 Regional Historic Resources

Cumberland Plateau Recreational Planning Region

resource	location
Honaker Historic District	Russell County
Dickenson County Courthouse	Dickenson County
Buchanan County Courthouse	Buchanan County
Pocahontas Exhibition Mine	Tazewell County
Burke's Garden Rural Historic District	Tazewell County

Source: Virginia Department of Historic Resources.

Land Conservation

Table 2.7 Conserved Lands

Cumberland Plateau Recreational Planning Region

locality	easement acres	ownership acres
Buchanan County	0	0
Dickenson County	0	8,821.60
Russell County	12,821.53	8,098.85
Total	29,741.98	

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory

Natural Area Preserves and Natural Heritage Resources

The Cumberland Plateau region is located in one of the most biologically rich areas in the world. The Clinch River and associated streams support a great variety of mussels, fishes and other aquatic species found nowhere else on the planet. The southern half of the district is underlain with limestone, which supports many rare plants and plant communities above ground and an abundance of caves and cave-dwelling animals below ground. While three natural area preserves have been established here — all in Russell County — much critical habitat remains unprotected.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

Conservation targets include:

- Significant caves and karst areas.
- Improve water quality for globally rare aquatic communities.
- Terrestrial limestone communities.
- Establishment of segments of the Virginia Karst Trail on public lands with significant karst areas.

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 2.8 Natural Area Preserves

Cumberland Plateau Recreational Planning Region

preserve name	owner	locality
Cleveland Barrens	DCR and The Nature Conservancy	Russell County
Pinnacle	DCR and The Nature Conservancy	Russell County
The Channels	DOF	Russell County (part)

Table 2.9 Natural Heritage Resources

Cumberland Plateau Recreational Planning Region

Number of occurrences of rare species and significant natural communities	563
Number of different rare species and significant community types (natural heritage elements)	210
Number of globally rare natural heritage elements	71
Number of species listed as federally endangered or threatened	21
Number of species listed as state endangered or threatened	27
Number of terrestrial conservation sites identified by DCR	53
Number of conservation sites with little or no protection	41
Number of partially protected conservation sites	11
Number of well protected conservation sites	1

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program

A photograph of a rustic wooden fence made of split logs, winding through a grassy field. In the background, there are rolling green hills and mountains under a blue sky with scattered clouds.

REGION **3**
Mount Rogers

Introduction

The Mount Rogers Recreational Planning Region includes the counties of Bland, Carroll, Grayson, Smyth, Washington and Wythe, and the cities of Bristol and Galax. The region is in the Ridge and Valley Province and stretches from the Appalachian Plateau to the Blue Ridge and from West Virginia to the North Carolina and Tennessee lines. Large tracts of national forest lands, including Mount Rogers National Recreation Area, offer developed campgrounds, picnic areas, miles of hiking, bicycling and horseback riding trails, fishing lakes, trout streams and wilderness. Mount Rogers and Whitetop Mountain are the highest peaks in Virginia, with terrain and habitat features uncommon to other parts of the state and the East Coast.

Regional Focus

Table 3.1 Most-Needed Outdoor Recreation Opportunities

Mount Rogers Recreational Planning Region

% of households in

activity	region	state
Natural areas	50	54
Parks	47	49
Water access	46	43
Historic areas	42	39
Trails	36	43
Scenic drives (driving for pleasure)	34	29
Playing fields, sports and golf facilities	19	22

Source: 2017 Virginia Outdoors Demand Survey.

Table 3.2 Top 10 Outdoor Recreation Activities By Participation

Mount Rogers Recreational Planning Region

activity	% household
Driving for pleasure	76
Visiting natural areas	68
Walking for pleasure	62
Visiting parks (local, state & national)	48
Freshwater fishing	44
Sunbathing/relaxing on a beach	36
Swimming/outdoor pool	36
Music festivals	36
Outdoor festivals (music festivals, outdoor-themed festivals, extreme sports festivals, etc.)	34
Viewing scenery	34

Source: 2017 Virginia Outdoors Demand Survey.

Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the Mount Rogers region:

- Continue expansion of the Rocky Gap Greenway in Bland County.
- Expand the Farmers Market Trail in Carroll County.
- Expand and fill in gaps along the Salt Trail.
- Develop and manage the Mendota Trail.

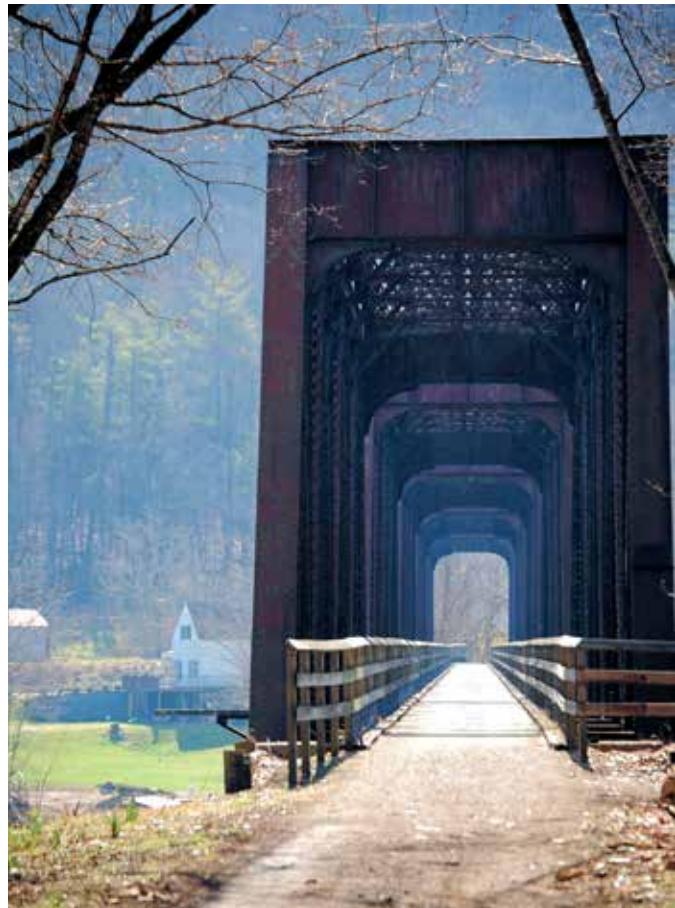
Outdoor Recreation Economic Impact

Table 3.3 Per-Capita Spending on Parks and Recreation

Mount Rogers Recreational Planning Region

locality	dollars
Bland County	17.65
Carroll County	29.74
Grayson County	11.84
Washington County	11.37
Smyth County	1.02
Wythe County	8.36
Town of Abingdon	321.11
Town of Marion	166.27
Town of Wytheville	190.54
City of Bristol	135.22
City of Galax	206.53
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.



New River Trail State Park | Virginia Department of Conservation and Recreation

Table 3.4 Virginia State Parks 2017 Attendance and Economic Impact

Mount Rogers Recreational Planning Region

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Grayson Highlands	Grayson County	43,970	163,300	207,270	\$5.7M
Hungry Mother	Smyth County	72,754	187,475	260,229	\$7.1M
New River Trail	Carroll, Grayson, Pulaski, Wythe counties; town of Galax	8,100	1,189,127	1,197,227	\$29.2M

Source: Virginia State Parks

Regional Health

Table 3.5 Health Trends

Mount Rogers Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution - particulate matter (micrograms per cubic meter)
Bland County	15.00	31	25	100	8.4
Carroll County	19.00	29	25	43	8.6
Grayson County	19.00	30	32	45	8.4
Washington County	18.00	30	27	67	9.4
Smyth County	19.00	30	28	76	8.6
Wythe County	17.00	31	27	66	8.6
City of Bristol	19.00	27	25	97	9.3
City of Galax	19.00	26	25	90	8.3
Statewide	17.00	27	21	81	8.7

Source: Robert Wood Johnson Foundation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

The Mount Rogers region is named for the highest peak in Virginia, and contains a wide range of historic resources associated with its agricultural, transportation and resource extraction histories. Properties associated with the American Revolution and the Civil War can be found in this region, as can sites representative of thousands of years of occupation prior to the arrival of European immigrants. Population centers such as Bristol and Abingdon contain historic hotels, theaters, shops and courthouses reflective of their status as business headquarters as well as travel destinations. Rural areas contain historic farmsteads, grist mills, barns and bridges.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 19th century farmsteads, dwellings and commercial

buildings/districts; late 19th and early 20th century company towns and coal camps; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 3.6 Regional Historic Resources

Mount Rogers Recreational Planning Region

resource	location
Lincoln Theater	Smyth County
White's Mill	Washington
Muster Ground and Retirement	Town of Abingdon
Grayson County Courthouse	Grayson County
Saltville Battlefields Historic District	Wythe and Washington Counties

Source: Virginia Department of Historic Resources



Winter Wonder Land, Hungry Mother State Park | Virginia Department of Conservation and Recreation

Land Conservation

Table 3.7 Conserved Lands

Mount Rogers Recreational Planning Region

locality	easement acres	ownership acres
Bland County	3,639.90	76,769.56
Carroll County	5,616.50	14,946.48
City of Bristol	0.00	10.00
City of Galax	50.00	5.38
Grayson County	11,282.87	40,692.52
Smyth County	15,119.32	89,518.82
Warren County	8,556.23	23,744.47
Wythe County	11,646.30	66,819.86
Total	368,418.21	

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory

Natural Area Preserves and Natural Heritage Resources

The Mount Rogers region is a very biologically diverse area of the state. The six highest peaks in Virginia are located in the district and support a variety of plants, animals and communities typical of much more northern parts of the continent. The three forks of the Holston River are home to many rare fishes, mussels and other animals found only in the upper Tennessee watershed. Much of the northern half of the region is underlain by limestone, which is interlaced with caves harboring an assortment of rare animals. The lowlands of Grayson and Carroll counties are dotted with unusual wetlands, which are home to a variety of rare plants and the imperiled bog turtle.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a

conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets include:

- Significant caves and karst areas.
- Improving water quality for globally rare aquatic communities.
- Protection of significant seepage wetlands in Grayson and Carroll counties.
- Establishment of segments of the Virginia Karst Trail on public lands with significant karst areas.

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 3.8 Natural Area Preserves

Mount Rogers Recreational Planning Region

preserve name	owner	locality
Big Spring Bog	DCR	Grayson County
Grayson Glades	DCR	Grayson County
Red Rock Mountain	DCR	Smyth County
The Channels	DOF	Washington County (part)

Table 3.9 Natural Heritage Resources

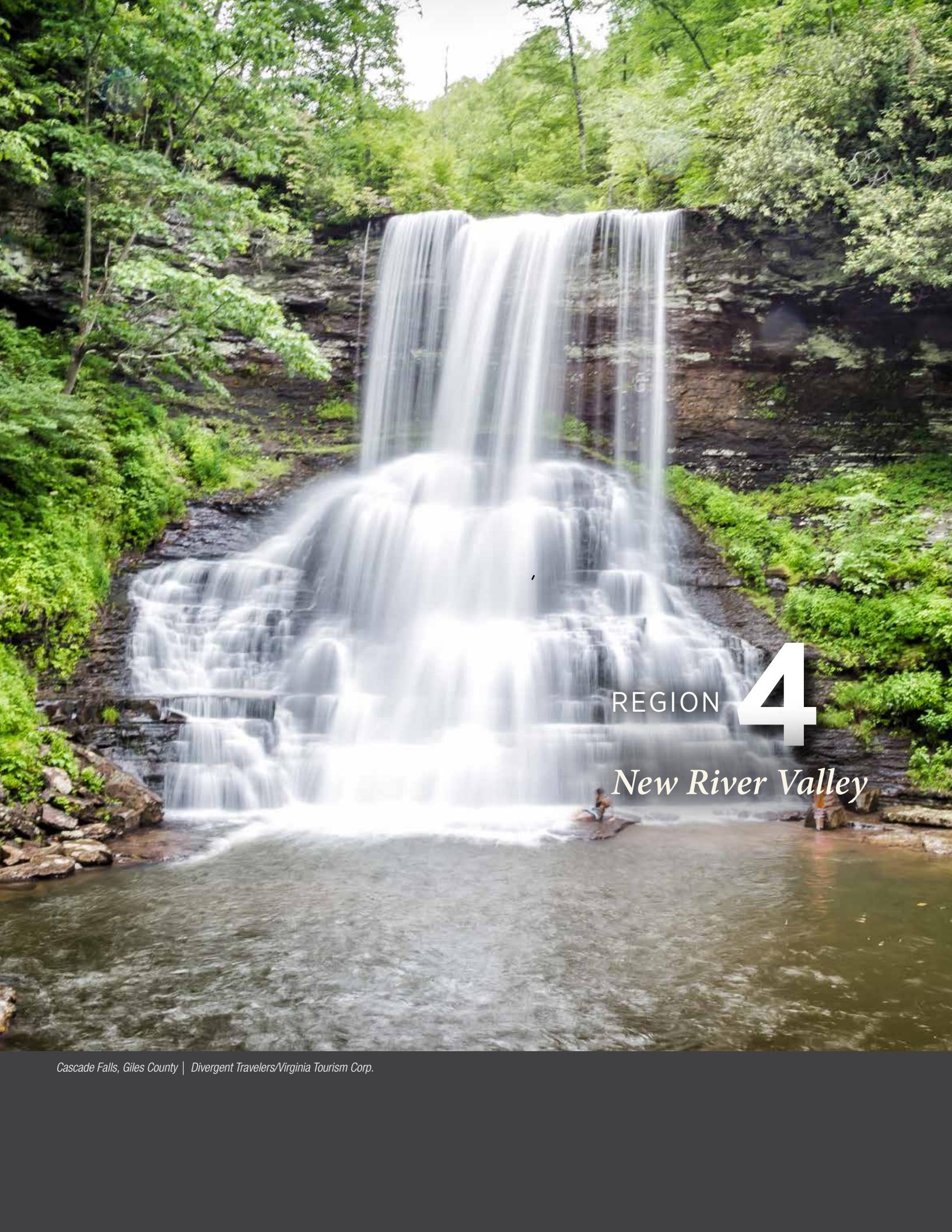
Mount Rogers Recreational Planning Region

Number of occurrences of rare species and significant natural communities	861
Number of different rare species and significant community types (natural heritage elements)	302
Number of globally rare natural heritage elements	92
Number of species listed as federally endangered or threatened	26
Number of species listed as state endangered or threatened	35
Number of terrestrial conservation sites identified by DCR	95
Number of conservation sites with little or no protection	55
Number of partially protected conservation sites	32
Number of well protected conservation sites	8

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program



Spring Bike Ride | Virginia Department of Conservation and Recreation



REGION
4

New River Valley

Cascade Falls, Giles County | Divergent Travelers/Virginia Tourism Corp.

Introduction

The New River Valley Recreational Planning Region includes Floyd, Giles, Montgomery and Pulaski counties, the city of Radford and the towns of Blacksburg and Christiansburg. The region lies between West Virginia on the west and the Blue Ridge Parkway on the east. National forest lands blanket the ridges while picturesque farms and towns dot the New River Valley. The character of the region is influenced by the New River, an American Heritage River, providing high-quality fishing and swimming opportunities. Clayton Lake, a hydroelectric power impoundment on the New River, provides opportunities for power boating, sailing, water skiing, fishing and other water sports.

Regional Focus

Table 4.1 Most-Needed Outdoor Recreation Opportunities

New River Valley Recreational Planning Region

% of households in

activity	region	state
Natural areas	62	54
Water access	53	43
Parks	51	49
Trails	46	43
Historic areas	43	39
Scenic drives (driving for pleasure)	25	29
Playing fields, sports and golf facilities	22	22

Source: 2017 Virginia Outdoors Demand Survey.

Table 4.2 Top 10 Outdoor Recreation Activities By Participation

New River Valley Recreational Planning Region

activity	% household
Visiting natural areas	76
Walking for pleasure	76
Driving for pleasure	74
Visiting parks (local, state & national)	61
Sunbathing/relaxing on a beach	54
Freshwater fishing	51
Swimming/beach/lake river (open water)	47
Swimming/outdoor pool	46
Outdoor festivals (music festivals, outdoor-themed festivals, extreme sports festivals, etc.)	43
Viewing the water	37

Source: 2017 Virginia Outdoors Demand Survey.

Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the New River Valley region:

- Connect the Huckleberry Trail to other regional and local trails.
- Connect the New River Trail eastward to Pulaski.
- Extend Floyd County trails from the town of Floyd into the county.

- Expand the Giles County section of the Mary Draper Ingles Trail into West Virginia.
- Connect the Draper Mountain hiking and mountain bike trails to the New River Trail State Park.

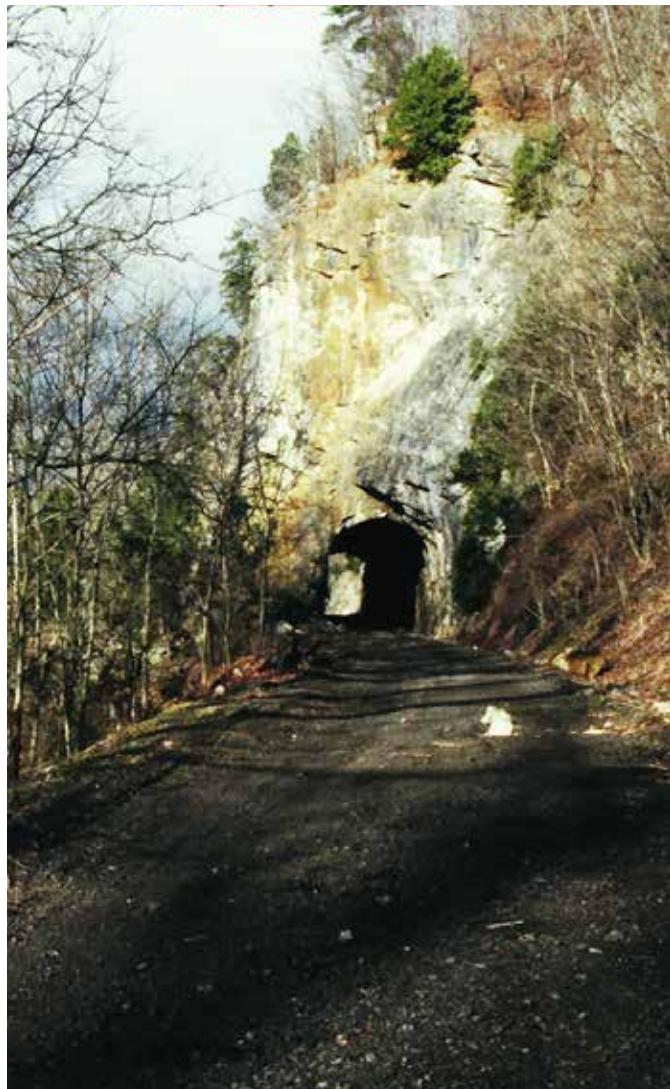
Outdoor Recreation Economic Impact

Table 4.3 Per-Capita Spending on Parks and Recreation

New River Valley Recreational Planning Region

locality	dollars
Floyd County	3.56
Giles County	38.68
Montgomery County	9.92
Pulaski County	22.78
Town of Blacksburg	67.73
Town of Christiansburg	232.91
Town of Pulaski	73.51
City of Radford	82.66
Statewide	71.09
City of Bristol	135.22
City of Galax	206.53
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.



The tunnel on the New River trail | Virginia Department of Conservation and Recreation

Table 4.4 Virginia State Parks 2017 Attendance and Economic Impact

New River Valley Recreational Planning Region

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Claytor Lake	Pulaski County	72,062	198,654	270,716	\$8.1M
New River Trail	Carroll, Grayson, Pulaski, Wythe counties; town of Galax	8,100	1,189,127	1,197,227	\$29.2M

Source: Virginia State Parks

Regional Health

Table 4.5 Health Trends

New River Valley Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution - particulate matter (micrograms per cubic meter)
Floyd County	15	27	25	43	8.5
Giles County	15	30	32	66	8.6
Montgomery County	18	24	20	76	8.9
Pulaski County	16	33	27	67	8.8
City of Radford	23	30	20	100	8.7
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

The New River Valley region is named for the New River, a designated American Heritage River that flows northwest through Virginia. The New River served as a transportation route for indigenous people as well as later settlers, and today attracts visitors interested in its natural and recreational qualities. The region includes Blacksburg, home to Virginia Tech. This area is also at the southern edge of the “hot springs” region and contains late 19th century hotels and resorts constructed to take advantage of these natural thermal baths. Rural historic districts allow visitors access to scenic drives through areas that remain largely agricultural.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 19th century

farmsteads, 19th and early 20th century dwellings and commercial buildings/districts; thermal springs resorts and hotels; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 4.6 Regional Historic Resources

New River Valley Recreational Planning Region

resource	location
Currie House	Town of Blacksburg
Greater Newport Rural Historic District	Giles and Montgomery Counties
Yellow Sulphur Springs	Montgomery County
Kentland Farm Archaeological and Historic District	Pulaski County
Glencoe	City of Radford

Source: Virginia Department of Historic Resources



Claytor Lake State Park, Pulaski County | Sam Dean/Virginia Tourism Corp.

Land Conservation

Table 4.7 Conserved Lands

New River Valley Recreational Planning Region

locality	easement acres	ownership acres
City of Radford	149.00	84.67
Floyd County	8,355.91	6,552.41
Giles County	5,505.82	65,473.28
Montgomery County	15,582.30	23,197.72
Pulaski County	4,371.11	20,278.01
Total	149,550.22	

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory

Natural Area Preserves and Natural Heritage Resources

The New River Valley spans an ecologically diverse area. The northern half of the region is underlain by limestone and other calcium-rich geology, which supports karst topography, characterized by caves, sinkholes and sinking streams. Below ground, these areas harbor many rare cave-dwelling species and above ground many rare plants and unusual plant communities. One of the world's rarest plants, Peters Mountain Mallow, is confined to a single mountain within this region. The southern half of the district features seepage wetlands that are home to the globally rare bog turtle, as well as Buffalo Mountain, which features a variety of rare plant communities.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement

through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets include:

- Significant caves and karst areas.
- Improving water quality for globally rare aquatic communities.
- Terrestrial limestone communities.
- Significant wetlands in Floyd County.
- Establish a public access point and hiking trails at Pedlar Hills Glades Natural Area Preserve.
- Establishment of segments of the Virginia Cave and Karst Trail on public lands with significant karst areas.

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 4.8 Natural Area Preserves

New River Valley Recreational Planning Region

preserve name	owner	locality
Buffalo Mountain	DCR	Floyd County
Camp Branch Wetlands	Private	Floyd County
Chestnut Creek Wetland	DCR	Floyd County
Chestnut Ridge	Private	Giles County
Clover Hollow	DCR	Giles County
Mill Creek Springs	The Nature Conservancy	Montgomery County
Pedlar Hills Glades	DCR and private	Montgomery County
Sweet Springs	Private	Montgomery County

Table 4.9 Natural Heritage Resources

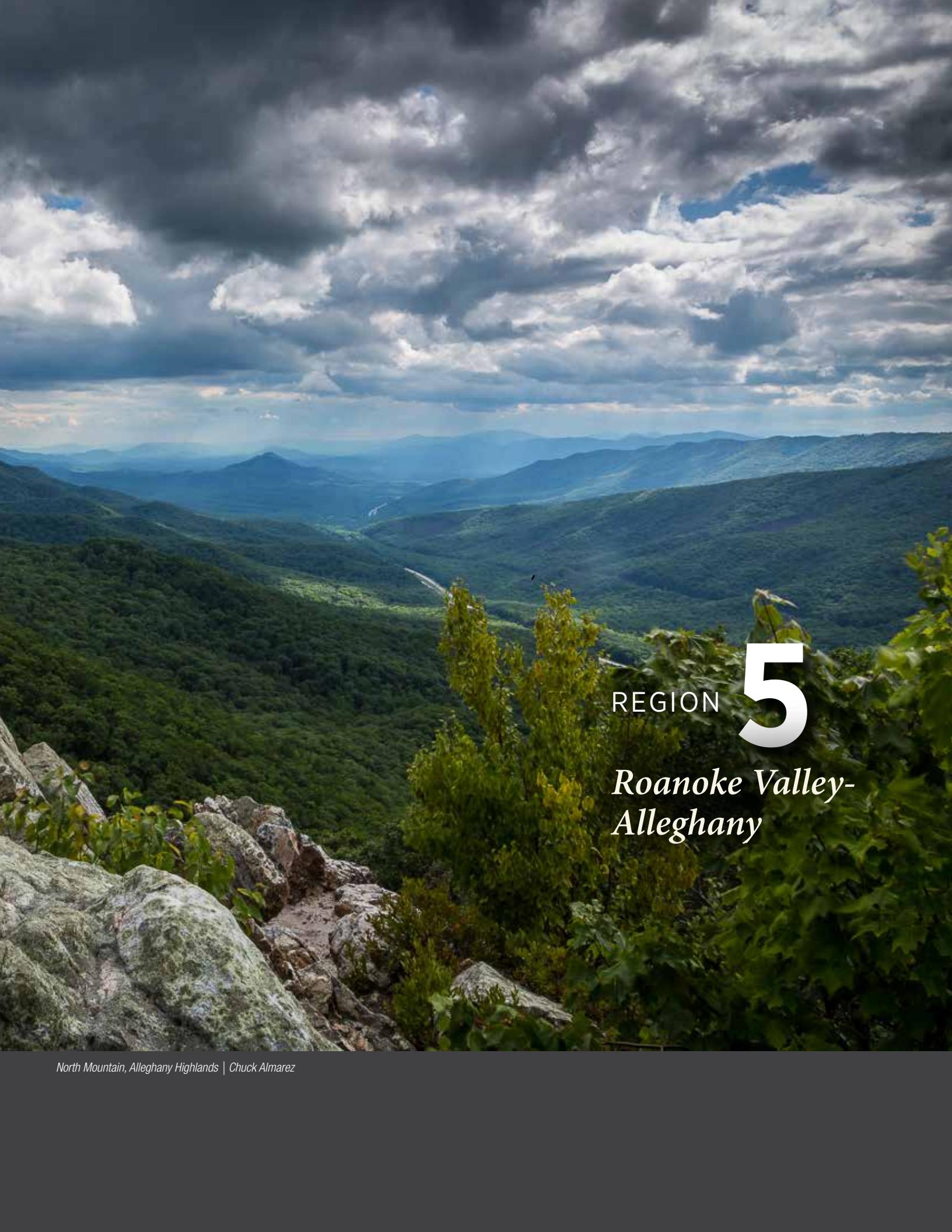
New River Valley Recreational Planning Region

Number of occurrences of rare species and significant natural communities	637
Number of different rare species and significant community types (natural heritage elements)	257
Number of globally rare natural heritage elements	67
Number of species listed as federally endangered or threatened	12
Number of species listed as state endangered or threatened	25
Number of terrestrial conservation sites identified by DCR	97
Number of conservation sites with little or no protection	53
Number of partially protected conservation sites	34
Number of well protected conservation sites	10

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program



The New River in Giles County | Jeff Greenough



REGION **5**

*Roanoke Valley-
Alleghany*



Dragon's Tooth on the Appalachian Trail | Sam Dean/Virginia Tourism Corp.

Introduction

The Roanoke Valley-Alleghany Recreational Planning Region includes the counties of Alleghany, Botetourt, Craig and Roanoke, the cities of Covington, Roanoke and Salem, and the towns of Clifton Forge, Iron Gate, Fincastle, Troutville, Buchanan, New Castle and Vinton. Stretching from the Blue Ridge Mountains across the Shenandoah Valley to the ridge and valley section of the Appalachian Mountains, the region is a mixture of urban centers and rural farms and forests. Marked by topographic variety, numerous rivers, streams, and many notable cultural and historic sites, the area offers a range of historic and outdoor experiences. Whether hiking the Appalachian Trail or driving the Blue Ridge Parkway, exploring the George Washington and Jefferson National Forests or paddling the James River, the outdoor enthusiast's choices of activities are many.

Regional Focus

Table 5.1 Most-Needed Outdoor Recreation Opportunities

Roanoke Valley-Alleghany Recreational Planning Region

activity	% of households in	
	region	state
Natural areas	58	54
Trails	49	43
Water access	45	43
Parks	40	49
Historic areas	37	39
Scenic drives (driving for pleasure)	31	29
Playing fields, sports and golf facilities	17	22

Source: 2017 Virginia Outdoors Demand Survey.

Table 5.2 Top 10 Outdoor Recreation Activities By Participation

Roanoke Valley-Alleghany Recreational Planning Region

activity	% household
Driving for pleasure	73
Visiting natural areas	71
Walking for pleasure	67
Visiting parks (local, state & national)	49
Sunbathing/relaxing on a beach	48
Outdoor festivals (music festivals, outdoor-themed festivals, extreme sports festivals, etc.)	47
Swimming/outdoor pool	46
Viewing the water	36
Swimming/beach/lake river (open water)	35
Music festivals	34

Source: 2017 Virginia Outdoors Demand Survey.
Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the Roanoke Valley-Alleghany region:

- Promote and implement the James River Heritage Trail including the Upper James River Water Trail and the Alleghany Highlands Blueways.
- Implement the Roanoke River Greenway and Blueway Plan.
- Implement the Tinker Creek, Glade Creek and Daleville Creek Greenways.
- Implement the Alleghany Highlands Trails system.
- Implement the Appalachian Trail Priority Landscape at Catawba Valley and McAfee Knob.
- Promote and Implement the 2016 Explore Park Adventure Plan.
- Promote Virginia's Blue Ridge Ride Center, an International Mountain Biking Association Silver-Level Ride Center.
- Design and implement in-river kayak parks.
- Develop the Arcadia Initiative as a multijurisdictional effort to preserve large landscapes for the protection of wildlife migration and forest ecology.



Staying overnight in a cabin. | Virginia Department of Conservation and Recreation

Outdoor Recreation Economic Impact

Table 5.3 Per-Capita Spending on Parks and Recreation

Roanoke Valley-Alleghany Recreational Planning Region

locality	dollars
Alleghany County	79.20
Botetourt County	58.91
Craig County	?
Franklin County	18.23
Roanoke County	89.17
Town of Clifton Forge	44.73
Town of Vinton	74.84
City of Covington	267.83
City of Roanoke	73.06
City of Salem	154.06
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.

Table 5.4 Virginia State Parks 2017 Attendance and Economic Impact

Roanoke Valley-Alleghany Recreational Planning Region

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Douthat	Bath, Alleghany counties	84,005	139,273	223,278	\$6.8M
Smith Mountain Lake	Bedford, Franklin* counties	41,861	471,099	512,960	\$11.1M

* Roanoke Valley-Alleghany and West Piedmont regions share Franklin County.

Source: Virginia State Parks

Regional Health

Table 5.5 Health Trends

Roanoke Valley-Alleghany Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Alleghany County	17	33	27	100	8.7
Botetourt County	14	26	22	81	9.1
Craig County	16	28	23	97	8.3
Franklin County	17	28	22	34	9.1
Roanoke County	16	27	26	76	9.2
City of Covington	19	26	23	100	8.5
City of Roanoke	19	32	26	88	9
City of Salem	16	25	21	85	9
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation

Explore Park is a 1,000-acre park with over 2 miles of Roanoke River and Back Creek water front. The park is located on the Blue Ridge Parkway at milepost 115. The [Explore Park Adventure Plan](#) outlines key environmental preservation recommendations while providing tools for public interpretation of the park's unique natural and cultural history.

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled "Nature & Outdoors" recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

The Roanoke Valley-Alleghany Region is characterized by rolling ridge-and-valley topography. The area remains largely rural open space, with several scattered population centers. This region shares many characteristics with the nearby New River Valley and Mount Rogers regions, including its historic focus on agriculture, timber and mineral extraction, and rail transportation. Thermal springs and associated resorts are found in this region, along with historic furnaces associated with the processing of ore into iron. The cities of Roanoke, Salem and Covington are home to historic districts containing examples of mid-19th through early 20th century buildings that reflect both national design trends and local variations.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 19th century farmsteads, 19th and early 20th century dwellings and commercial buildings/districts; thermal springs resorts and hotels; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 5.6 Regional Historic Resources

Roanoke Valley-Alleghany Recreational Planning Region

resource	location
Preston House	Town of Salem
Humpback Covered Bridge	Alleghany County
Iron Furnaces	Botetourt County
Craig Healing Springs	Craig County
Tombstone Cemetery	City of Roanoke

Source: Virginia Department of Historic Resources



Farmland surrounding Smith Mountain Lake | Virginia Department of Conservation and Recreation

Land Conservation

Table 5.7 Conserved Lands

Roanoke Valley-Alleghany Recreational Planning Region

locality	easement acres	ownership acres
Alleghany County	9,945.93	142,398.13
Botetourt County	17,405.63	85,988.93
City of Covington	270.00	0.00
City of Roanoke	668.32	1,852.71
City of Salem	3.48	0.00
Craig County	5,206.25	117,135.02
Roanoke County	9,656.54	19,032.14
Total	409,563.07	

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory

Natural Area Preserves and Natural Heritage Resources

The Roanoke Valley-Alleghany region is drained primarily by the James and Roanoke rivers, waterways that are home to a number rare mussels and fishes, including the James spiny mussel and Roanoke logperch. Varying geology and topography support an array of significant plant communities, including shale barrens and nice examples of old growth forests. Several biologically significant caves are scattered across the region and the high forest around the Peaks of Otter is home to its own species of salamander.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets include:

- Significant caves and karst areas.
- Improve water quality for globally rare aquatic communities.
- Significant shale barren communities.

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 5.8 Natural Area Preserves

Roanoke Valley-Alleghany Recreational Planning Region

preserve name	owner	locality
Johnsons Creek	DCR	Alleghany County
Poor Mountain	DCR	Roanoke County

Table 5.9 Natural Heritage Resources

Roanoke Valley-Alleghany Recreational Planning Region

Number of occurrences of rare species and significant natural communities	402
Number of different rare species and significant community types (natural heritage elements)	152
Number of globally rare natural heritage elements	55
Number of species listed as federally endangered or threatened	9
Number of species listed as state endangered or threatened	17
Number of terrestrial conservation sites identified by DCR	118
Number of conservation sites with little or no protection	39
Number of partially protected conservation sites	56
Number of well protected conservation sites	23

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program

A wide-angle photograph of a rural winter scene. A light-colored, snow-dusted road curves from the bottom left towards the center of the frame. To the left, a simple wooden fence runs along the edge of a field. The terrain is hilly and covered in a thin layer of snow. Bare deciduous trees stand scattered across the landscape, some with intricate, skeletal branches. The sky is overcast with heavy, grey clouds.

REGION 6

*Central
Shenandoah*



Calm waters | Virginia Department of Conservation and Recreation

Introduction

The Central Shenandoah Recreational Planning Region includes the counties of Augusta, Bath, Highland, Rockbridge and Rockingham counties, the cities of Buena Vista, Harrisonburg, Lexington, Staunton and Waynesboro, and the towns of Bridgewater, Broadway, Craigsville, Dayton, Elkton, Glasgow, Goshen, Grottoes, Monterey, Mount Crawford and Timberville.

The region reaches from the Blue Ridge Mountains on the eastern boundary to the Allegheny range along the western part of the region. Nestled between these mountains, Virginia's Shenandoah Valley contains beautiful, bountiful and diverse landscapes of fertile farmland, rolling fields and forests that serve as the basis for its major industries — agriculture, forestry and tourism. The headwaters of numerous streams provide fishing, swimming, canoeing and camping opportunities.

Regional Focus

Table 6.1 Most-Needed Outdoor Recreation Opportunities

Central Shenandoah Recreational Planning Region

% of households in

activity	region	state
Natural areas	65	54
Historic areas	47	39
Parks	38	49
Trails	38	43
Water access	35	43
Scenic drives (driving for pleasure)	32	29
Playing fields, sports and golf facilities	11	22

Source: 2017 Virginia Outdoors Demand Survey.

Table 6.2 Top 10 Outdoor Recreation Activities By Participation

Central Shenandoah Recreational Planning Region

activity	% household
Driving for pleasure	83
Visiting natural areas	80
Walking for pleasure	69
Visiting parks (local, state & national)	59
Sunbathing/relaxing on a beach	44
Swimming/outdoor pool	43
Visiting historic areas	41
Swimming/beach/lake river (open water)	39
Gardening	37
Viewing scenery	35

Source: 2017 Virginia Outdoors Demand Survey.
Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the Central Shenandoah region:

- Complete restoration of the Blue Ridge/Crozet Tunnel and develop connector trails on both sides of the tunnel in Augusta County.
- Complete the master plan for the 13-mile trail to connect Brushy Hills Preserve Brushy Blue Greenway (west of Lexington) to the Blue Ridge Parkway (east of Buena Vista).

- Replace the Chessie Tail bridge over South River and complete the trail connection from Lexington to Buena Vista.
- Develop access points along the Upper James River Water Trail and the potential Maury River Water Trail.
- Develop a state park in Highland county.
- Develop and expand options for safe bicycle routes in the region based on the Bike the Valley Campaign.
- Expand the South River Greenway in Waynesboro.
- Develop the Arcadia Initiative as a multijurisdictional effort to preserve large landscapes for the protection of wildlife migration and forest ecology.

Outdoor Recreation Economic Impact

Table 6.3 Per-Capita Spending on Parks and Recreation

Central Shenandoah Recreational Planning Region

locality	dollars
Augusta County	20.98
Bath County	74.57
Highland County	27.75
Rockbridge County	41.43
Rockingham County	18.94
Town of Bridgewater	135.06
Town of Broadway	54.72
City of Buena Vista	146.05
City of Harrisonburg	96.03
City of Lexington	82.92
City of Staunton	101.68
City of Waynesboro	143.16
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.

Table 6.4 Virginia State Parks 2017 Attendance and Economic Impact*Central Shenandoah Recreational Planning Region*

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Douthat	Bath, Alleghany counties	84,005	139,273	223,278	\$6.8M
Natural Bridge	Rockbridge County	0	182,558	182,558	\$5.3M

Source: Virginia State Parks

Regional Health

Table 6.5 Health Trends*Central Shenandoah Recreational Planning Region*

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Augusta County	16	34	25	54	9
Bath County	17	29	27	100	7.9
Highland County	15	26	24	24	7.7
Rockbridge County	16	25	27	66	8.6
Rockingham County	14	26	24	63	9.1
City of Buena Vista	21	26	22	82	8.4
City of Harrisonburg	21	25	27	66	8.6
City of Lexington	19	26	20	80	8.4
City of Staunton	17	27	24	100	8.7
City of Waynesboro	18	30	23	69	8.7
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation



Falling Springs Falls | Virginia Department of Conservation and Recreation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

The Central Shenandoah region encompasses the heart of the Shenandoah Valley, and is characterized by a mixture of open farmland and population centers with often-vibrant historic downtowns. The Valley saw countless battles over the duration of the Civil War and this region contains multiple battlefield sites, many of which are under conservation easement and accessible to the public. The Central Shenandoah region is part of the Journey Through Hallowed Ground National Heritage Area, a historic and scenic region that runs from Gettysburg to Monticello and encompasses battlefields and other historic sites of great significance to American history. Rural historic districts offer both scenic drives and views of grand manors and modest farmsteads. Cities and towns in this region contain historic districts as well as individual historic properties that include the birthplace of President Woodrow Wilson and the campus of the Virginia Military Institute. Upland areas contain evidence of prehistoric habitation, while the wide floodplains along the Shenandoah River and its tributaries contain extensive Late Woodland village sites.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 19th century farmsteads, 19th and early 20th century dwellings and commercial buildings/districts; Civil War battlefields and associated resources; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 6.6 Regional Historic Resources

Central Shenandoah Recreational Planning Region

resource	location
Mansion House	Highland County
Cross Keys Battlefield Properties	Rockingham County
Paxton House (Glen Maury)	Rockbridge County
Swannanoa	Augusta County
Woodrow Wilson Birthplace	City of Staunton

Source: Virginia Department of Historic Resources



Enjoy a paddleboat | Virginia Department of Conservation and Recreation

Land Conservation

Table 6.7 Conserved Lands

Central Shenandoah Recreational Planning Region

locality	easement acres	ownership acres
Augusta County	23,643.48	222,164.48
Bath County	28,628.20	202,161.66
City of Buena Vista	0.00	121.40
City of Harrisonburg	17.09	155.00
City of Lexington	7.71	0.00
City of Staunton	246.82	0.00
City of Waynesboro	0.00	22.95
Highland County	14,685.01	88,801.34
Rockbridge County	42,424.22	96,607.33
Rockingham County	7,253.09	179,403.28
Total	906,343.06	

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory

Natural Area Preserves and Natural Heritage Resources

The Central Shenandoah region has the greatest variety of rare species and significant natural communities of all the planning districts in Virginia. Spanning from the highlands of the Blue Ridge, across the Shenandoah Valley and into the highlands of the Allegheny Mountains, the district encompasses a wide variety of habitats. Much of the region is underlain by limestone, which is interlaced with caves, supporting an abundance of rare animal species, including endangered bats and invertebrates specific to individual cave systems. High-elevation forests, on opposite sides of the district, harbor their own endemic salamanders, as well as outstanding examples of several forest communities. And at the foot of the Blue Ridge, along the eastern side of the valley, lie a string of natural sinkhole ponds that are home to several endangered plants, including Virginia sneezeweed, swamp pink and northeastern bulrush.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance in the region include:

- Significant caves and karst areas.
- Shenandoah Valley sinkhole pond communities and other biologically significant wetlands, including habitat for Virginia sneezeweed.
- Establishment of segments of the Virginia Cave and Karst Trail on public lands with significant karst areas.

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 6.8 Natural Area Preserves*Central Shenandoah Recreational Planning Region*

preserve name	owner	locality
Cowbane Prairie	DCR	Augusta County
Deep Run Ponds	DCR	Rockingham County
Folly Mills Fen	Private	Augusta County
Goshen Pass	DCR	Rockbridge County
Mount Joy Pond	DCR	Augusta County

Table 6.9 Natural Heritage Resources*Central Shenandoah Recreational Planning Region*

Number of occurrences of rare species and significant natural communities	1,264
Number of different rare species and significant community types (natural heritage elements)	416
Number of globally rare natural heritage elements	107
Number of species listed as federally endangered or threatened	14
Number of species listed as state endangered or threatened	34
Number of terrestrial conservation sites identified by DCR	180
Number of conservation sites with little or no protection	58
Number of partially protected conservation sites	66
Number of well protected conservation sites	56

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program



REGION
8

Northern Virginia

Introduction

The Northern Virginia region includes the counties of Arlington, Fairfax, Loudoun and Prince William, the cities of Alexandria, Fairfax, Falls Church, Manassas and Manassas Park, and the incorporated towns of Herndon, Leesburg, Purcellville, Vienna and Dumfries. Northern Virginia accommodates almost a quarter of the Commonwealth's population and is the most culturally diverse region of Virginia. Many of the region's outdoor resources are tourist destinations. The region is characterized by a variety of landscapes, including the Blue Ridge Mountains, Piedmont and Coastal Plain. The region's westernmost areas are farmed. Eastward, expansive subdivisions characterize the landscape, while urban areas near Washington are more densely populated.

Regional Focus

Table 8.1 Most-Needed Outdoor Recreation Opportunities

Northern Virginia Recreational Planning Region

activity	% of households in	
	region	state
Natural areas	53	54
Parks	51	49
Trails	46	4
Water access	39	43
Historic areas	34	39
Playing fields, sports and golf facilities	28	22
Scenic drives (driving for pleasure)	19	29

Source: 2017 Virginia Outdoors Demand Survey.

Table 8.2 Top 10 Outdoor Recreation Activities By Participation

Northern Virginia Recreational Planning Region

activity	% household
Visiting natural areas	79
Walking for pleasure	76
Visiting parks (local, state & national)	65
Driving for pleasure	60
Swimming/outdoor pool	54
Sunbathing/relaxing on a beach	47
Visiting historic areas	45
Viewing the water	42
Swimming/beach/lake river (open water)	36
Visiting working farms, petting zoos, corn mazes, etc.	36

*Source: 2017 Virginia Outdoors Demand Survey.
Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.*

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the Northern Virginia region:

- Implement the Potomac Heritage National Scenic Trail.
- Implement the Journey Through Hallowed Ground.
- Implement the Washington and Old Dominion trail plan.
- Implement Fairfax County's Cross County Trail improvements including pavement.
- Implement the Four Mile Run Restoration Master Plan.

- Conduct a study for traffic, signage and access for Prince William Forest Park to include a connection to Dumfries and the Potomac Heritage National Scenic Trail.
- Implement the September 11 National Memorial Trail.
- Implement the National Park Service recommendations for the National Capital Region Paved Trail Plan.
- Update the 1995 Potomac River Public Access Plan to improve public access to the tidal area of the Potomac River and its tributaries in Northern Virginia for fishing, boating (motorized and non-motorized), swimming and beach use.
- Implement planned improvements and reconstruction at Occoquan Regional Park, a 400-acre park on the Occoquan River in Fairfax County, next to Prince William County.
- Develop Beaverdam Regional Park in Loudoun County as a partnership between NOVA Parks and Loudoun Water.
- Rebuild and reroute the Bull Run Occoquan Trail, an 18+-mile natural surface trail for hiking, equestrian and mountain biking.

The 2016 Arlington County Parks and Recreation Needs Assessment Survey supports the public priorities expressed in the VODS. The top three facilities most important to respondents were:

- Paved multiuse trails (73%)
- Hiking trails (52%)
- Natural Areas and Wildlife Habitats (50%)

In urban Arlington, hiking trails, natural areas and wildlife habitats were the top two outdoor needs identified as being only partly or not met. These two were also identified as top priorities for the county's investment in outdoor recreation facilities.

Outdoor Recreation Economic Impact

Table 8.3 Per-Capita Spending on Parks and Recreation

Northern Virginia Recreational Planning Region

locality	dollars
Arlington County	195.61
Fairfax County	80.28
Loudoun County	99.70
Prince William County	75.17
Town of Dumfries	?
Town of Herndon	281.62
Town of Leesburg	184.32
Town of Purcellville	21.98
Town of Vienna	194.58
City of Alexandria	143.17
City of Fairfax	213.85
City of Falls Church	203.44
City of Manassas	40.55
City of Manassas Park	46.84
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2019.

Table 8.4 Virginia State Parks 2017 Attendance and Economic Impact

Northern Virginia Recreational Planning Region

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Leesylvania	Prince William County	0	624,748	624,748	\$12.6M
Mason Neck	Fairfax County	0	131,909	131,909	\$3.6M

Source: Virginia State Parks



Farmer's market at Market Square, Old Town Alexandria. | Cameron Davidson/Virginia Tourism Corp.

Regional Health

Table 8.5 Health Trends

Northern Virginia Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Arlington County	12	16	13	100	10.1
Fairfax County	11	20	16	100	8.8
Loudoun County	12	22	18	89	10
Prince William County	13	26	17	91	9.7
City of Alexandria	15	20	20	100	10
City of Fairfax	11	22	16	100	9.9
City of Falls Church	13	28	21	100	10.1
City of Manassas	15	29	20	100	9.5
City of Manassas Park	16	28	21	92	9.5
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation



Sailing on the Potomac River | Virginia Department of Conservation and Recreation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

The Northern Virginia region is one of the earliest-occupied and most densely developed portions of Virginia, and its cities and towns contain a concentration of historic buildings. The region is home to internationally known historic sites such as Mount Vernon and Arlington National Cemetery, as well as historic districts including the Alexandria’s Old Town. Individual buildings include the Franklin & Armfield Office, which, between 1828 and 1836 was the site of the largest slave trading company in the country and now houses the Freedom House museum. In spite of ongoing development, this region also contains rural historic districts, most notably the village of Waterford, as well as fortifications associated with the Civil War.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 19th and early 20th century dwellings and commercial buildings/districts; Civil War resources; historic transportation routes and crossroads and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 8.6 Regional Historic Resources

Northern Virginia Recreational Planning Region

resource	location
Mount Zion Historic Park (Mount Zion Old School Baptist Church)	Loudoun County
Arlington National Cemetery/Arlington House	Arlington County
Mount Vernon	Fairfax County
Manassas, Ball’s Bluff, Upperville, Bristoe Station, and Aldie Battlefields	Region-wide
Franklin & Armfield Office (Freedom House Museum)	City of Alexandria

Source: Virginia Department of Historic Resources

Land Conservation

Table 8.7 Conserved Lands

Northern Virginia Recreational Planning Region

locality	easement acres	ownership acres
Arlington County	17.36	1,098.93
City of Alexandria	13.63	472.69
City of Fairfax	5.00	113.98
City of Falls Church	1.10	48.53
City of Manassas	105.14	0.00
City of Manassas Park	0.00	0.00
Fairfax County	999.79	50,153.71
Loudoun County	43,819.24	10,142.93
Prince William County	2,302.27	49,903.91
Total		159,193.20

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory

Natural Area Preserves and Natural Heritage Resources

For a heavily urbanized area, the Northern Virginia region supports a comparatively high number of rare species and significant natural communities. This is due in part because the region spans three distinct geographical areas — Blue Ridge, Piedmont and Coastal Plain — and partly because the area has a long history of land conservation with several national parks, state parks, national wildlife refuges, local parks and many conservation easements. Some natural heritage highlights of the region include diabase woodland communities, rare plants and communities of the Potomac Gorge, wetlands of the tidal Potomac ad forest and outcrop communities of the Bull Run Mountains.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance in the region include:

- Wood turtle habitat.
- Diabase woodlands.
- Expand protection of the natural and scenic resources of the Bull Run Mountains and the Potomac Gorge.

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 8.8 Natural Area Preserves

Northern Virginia Recreational Planning Region

preserve name	owner	locality
Bull Run Mountains	Virginia Outdoors Foundation	Prince William County (part)
Elklick Woodlands	Fairfax County	Fairfax County

Table 8.9 Natural Heritage Resources

Northern Virginia Recreational Planning Region

Number of occurrences of rare species and significant natural communities	433
Number of different rare species and significant community types (natural heritage elements)	188
Number of globally rare natural heritage elements	29
Number of species listed as federally endangered or threatened	3
Number of species listed as state endangered or threatened	8
Number of terrestrial conservation sites identified by DCR	91
Number of conservation sites with little or no protection	65
Number of partially protected conservation sites	16
Number of well protected conservation sites	10

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program



REGION **7**

*Northern
Shenandoah Valley*

Introduction

The Northern Shenandoah Valley Recreational Planning region includes the counties of Clarke, Frederick, Page, Shenandoah and Warren, the city of Winchester and the towns of Berryville, Boyce, Middletown, Stephens City, Luray, Shenandoah, Stanley, Edinburg, Mount Jackson, New Market, Strasburg, Toms Brook, Woodstock and Front Royal. The region sits in the northwest corner of Virginia between the Blue Ridge Mountains and Great North Mountain of the Appalachian chain. Massanutten Mountain is located in the heart of the region. All the jurisdictions in this region are part of the Shenandoah Valley Battlefields National Heritage Area.

Regional Focus

Table 7.1 Most-Needed Outdoor Recreation Opportunities

Northern Shenandoah Recreational Planning Region

activity	% of households in	
	region	state
Natural areas	61	54
Trails	47	43
Parks	43	49
Water access	34	43
Historic areas	31	39
Scenic drives (driving for pleasure)	29	29
Playing fields, sports and golf facilities	13	22

Source: 2017 Virginia Outdoors Demand Survey.

Table 7.2 Top 10 Outdoor Recreation Activities By Participation

Northern Shenandoah Recreational Planning Region

activity	% household
Visiting natural areas	71
Walking for pleasure	68
Driving for pleasure	65
Visiting parks (local, state & national)	61
Swimming/outdoor pool	50
Gardening	41
Freshwater fishing	38
Sunbathing/relaxing on a beach	34
Visiting working farms, petting zoos, corn mazes, etc.	34
Visiting gardens/arboretums	33

Source: 2017 Virginia Outdoors Demand Survey.
Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the Northern Shenandoah Valley region:

- Implement the Winchester Green Circle.
- Develop Seven Bends State Park.
- Develop the Royal Shenandoah Greenway.
- Develop the Historic Shenandoah Valley Town and County Rail Trail.
- Develop the Fishers Hill Trail.
- Improve river access to the Shenandoah River Water Trail.

Outdoor Recreation Economic Impact

Table 7.3 Per-Capita Spending on Parks and Recreation

Northern Shenandoah Recreational Planning Region

locality	dollars
Clarke County	53.32
Frederick County	63.22
Page County	3.97
Shenandoah County	18.86
Warren County	61.78
Town of Berryville	1.97
Town of Front Royal	0
Town of Luray	158.26
Town of Strasburg	20.10
City of Winchester	94.81
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2017.



Enjoy the View | Virginia Department of Conservation and Recreation

Table 7.4 Virginia State Parks 2017 Attendance and Economic Impact

Northern Shenandoah Recreational Planning Region

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Shenandoah River	Warren County	52,909	232,273	285,182	\$6.0M
Seven Bends	Shenandoah County	0	0	0	\$173K

Source: Virginia State Parks



Everyone in the water! | Virginia Department of Conservation and Recreation

Regional Health

Table 7.5 Health Trends

Northern Shenandoah Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Clarke County	15	27	22	62	9.6
Frederick County	15	32	21	64	9.7
Page County	17	28	26	81	8.7
Shenandoah County	16	27	24	62	9.1
Warren County	17	29	21	82	9.1
City of Winchester	18	27	22	93	9.6
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

The Northern Shenandoah Valley region, like the Central region, is characterized by open farmland and population centers with charming historic downtowns. The region’s historic resources reflect its reliance on agriculture and the transportation of agricultural goods, and a population that made good use of available local materials. Stone dwellings and barns are characteristic of this region, as are the neatly-balanced stone walls that define many rural property boundaries. Historic taverns, hotels and waystations can be found in the northern Valley, as can water-powered mills and remnants of sunken roads. Upland areas contain evidence of prehistoric habitation, while the wide floodplains along the Shenandoah River and its tributaries contain extensive Late Woodland village sites. The area is also home to a concentration of Civil War battlefields that in many cases remain largely undeveloped. The Northern Shenandoah Valley Region is part of the Journey Through Hallowed Ground National Heritage Area, a historic and scenic region that runs from Gettysburg to Monticello and encompasses battlefields and other historic sites of great significance to American history.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 19th century farmsteads, 19th and early 20th century dwellings and commercial buildings/districts; Civil War battlefields; historic transportation routes and crossroads, and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 7.6 Regional Historic Resources

Northern Shenandoah Recreational Planning Region

resource	location
Greenway Court	Clarke County
Winchester, Tom’s Brook, Cool Spring, Cedar Creek, and Fisher’s Hill Civil War Battlefields	Region-wide
Greenway Rural Historic District	Clarke and Warren Counties
Edinburg Mill	Town of Edinburg
Holy Cross Abbey	Clarke County

Source: Virginia Department of Historic Resources

Land Conservation

Table 7.7 Conserved Lands

Northern Shenandoah Recreational Planning Region

locality	easement acres	ownership acres
City of Winchester	115.27	174.41
Clarke County	24,797.49	4,033.38
Frederick County	8,598.06	7,039.24
Page County	2,957.56	65,902.32
Shenandoah County	6,623.29	77,224.93
Warren County	17,483.08	15,272.10
Total		230,039.13

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory

Natural Area Preserves and Natural Heritage Resources

The Northern Shenandoah Valley region, compared with the other districts to the south, has relatively few occurrences of rare species and significant natural communities. However, areas with limestone geology have a number of significant caves with unique and rare invertebrates and endangered bats. Streams throughout the region harbor scattered populations of the state threatened wood turtle and some outstanding examples of natural communities have been identified along the Blue Ridge.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance in the region include:

- Significant caves and karst areas.
- State-threatened wood turtle habitat.
- Improve water quality in Buffalo Marsh Run.

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 7.8 Natural Area Preserves

Northern Shenandoah Recreational Planning Region

preserve name	owner	locality
Ogdens Cave	DCR	Frederick County



Just hanging out at the park, Shenandoah River State Park | Virginia Department of Conservation and Recreation

Table 7.9 Natural Heritage Resources

Northern Shenandoah Recreational Planning Region

Number of occurrences of rare species and significant natural communities	495
Number of different rare species and significant community types (natural heritage elements)	207
Number of globally rare natural heritage elements	38
Number of species listed as federally endangered or threatened	7
Number of species listed as state endangered or threatened	12
Number of terrestrial conservation sites identified by DCR	79
Number of conservation sites with little or no protection	53
Number of partially protected conservation sites	24
Number of well protected conservation sites	2

A photograph of a man fly fishing in a river. He is standing in shallow water, wearing a blue t-shirt, dark pants, and a cap, facing away from the camera towards a dense forest of fallen trees. His fly rod has a bright green line that curves across the frame. The background is a lush, green forest.

REGION **9**

*Rappahannock-
Rapidan*

Fishing the Rappahannock confluence | Casey Lynch/Friends of the Rappahannock



Canoeing on the Upper Rappahannock River, Fauquier County | Amanda Demmerle

Introduction

The Rappahannock-Rapidan region includes Culpeper, Fauquier, Rappahannock, Madison and Orange counties, and the towns of Orange, Remington, Warrenton, Culpeper, Madison, Gordonsville and The Plains. This region is adjacent to Northern Virginia, yet maintains a rural character with rolling hills and open farmland, situated in the foothills of the mountains to the west. Portions of the western edge of this region are within the Shenandoah National Park.

Regional Focus

Table 9.1 Most-Needed Outdoor Recreation Opportunities

Rappahannock-Rapidan Recreational Planning Region

% of households in

activity	region	state
Natural areas	50	54
Parks	44	49
Trails	43	43
Water access	43	43
Historic areas	40	39
Scenic drives (driving for pleasure)	23	29
Playing fields, sports and golf facilities	21	22

Source: 2017 Virginia Outdoors Demand Survey.

Table 9.2 Top 10 Outdoor Recreation Activities By Participation

Rappahannock-Rapidan Recreational Planning Region

activity	% household
Driving for pleasure	78
Visiting natural areas	72
Walking for pleasure	69
Visiting parks (local, state & national)	55
Swimming/outdoor pool	53
Sunbathing/relaxing on a beach	52
Visiting historic areas	44
Swimming/beach/lake river (open water)	40
Visiting working farms, petting zoos, corn mazes, etc.	40
Freshwater fishing	39

Source: 2017 Virginia Outdoors Demand Survey.
Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the Rappahannock-Rapidan region:

- Implement the Journey Through Hallowed Ground plan.
- Implement the Upper Rappahannock River Water Trail and provide water access along the other regional rivers and tributaries.
- Develop the Woods of Warrenton Trail.

- Improve Rappahannock Landing river access.
- Provide water access at Remington.
- Establish the Mountain Run Corridor as a continuous route from Wine Street Memorial Park to Lake Pelham in the town of Culpeper.
- Develop and improve Laurel Valley Park in Culpeper County.
- Develop trails from the Town of Culpeper to the East View High School and connect to Lenn Park.
- Develop trails to connect neighborhoods to local elementary schools in Culpeper
- Develop the Montpelier Connector Trail.

Outdoor Recreation Economic Impact

Table 9.3 Per-Capita Spending on Parks and Recreation

Rappahannock-Rapidan Recreational Planning Region

locality	dollars
Culpeper County	17.96
Fauquier County	61.67
Madison County	27.25
Orange County	7.62
Rappahannock County	3.38
Town of Culpeper	40.77
Town of Orange	4.58
Town of Warrenton	217.34
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2019.

Table 9.4 Virginia State Parks 2017 Attendance and Economic Impact*Rappahannock-Rapidan Recreational Planning Region*

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Sky Meadows	Fauquier County	4,482	264,458	268,940	\$5.8M

Source: Virginia State Parks

Regional Health

Table 9.5 Health Trends*Rappahannock-Rapidan Recreational Planning Region*

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Culpeper County	16	32	23	76	8.8
Fauquier County	15	26	24	66	9.3
Madison County	18	29	24	44	8.5
Orange County	15	28	26	60	8.8
Rappahannock County	14	27	25	36	8.5
Statewide	17	27	21	81	8.7



Walking the Montpelier Green Trail, Orange County | Paula Combs

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

In spite of its proximity to the congestion of Northern Virginia, the Rappahannock-Rapidan Region largely retains a rural and agricultural character. This area was of central importance to both armies during the Civil War, and abounds with battlefields, encampments, troop transportation routes, and national and local soldiers’ cemeteries. James Madison’s Montpelier, a National Historic Landmark, is located here, as are properties associated with the 18th century Governor Alexander Spotswood and 19th century Governor James Barbour. The area is rich in archaeological and historic sites representing enslaved persons as well as

thousands of years of indigenous occupation predating European settlement of the region. The Rappahanock-Rapidan region is part of the Journey Through Hallowed Ground National Heritage Area, a historic and scenic region that runs from Gettysburg to Monticello and encompasses battlefields and other historic sites of great significance to American history.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 19th century farmsteads, 19th and early 20th century dwellings and commercial buildings/districts; Civil War battlefields; sites and properties associated with enslaved persons/communities and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.



Mountain Run Lake, Culpeper County | Culpeper Tourism

Table 9.6 Regional Historic Resources

Rappahannock-Rapidan Recreational Planning Region

resource	location
Salubria	Culpeper County
Gilmore Cabin/ Freedman's Farm	Orange County
Montpelier	Orange County
Brandy Station, Rappahannock Station, Kelly's Ford, Cedar Mountain, Buckland Mills, Wilderness, and Mine Run Battlefields	Region-wide
Old Fauquier County Jail	Town of Warrenton

Source: Virginia Department of Historic Resources

Land Conservation

Table 9.7 Conserved Lands

Rappahannock-Rapidan Recreational Planning Region

locality	easement acres	ownership acres
Culpeper County	18,229.24	1,908.64
Fauquier County	93,597.82	21,701.40
Madison County	15,501.89	41,319.91
Orange County	32,398.88	2,096.36
Rappahannock County	32,462.61	31,223.72
Total	290,440.47	

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory

Natural Area Preserves and Natural Heritage Resources

The Rappahannock-Rapidan region supports a number of rare species and significant communities. Many are concentrated in the higher elevations of the Northern Watery Mountains, Bull Run Mountains and the Blue Ridge, but some are scattered across the lower areas of the Piedmont. Pockets of diabase soils that have been relatively undisturbed harbor interesting plant communities and many of the area's streams and rivers harbor dwindling populations of native mussels.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance in the region include:

- Diabase woodlands
- Basic oak-hickory forests
- Low elevation basic outcrop barrens.
- Improvement water quality in streams and rivers that support rare mussels and other aquatic invertebrate species.
- Strengthen protection and management of conservation sites on federal lands.

Conservation targets of special significance in the region include:

- Diabase woodlands
- Basic oak-hickory forests
- Low elevation basic outcrop barrens.

- Improvement water quality in streams and rivers that support rare mussels and other aquatic invertebrate species.
- Strengthen protection and management of conservation sites on federal lands.

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 9.8 Natural Area Preserves

Rappahannock-Rapidan Recreational Planning Region

preserve name	owner	locality
Bull Run Mountains	Virginia Outdoors Foundation	Fauquier County (part)

Table 9.9 Natural Heritage Resources

Rappahannock-Rapidan Recreational Planning Region

Number of occurrences of rare species and significant natural communities	377
Number of different rare species and significant community types (natural heritage elements)	162
Number of globally rare natural heritage elements	38
Number of species listed as federally endangered or threatened	6
Number of species listed as state endangered or threatened	7
Number of terrestrial conservation sites identified by DCR	44
Number of conservation sites with little or no protection	18
Number of partially protected conservation sites	16
Number of well protected conservation sites	10

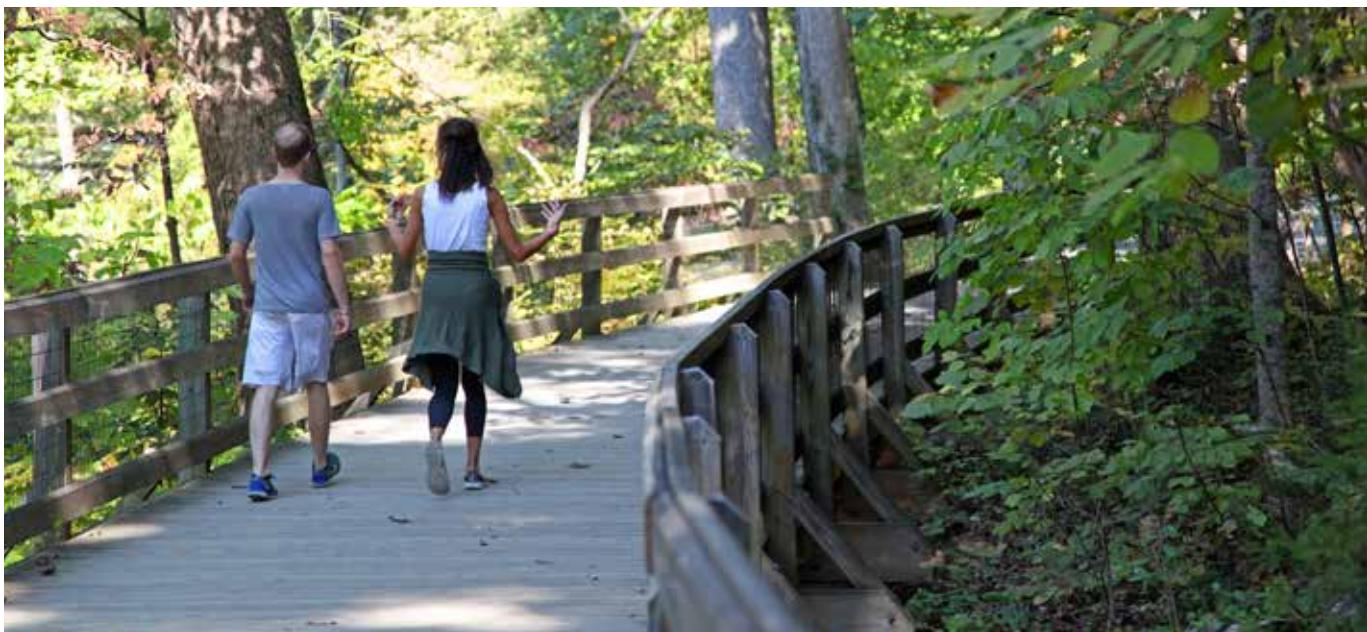
Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program



REGION **10**

Thomas Jefferson

Kids enjoying Bear Creek State Park | Bill Crabtree, Jr./Va. Tourism Corp.



Saunders Monticello boardwalk trail | Marco Sanchez

Introduction

The Thomas Jefferson Recreational Planning Region includes Albemarle, Fluvanna, Greene, Louisa and Nelson counties and the city of Charlottesville. This area attracts citizens and visitors who enjoy a variety of natural resource based recreation opportunities such as parks, river recreation, cultural and historic sites. Adding to the scenic beauty of the area are viewsheds of mountainsides, ridges, pastoral valleys and charming towns.

Regional Focus

Table 10.1 Most-Needed Outdoor Recreation Opportunities

Thomas Jefferson Recreational Planning Region

% of households in

activity	region	state
Natural areas	64	54
Parks	50	49
Trails	45	43
Water access	45	43
Historic areas	30	39
Scenic drives (driving for pleasure)	22	29
Playing fields, sports and golf facilities	17	22

Source: 2017 Virginia Outdoors Demand Survey.

Table 10.2 Top 10 Outdoor Recreation Activities By Participation

Thomas Jefferson Recreational Planning Region

activity	% household
Visiting natural areas	83
Driving for pleasure	73
Walking for pleasure	67
Visiting parks (local, state & national)	61
Sunbathing/relaxing on a beach	56
Swimming/outdoor pool	49
Swimming/beach/lake river (open water)	44
Viewing the water	40
Visiting historic areas	38
Culinary tours/trails (brewery/winery/food)	36

Source: 2017 Virginia Outdoors Demand Survey.
Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.



Nelson County stream | Virginia Department of Forestry

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for Thomas Jefferson region:

- Implement the Thomas Jefferson Planning District Commission's Jefferson Area Bike Pedestrian Plan.
- Implement the James River Heritage Trail.
- Implement the Rivanna River Trail.
- Implement the Rockfish River Trail.
- Develop Biscuit Run Park community trail connections.
- Develop Crozet Tunnel as a tourist destination and develop areas regional trail connections.
- Develop Ragged Mountain-Hedgerow Park trail connections.
- Develop a concept plan for the 3-Notch'd Trail.

Outdoor Recreation Economic Impact

Table 10.3 Per-Capita Spending on Parks and Recreation

Thomas Jefferson Recreational Planning Region

locality	dollars
Albemarle County	24.52
Fluvanna County	19.58
Greene County	9.96
Louisa County	30.68
Nelson County	13.32
City of Charlottesville	255.96
Statewide	71.09
Town of Warrenton	217.34
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 20110.

Regional Health

Table 10.4 Health Trends

Thomas Jefferson Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Albemarle County	14	23	18	74	8.6
Fluvanna County	14	28	23	52	8.5
Greene County	17	28	25	73	8.6
Louisa County	17	32	26	46	8.7
Nelson County	16	30	22	44	8.4
City of Charlottesville	20	26	18	100	8.7
Statewide	17	27	21	81	8.7

Outdoor Recreation Interface with Virginia Tourism

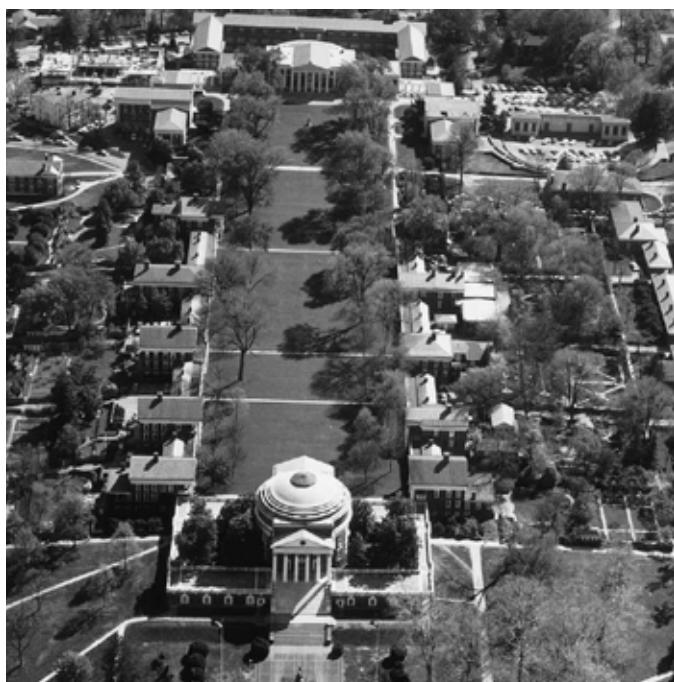
The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

The Thomas Jefferson region is home to two of our country’s most iconic historic resources: Monticello, the home of Thomas Jefferson, and the Rotunda and Lawn at the University of Virginia, both of which are National Historic Landmarks. The surrounding city of Charlottesville contains multiple individual historic buildings and districts as well. Outside of the densely occupied city, this region retains its rural character, with rolling hills containing predominately farms, timberland and open space. Many historic farmsteads and communities include both manor houses and the homes of enslaved persons and tenants, and extensive evidence for indigenous occupation prior to European settlement can be found. The Thomas Jefferson region is part of the Journey Through Hallowed Ground National Heritage Area, a historic and scenic region that runs from Gettysburg to Monticello and encompasses battlefields and other historic sites of great significance to American history.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements.

Conservation targets include: 19th century farmsteads, 19th and early 20th century dwellings and commercial buildings/districts; historic schools and churches; historic transportation routes and crossroads, sites and properties associated with enslaved persons/communities; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.



Aerial view of the University of Virginia | Virginia Department of Historic Resources

Table 10.5 Regional Historic Resources

Thomas Jefferson Recreational Planning Region

resource	location
Monticello	Albemarle County
University of Virginia - Rotunda and Lawn	City of Charlottesville
Paramount Theater	City of Charlottesville
Palmyra Lock and Dam	Fluvanna County
Pine Knot (Theodore Roosevelt Retreat)	Albemarle County

Source: Virginia Department of Historic Resources

Land Conservation**Table 10.6 Conserved Lands**

Thomas Jefferson Recreational Planning Region

locality	easement acres	ownership acres
Albemarle County	93,608.48	19,072.64
City of Charlottesville	72.52	194.60
Fluvanna County	14,858.50	1,279.07
Greene County	10,019.66	18,316.80
Louisa County	20,064.76	948.83
Nelson County	18,511.90	27,770.74
Total	224,718.50	

Natural Area Preserves and Natural Heritage Resources

The Thomas Jefferson region has comparatively few populations of rare plants and animals and few examples of intact native plant communities. However, the region does retain some natural heritage resources of note, within both the Piedmont and the Blue Ridge portions of the district. Some examples include rare plants and communities associated with greenstone outcrops, the only known population in the world of an aquatic insect known as the Virginia Piedmont Water Boatman, and several populations of rare mussels.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance in the region include:

- Large blocks of native forests.
- High-quality stream corridors.
- Rare wetland and rock outcrop communities.

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

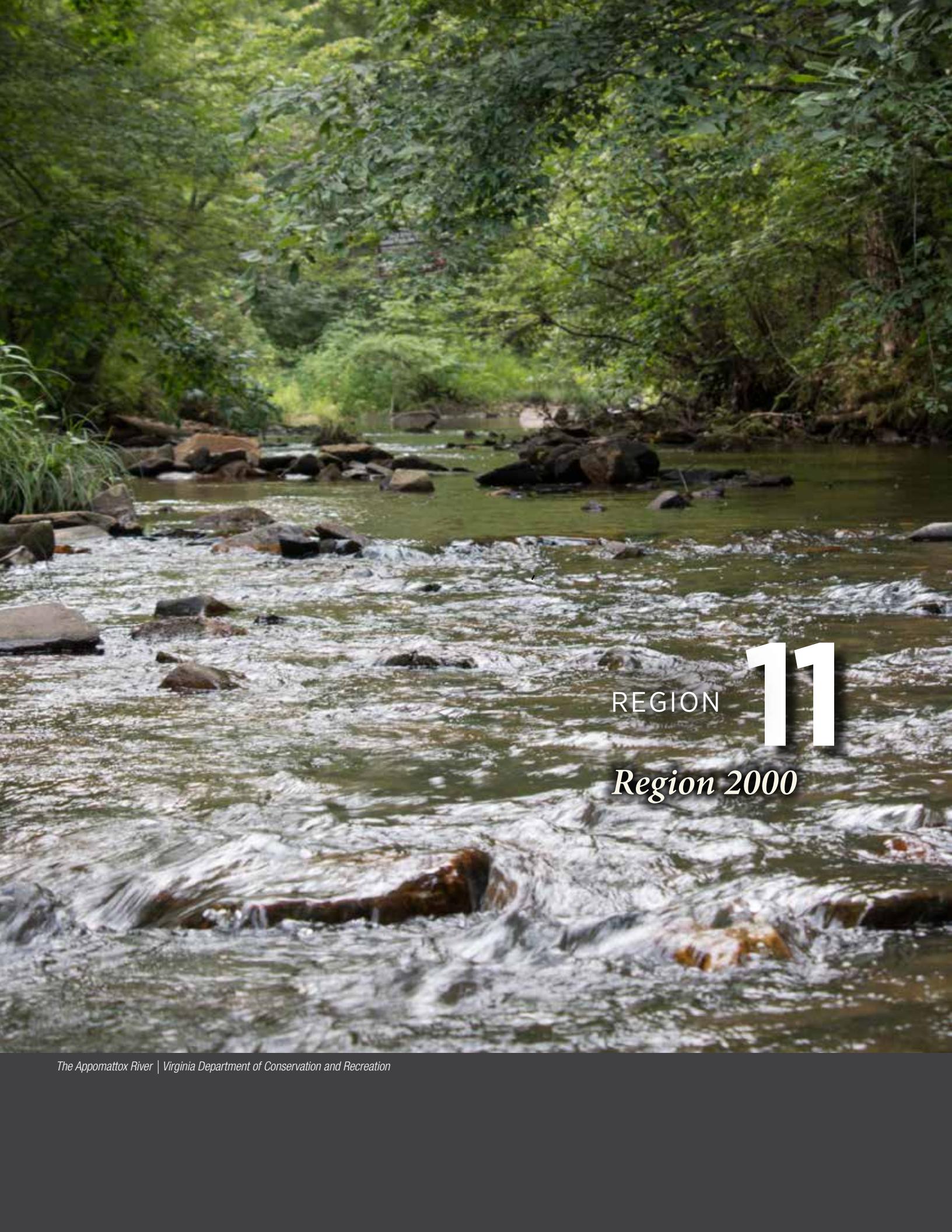
Table 10.7 Natural Area Preserves*Thomas Jefferson Recreational Planning Region*

preserve name	owner	locality
Crawford's Knob	Private	Nelson County
Naked Mountain	Private	Nelson County

Table 10.8 Natural Heritage Resources*Thomas Jefferson Recreational Planning Region*

Number of occurrences of rare species and significant natural communities	224
Number of different rare species and significant community types (natural heritage elements)	110
Number of globally rare natural heritage elements	44
Number of species listed as federally endangered or threatened	7
Number of species listed as state endangered or threatened	9
Number of terrestrial conservation sites identified by DCR	52
Number of conservation sites with little or no protection	21
Number of partially protected conservation sites	11
Number of well protected conservation sites	20

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program



REGION **11**

Region 2000

Introduction

Recreation Region 2000 includes the counties of Amherst, Appomattox, Bedford and Campbell, the cities of Bedford and Lynchburg, and the towns of Altavista, Amherst, Appomattox, Brookneal and Pamplin City. While predominant land use is agricultural, the area has lovely scenic viewsheds. Citizens and visitors seeking recreation have parks, lakes and rivers and a multitude of cultural and historic to choose from.

Regional Focus

Table 11.1 Most-Needed Outdoor Recreation Opportunities

Region 2000 Recreational Planning Region

activity	% of households in	
	region	state
Natural areas	59	54
Parks	50	49
Historic areas	49	39
Water access	43	43
Trails	41	43
Scenic drives (driving for pleasure)	32	29
Playing fields, sports and golf facilities	19	22

Source: 2017 Virginia Outdoors Demand Survey.



Family Reunion | Virginia Department of Conservation and Recreation

Table 11.2 Top 10 Outdoor Recreation Activities By Participation

Region 2000 Recreational Planning Region

activity	% household
Visiting natural areas	68
Driving for pleasure	61
Walking for pleasure	59
Visiting parks (local, state & national)	49
Swimming/outdoor pool	46
Sunbathing/relaxing on a beach	37
Freshwater fishing	35
Outdoor festivals (music festivals, outdoor-themed festivals, extreme sports festivals, etc.)	33
Visiting historic areas	31
Viewing scenery	30

Source: 2017 Virginia Outdoors Demand Survey.

Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for Region 2000:

- Implement the James River Heritage Trail to include land and river access points.
- Implement the Staunton River Water Trail to include access points and land trails adjacent to the river.
- Develop the Appomattox Heritage and Recreational Trail.

- Increase pedestrian and bicycle access within community centers throughout the region to increase opportunities for short non-motorized trips.
- Expand the participation and coordination of Live Healthy/Work Healthy initiatives within recreational, land use and community planning.
- Initiate a plan that explores watercraft portage around the dams on the James River starting at Snowden and within the city limits of Lynchburg.

Outdoor Recreation Economic Impact

Table 11.3 Per-Capita Spending on Parks and Recreation

Region 2000 Recreational Planning Region

locality	dollars
Amherst County	16.85
Appomattox County	14.76
Bedford County	16.72
Campbell County	13.19
City of Bedford	4.42
City of Lynchburg	40.00
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.



Fall Leaves | Virginia Department of Conservation and Recreation

Table 11.4 Virginia State Parks 2017 Attendance and Economic Impact

Region 2000 Recreational Planning Region

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Holliday Lake	Appomattox, Buckingham counties	16,734	33,201	49,935	\$1.9M
Smith Mountain Lake	Bedford, Franklin counties	41,861	471,099	512,960	\$11.1M

Source: Virginia State Parks

Regional Health

Table 11.5 Health Trends

Region 2000 Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution - particulate matter (micrograms per cubic meter)
Amherst County	16	29	30	60	8.8
Appomattox County	17	29	26	55	8.5
Bedford County	15	33	24	62	9.3
Campbell County	17	32	25	62	9.1
City of Lynchburg	20	27	21	78	8.8
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

The early history of Region 2000 was focused on trade and transportation, bringing raw materials and resources via canal from the mountains to the markets in the eastern part of the state. This area also contains the summer retreat of Thomas Jefferson, Poplar Forest, as well as the small village of Appomattox Court House that witnessed the end to the bloodshed of the American Civil War with the surrender of Lee’s Army of Northern Virginia in April 1865. While this region contains urban centers such as Lynchburg, much of the area retains a rural character with rolling hills and mountains, farms, woodlands, and open fields and pasture. Many historic farmsteads and communities include both manor houses and the homes of enslaved persons and tenants, and extensive evidence for indigenous occupation prior to European settlement can be found.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic

preservation and open space easements. Conservation targets include: 19th century farmsteads, 19th and early 20th century dwellings and commercial buildings/districts; historic schools and churches; Civil War battlefields; historic transportation routes and crossroads, sites and properties associated with enslaved persons/communities; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 11.6 Regional Historic Resources

Region 2000 Recreational Planning Region

resource	location
Appomattox Court House Battlefield	Appomattox County
Pamplin Pipe Factory	Pamplin City
Bedford Historic Meeting House	Bedford County
Old City Cemetery	City of Lynchburg
Bear Mountain Indian School	Amherst County

Source: Virginia Department of Historic Resources



Fishing at Holliday Lake State Park | Virginia Department of Conservation and Recreation

Land Conservation

Table 11.7 Conserved Lands

Region 2000 Recreational Planning Region

locality	easement acres	ownership acres
Amherst County	8,608.08	59,658.34
Appomattox County	5,706.35	12,051.12
Bedford County	14,090.84	30,765.87
Campbell County	12,261.28	1,037.97
City of Bedford	57.22	0.00
City of Lynchburg	122.37	583.94
Total	144,943.39	

Source: Virginia Department of Conservation and Recreation
Protected Lands Inventory.

Natural Area Preserves and Natural Heritage Resources

Region 2000 is one of two districts in Virginia without a state natural area preserve. However, the district has a number of rare species populations and significant natural communities. Some highlights include a population of the Virginia endemic Kankakee globe mallow, three of the few Virginia Piedmont populations of the federally endangered smooth coneflower, the only two caves documented on the eastern side of Virginia's Blue Ridge, and several stream reaches supporting rare species of mussels and fish.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance in the region include:

- Habitat for the globally rare Kankakee globe mallow and the federally endangered smooth coneflower.
- Riparian areas in watersheds that support the federally endangered Roanoke logperch and other rare aquatic species.
- Riverside prairies.

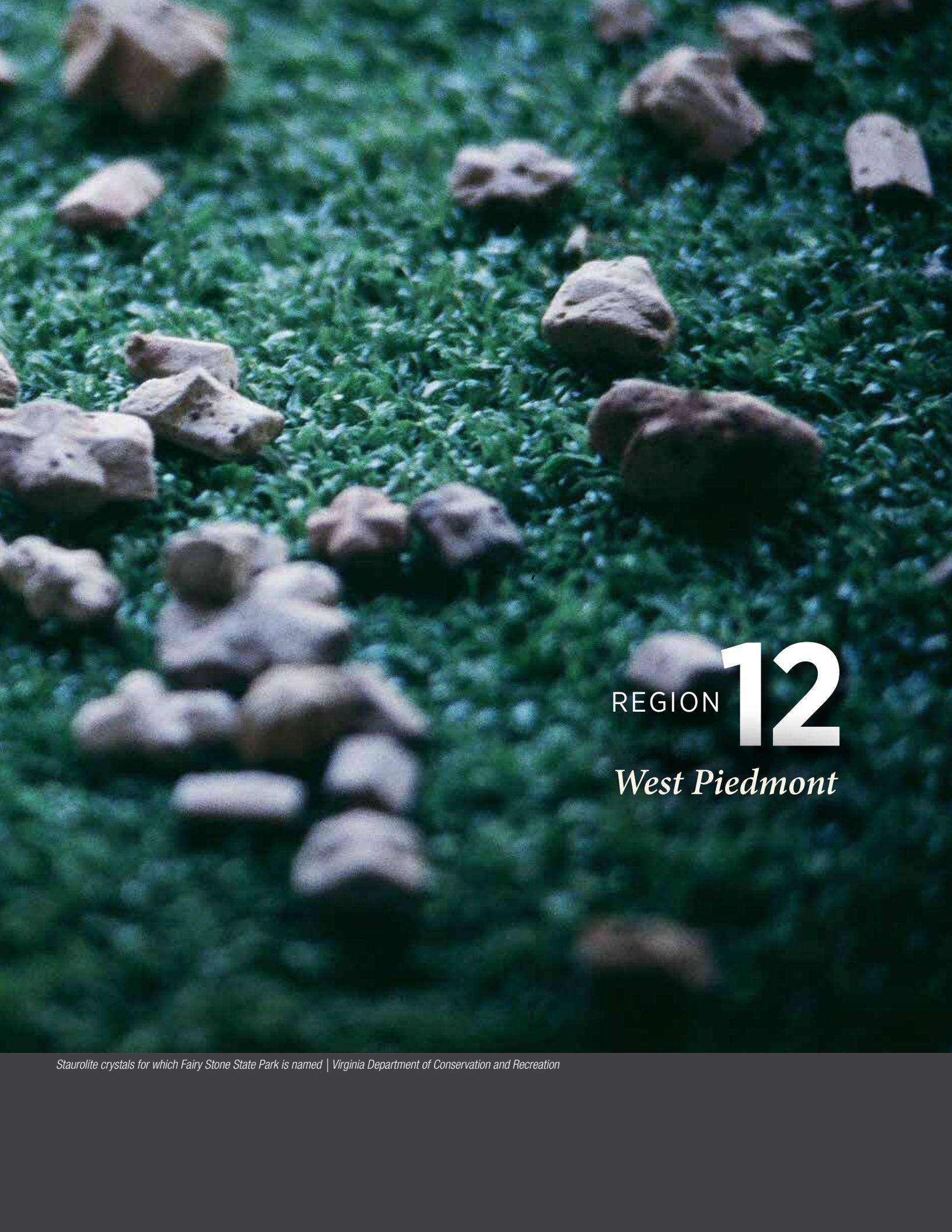
Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 11.8 Natural Heritage Resources

Region 2000 Recreational Planning Region

Number of occurrences of rare species and significant natural communities	136
Number of different rare species and significant community types (natural heritage elements)	95
Number of globally rare natural heritage elements	29
Number of species listed as federally endangered or threatened	6
Number of species listed as state endangered or threatened	8
Number of terrestrial conservation sites identified by DCR	30
Number of conservation sites with little or no protection	17
Number of partially protected conservation sites	7
Number of well protected conservation sites	6

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program



REGION **12**
West Piedmont

Staurolite crystals for which Fairy Stone State Park is named | Virginia Department of Conservation and Recreation



Misty morning on the water | Virginia Department of Conservation and Recreation

Introduction

The West Piedmont Recreational Planning Region includes Franklin, Henry, Patrick and Pittsylvania counties, the cities of Danville and Martinsville, and the town of Rocky Mount.

The predominantly rural landscape has ruggedly beautiful mountains that provide a variety of recreational opportunities ranging from scenic views along the Blue Ridge Parkway to the trout streams of the streams of the Dan and other river and stream corridors. With the exit of manufacturing jobs from the region, communities are turning toward nature-based recreation and tourism as economic drivers.

Regional Focus

Table 12.1 Most-Needed Outdoor Recreation Opportunities

West Piedmont Recreational Planning Region

activity	% of households in	
	region	state
Natural areas	46	54
Parks	46	49
Water access	45	43
Historic areas	43	39
Scenic drives (driving for pleasure)	34	29
Trails	31	43
Playing fields, sports and golf facilities	21	22

Source: 2017 Virginia Outdoors Demand Survey

Table 12.2 Top 10 Outdoor Recreation Activities By Participation

West Piedmont Recreational Planning Region

activity	% household
Driving for pleasure	70
Visiting natural areas	60
Walking for pleasure	58
Visiting parks (local, state & national)	41
Swimming/outdoor pool	39
Freshwater fishing	38
Swimming/beach/lake river (open water)	35
Sunbathing/relaxing on a beach	33
Viewing the water	31
Outdoor festivals (music festivals, outdoor-themed festivals, extreme sports festivals, etc.)	31

Source: 2017 Virginia Outdoors Demand Survey.

Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the West Piedmont region:

- Expand and connect the Dick & Willie Trail to other trails and destinations.
- Develop and connect the Lauren Mountain Preserve Trail to Smith River Trail.
- Connect towns and trails of the Smith River Trail and the Beaches to Bluegrass Trail system as part of the Small Towns Collaborative Initiative.

- Extend the Danville River Walk.
- Develop trails and access points throughout the Dan River Basin.
- Develop parking, trails and other nature-based activities at Bald Knob Natural Area Preserve in Rocky Mount.
- Develop Patrick County trails including the Dan River Park Trail, Dehart Park Trail and Primland's hiking and biking trails.
- Implement Franklin County trail projects.

Outdoor Recreation Economic Impact

Table 12.3 Per-Capita Spending on Parks and Recreation

West Piedmont Recreational Planning Region

locality	dollars
Franklin County	18.23
Henry County	23.21
Patrick County	13.61
Pittsylvania County	10.84
Town of Rocky Mount	15.46
City of Danville	133.36
City of Martinsville	142.72
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.



Summer fun | Virginia Department of Conservation and Recreation

Table 12.4 Virginia State Parks 2017 Attendance and Economic Impact

West Piedmont Recreational Planning Region

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Fairy Stone	Patrick, Henry counties	33,530	140,531	174,061	\$4.5M
Smith Mountain Lake	Bedford, Franklin* counties	41,861	471,099	512,960	\$11.1M

* West Piedmont and Roanoke Valley-Alleghany regions share Franklin County.

Source: Virginia State Parks

Regional Health

Table 12.5 Health Trends

West Piedmont Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Franklin County	17	28	22	34	9.1
Henry County	20	32	38	56	9.1
Patrick County	19	31	28	38	8.6
Pittsylvania County	17	32	30	33	9.3
City of Danville	21	34	29	69	9.1
City of Martinsville	20	34	27	98	8.9
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation



On the move | Virginia Department of Conservation and Recreation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

Historically, the West Piedmont region is perhaps best known for its association with expansion of tobacco cultivation into the western and southern portions of the state during the 19th century. Urban centers such as Martinsville and Danville served as processing centers for tobacco as well as points of trade and transportation where the crops could be moved via canal or rail to the larger markets in the east. This area retains a rural character and a drive along any of the area’s back roads will reveal numerous historic tobacco barns and fields that evoke the agricultural heritage of the West Piedmont. Many historic farmsteads and communities include both manor houses and the homes of enslaved persons and tenants, and extensive evidence for indigenous occupation prior to European settlement can be found.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic

preservation and open space easements. Conservation targets include: 19th century farmsteads, 19th and early 20th century dwellings and commercial buildings/districts; historic schools and churches; historic transportation routes and crossroads, sites and properties associated with enslaved persons/communities; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 12.6 Regional Historic Resources

West Piedmont Recreational Planning Region

resource	location
Henry County Courthouse	Henry County
Booker T. Washington National Monument	Franklin County
Fairy Stone State Park Historic District	Henry County
Burnett's Diner	Pittsylvania County
Danville Southern Railway Depot	City of Danville

Source: Virginia Department of Historic Resources

Land Conservation

Table 12.7 Conserved Lands

West Piedmont Recreational Planning Region

locality	easement acres	ownership acres
City of Danville	73.35	0.00
City of Martinsville	0.93	26.27
Franklin County	9,560.69	9,875.42
Henry County	2,816.93	5,560.97
Patrick County	2,934.28	18,063.60
Pittsylvania County	7,248.77	2,711.00
Total	58,872.21	

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory

Natural Area Preserves and Natural Heritage Resources

The West Piedmont region has relatively few rare species populations and significant natural communities. However, scattered across the district are some globally significant sites for biological diversity. Among these are the world's largest population of the narrow endemic, Piedmont fameflower, healthy populations of the federally endangered Roanoke logperch and the eastern-most populations of the state endangered bog turtle.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance in the region include:

- Biologically significant, low-elevation outcrop communities in Franklin County
- Habitat for the federally endangered small-anthered bittercress in Patrick County
- Riparian areas in watersheds that support the federally endangered Roanoke logperch and other rare aquatic species

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 12.8 Natural Area Preserves

West Piedmont Recreational Planning Region

preserve name	owner	locality
Grassy Hill	DCR	Franklin County
Bald Knob	DCR	Franklin County

Table 12.9 Natural Heritage Resources

West Piedmont Recreational Planning Region

Number of occurrences of rare species and significant natural communities	169
Number of different rare species and significant community types (natural heritage elements)	81
Number of globally rare natural heritage elements	25
Number of species listed as federally endangered or threatened	6
Number of species listed as state endangered or threatened	11
Number of terrestrial conservation sites identified by DCR	66
Number of conservation sites with little or no protection	53
Number of partially protected conservation sites	11
Number of well protected conservation sites	2

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program

A photograph of a man in a grey canoe on a calm reservoir. He is wearing a wide-brimmed hat and a life vest, and is holding a professional-grade camera with a long lens, pointing it towards the left. A black and white paddle lies across the front of the canoe. In the background, a large, dark grey dam stretches across the horizon under a sky filled with scattered white and grey clouds. The water is very still, creating a clear reflection of the man and the dam.

REGION **13**
Southside

Tailrace Park at the John H. Kerr Dam and Reservoir | Robert Harris/Virginia Tourism Corp.



Fall walk | Virginia Department of Conservation and Recreation

Introduction

The Southside Recreational Planning Region includes Halifax, Mecklenburg and Brunswick counties, and the towns of Alberta, Boydton, Brodnax, Chase City, Clarksville, Clover, Halifax, LaCrosse, Lawrenceville, Scottsburg, South Boston, South Hill and Virgina. While the region is rural with an agrarian economy, it has begun to experience increased development. There are opportunities to enhance the scenic qualities of the region's river and scenic road corridors, create greenways, develop parks and protect important natural areas, forests and farmland.

Regional Focus

Table 13.1 Most-Needed Outdoor Recreation Opportunities

Southside Recreational Planning Region

activity	% of households in	
	region	state
Parks	58	49
Natural areas	55	54
Historic areas	46	39
Water access	38	43
Trails	37	43
Scenic drives (driving for pleasure)	29	29
Playing fields, sports and golf facilities	26	22

Source: 2017 Virginia Outdoors Demand Survey

Table 13.2 Top 10 Outdoor Recreation Activities By Participation

Southside Recreational Planning Region

activity	% household
Driving for pleasure	61
Freshwater fishing	58
Visiting natural areas	56
Walking for pleasure	54
Visiting parks (local, state & national)	43
Sunbathing/relaxing on a beach	32
Swimming/outdoor pool	32
Hunting	31
Gardening	31
Music festivals	28

Source: 2017 Virginia Outdoors Demand Survey.
Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.



The water | Virginia Department of Conservation and Recreation

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the Southside region:

- Develop the Beaches to Bluegrass Trail plan.
- Complete the Tobacco Heritage Trail, including local projects.
- Develop the East Coast Greenway.
- Develop a state park in Brunswick County.
- Develop the Southern Virginia Wild Blueway – this includes the Bannister, Hyco, Dan, and Staunton Rivers, Kerr Lake and Lake Gaston
- Develop the Nottoway Blueway.
- Develop the Meherrin River Blueway.
- Designate the following routes as Virginia Byways: Routes 57, 40 and 360 in Halifax, Pittsylvania and Henry Counties.

Outdoor Recreation Economic Impact

Table 13.3 Per-Capita Spending on Parks and Recreation

Southside Recreational Planning Region

locality	dollars
Brunswick County	0.94
Halifax County	7.15
Mecklenburg County	0.35
Town of South Boston	33.34
Town of South Hill	85.10
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.

Table 13.4 Virginia State Parks 2017 Attendance and Economic Impact*Southside Recreational Planning Region*

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Occoneechee	Mecklenburg County	32,689	174,036	206,725	\$4.9M
Staunton River	Halifax County	27,640	113,587	141,227	\$3.5M
Staunton River Battlefield	Halifax, Charlotte counties	0	35,722	35,722	

Source: Virginia State Parks

Regional Health

Table 13.5 Health Trends*Southside Recreational Planning Region*

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Brunswick County	20	36	26	23	8.6
Halifax County	19	32	28	40	9
Mecklenburg County	18	31	28	48	8.9
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

The Southside region owes its early historic development to the popularity of tobacco. Much of the region's arable lands were utilized for tobacco production throughout the nineteenth and early twentieth centuries. Towns such as South Boston, South Hill, Lawrenceville and Chase City were all focal points of tobacco processing and distribution. Today, the Tobacco Heritage Trail (currently under construction), with segments in each of the four counties that comprise this region, offers visitors a tangible reminder of the history of this area. Many historic farmsteads and communities include both manor houses and the homes of enslaved persons and tenants, and extensive evidence for indigenous occupation prior to European settlement can be found.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 19th century farmsteads, 19th and early 20th century dwellings and commercial buildings/districts; historic schools and churches; historic transportation routes and crossroads, sites and properties associated with enslaved persons/communities; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 13.6 Regional Historic Resources

Southside Recreational Planning Region

resource	location
Berry Hill	Halifax County
South Boston Historic District	Halifax County
Fort Christanna	Brunswick County
Clarksville Historic District	Mecklenburg County
Prestwould	Mecklenburg County

Source:Virginia Department of Historic Resources



Trail time | Virginia Department of Conservation and Recreation

Land Conservation

Table 13.7 Conserved Lands

Southside Recreational Planning Region

locality	easement acres	ownership acres
Brunswick County	3,619.82	6,389.14
Halifax County	24,635.75	7,713.70
Mecklenburg County	6,438.59	4,852.00
Total		53,649.00

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory

Natural Area Preserves and Natural Heritage Resources

Southside lies squarely in Virginia's southern Piedmont, an area with a long history of agriculture and timber production, activities not always conducive to sustaining the best examples of native biological diversity. However, the district supports some of the rarest species and natural communities in the world. Biological highlights of the district are a population of oak barrens Barbara's buttons, plant communities associated with greenstone-influenced hardpan soils, one of the world's largest populations of the federally endangered Michaux's sumac and granite flatrock communities.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance in the region include:

- Piedmont hardpan forests
- Piedmont savannahs
- Granite flatrock communities

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 13.8 Natural Area Preserves

Southside Recreational Planning Region

preserve name	owner	locality
Difficult Creek	DCR	Halifax County
Dundas Granite Flatrock	Private	Brunswick County

Table 13.9 Natural Heritage Resources

Southside Recreational Planning Region

Number of occurrences of rare species and significant natural communities	198
Number of different rare species and significant community types (natural heritage elements)	93
Number of globally rare natural heritage elements	20
Number of species listed as federally endangered or threatened	4
Number of species listed as state endangered or threatened	9
Number of terrestrial conservation sites identified by DCR	38
Number of conservation sites with little or no protection	33
Number of partially protected conservation sites	5
Number of well protected conservation sites	0

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program

An aerial photograph of the High Bridge Trail State Park trestle bridge. The bridge is a long, steel truss structure with a wooden walkway, spanning a deep valley filled with lush green trees. The surrounding landscape beyond the bridge is also covered in green fields and forests under a clear sky.

REGION **14**
Commonwealth

The High Bridge at High Bridge Trail State Park | Virginia Department of Conservation and Recreation



On the trail again | Virginia Department of Conservation and Recreation

Introduction

The Commonwealth Recreational Region includes the counties Amelia, Buckingham, Charlotte, Lunenburg, Prince Edward and the towns of Blackstone, Burkeville, Charlotte Court House, Crewe, Dillwyn, Drakes Branch, Farmville, Kenbridge, Victoria, Phenix and part of Pamplin. The region also includes Nottoway and Cumberland counties. This region lies in Virginia's Piedmont physiographic province. Rolling terrain and a rural countryside are the region's dominant characteristics.

Regional Focus

Table 14.1 Most-Needed Outdoor Recreation Opportunities

Commonwealth Recreational Planning Region

% of households in

activity	region	state
Parks	58	49
Natural areas	55	54
Historic areas	46	39
Water access	38	43
Trails	37	43
Scenic drives (driving for pleasure)	29	29
Playing fields, sports and golf facilities	26	22

Source: 2017 Virginia Outdoors Demand Survey

Table 14.2 Top 10 Outdoor Recreation Activities By Participation

Commonwealth Recreational Planning Region

activity	% household
Driving for pleasure	61
Freshwater fishing	58
Visiting natural areas	56
Walking for pleasure	54
Visiting parks (local, state & national)	43
Sunbathing/relaxing on a beach	32
Swimming/outdoor pool	32
Hunting	31
Gardening	31
Music festivals	28

Source: 2017 Virginia Outdoors Demand Survey.

Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the Commonwealth region:

- Implement the James River Heritage Trail.
- Implement the Tobacco Heritage Trail.
- Develop the Appomattox Water Trail.
- Develop the Virginia Music Trail.
- Construct High Bridge Trail State Park connections.
- Develop the Roanoke River Water Trail.

Outdoor Recreation Economic Impact

Table 14.3 Per-Capita Spending on Parks and Recreation

Commonwealth Recreational Planning Region

locality	dollars
Amelia County	21.07
Buckingham County	11.63
Charlotte County	1.12
Cumberland County	7.79
Lunenburg County	0
Nottoway County	1.20
Prince Edward County	4.08
Town of Blackstone	0
Town of Farmville	68.13
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.



Historic Farmville | Virginia Tourism Corp.

Table 14.4 Virginia State Parks 2017 Attendance and Economic Impact

Commonwealth Recreational Planning Region

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Bear Creek Lake	Cumberland County	57,763	38,225	95,988	\$3.8M
High Bridge Trail	Appomattox, Cumberland, Nottoway, Prince Edward counties; town of Farmville	0	191,895	191,895	\$6.7M
Holliday Lake	Appomattox, Buckingham counties	16,734	33,201	49,935	\$1.9M
James River	Buckingham County	38,853	86,401	125,254	\$3.3M
Sailor's Creek	Amelia, Nottoway counties	0	37,313	37,313	\$1.0M
Staunton River	Halifax County	27,640	113,587	141,227	\$3.5M
Staunton River Battlefield	Halifax, Charlotte counties	-	35,722	35,722	\$1.7M
Twin Lakes	Prince Edward County	19,158	110,354	129,512	\$4.7M

Source: Virginia State Parks

Regional Health

Table 14.5 Health Trends

Commonwealth Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Amelia County	16	29	27	28	8.5
Buckingham County	19	34	34	20	8.4
Charlotte County	19	34	29	20	8.6
Cumberland County	19	32	23	36	8.3
Lunenburg County	20	28	26	18	8.5
Nottoway County	21	34	28	31	8.5
Prince Edward County	19	32	23	70	8.4
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2014. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

While the Commonwealth region has a similar early history and development to that of other Southside and Piedmont regions in terms of its agricultural and transportation heritage, this area is unique because of its integral role in the movement for American civil rights. The town of Farmville is home to the Robert Russa Moton High School, a National Historic Landmark, which witnessed the birth of the modern civil rights movement for African-American and Native American students. The Moton School also serves as an anchor for the Civil Rights in Education Heritage Trail which memorializes similar buildings and sites all over the region that were significant in fulfilling the vision that all students should have equal opportunity to an education. Many historic farmsteads and communities include both manor houses and the homes of enslaved persons and tenants, and extensive evidence for indigenous occupation prior to European settlement can be found.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 19th century farmsteads, 19th and early 20th century dwellings and commercial buildings/districts; historic schools and churches; historic transportation routes and crossroads, sites and properties associated with enslaved persons/communities; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 14.6 Regional Historic Resources

Commonwealth Recreational Planning Region

resource	location
Robert Russa Moton School	Town of Farmville
Old Prince Edward County Clerk's Office	Prince Edward County
Patrick Henry's Red Hill Plantation	Charlotte County
High Bridge	Cumberland County
Nottoway County Courthouse	Nottoway County

Source: Virginia Department of Historic Resources



Dinner is served | Virginia Department of Conservation and Recreation

Land Conservation

Table 14.7 Conserved Lands

Commonwealth Recreational Planning Region

locality	easement acres	ownership acres
Amelia County	19,199.73	2,521.07
Buckingham County	6,634.88	17,762.41
Charlotte County	10,517.66	781.58
Cumberland County	3,622.05	16,659.41
Lunenburg County	8,479.47	500.00
Nottoway County	1,750.70	25,912.45
Prince Edward County	9,289.41	11,386.21
Total	135,017.03	

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory.

Natural Area Preserves and Natural Heritage Resources

While Commonwealth Regional Council Planning District is one of two districts in Virginia that lack a dedicated natural area preserve, the district has some highly significant sites supporting biodiversity. Some highlights include part of the world's largest population of the federally endangered Michaux's sumac, outstanding examples of several forest and woodland community types, granite flatrock communities and remnant populations of globally rare mussels.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance in the region include:

- Additional buffer lands around Fort Pickett
- Significant communities and rare species habitats along the Nottoway River in Lunenburg and Nottoway counties
- Piedmont hardpan forest and Piedmont savannah communities
- Granite flatrock communities

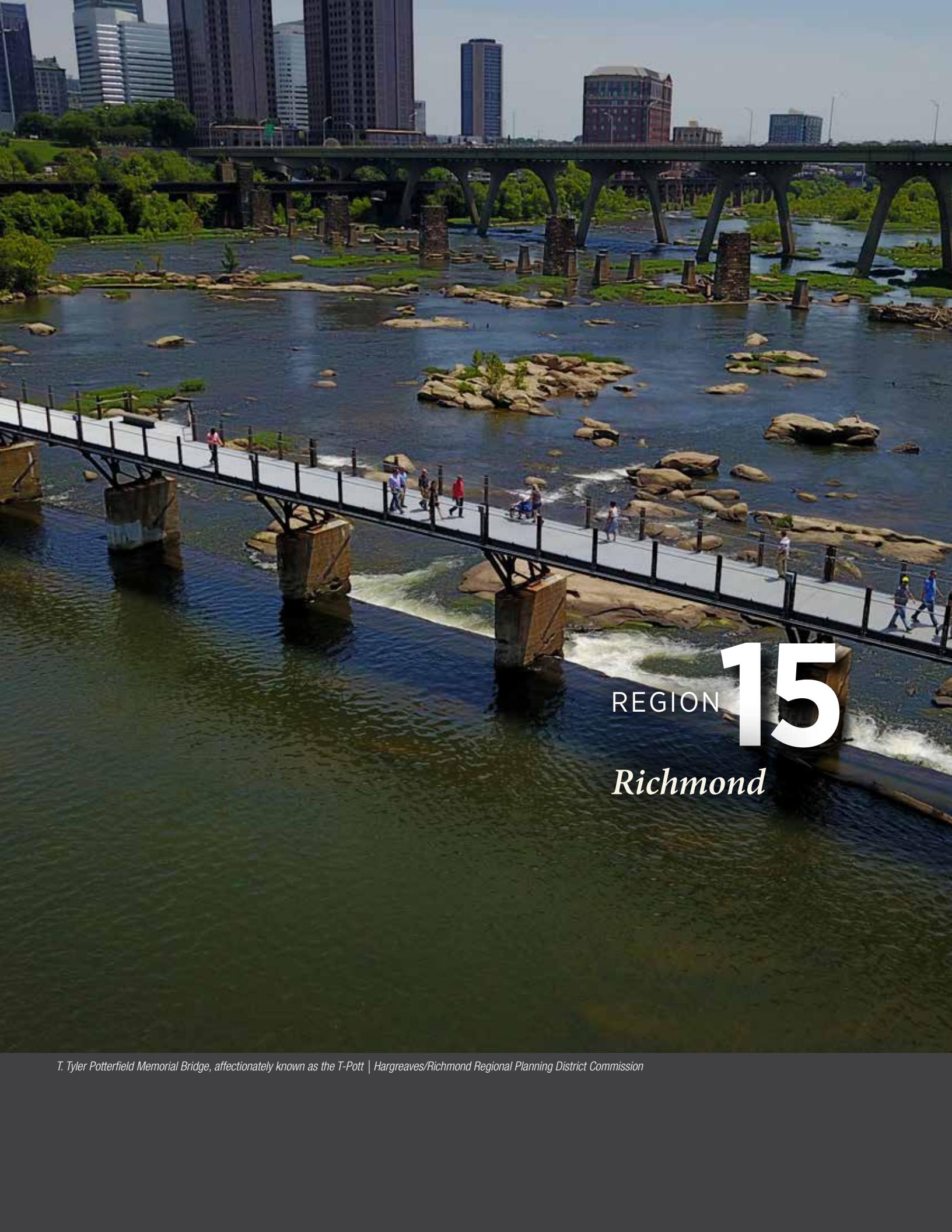
Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 14.8 Natural Heritage Resources

Commonwealth Recreational Planning Region

Number of occurrences of rare species and significant natural communities	206
Number of different rare species and significant community types (natural heritage elements)	96
Number of globally rare natural heritage elements	25
Number of species listed as federally endangered or threatened	6
Number of species listed as state endangered or threatened	12
Number of terrestrial conservation sites identified by DCR	43
Number of conservation sites with little or no protection	39
Number of partially protected conservation sites	4
Number of well protected conservation sites	0

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program



REGION **15**

Richmond

T. Tyler Potterfield Memorial Bridge, affectionately known as the T-Pott | Hargreaves/Richmond Regional Planning District Commission



James River Railroad Bridge, Richmond | David Nguyen

Introduction

The Richmond Recreational Planning Region includes Charles City, Chesterfield, Hanover, Henrico, Goochland, New Kent and Powhatan counties, the city of Richmond and the town of Ashland. The region is in the center of Virginia's urban crescent, which stretches from Northern Virginia to the Hampton Roads metropolitan areas. A mix of urban and rural jurisdictions, the area is experiencing rapid growth.

Regional Focus

Table 15.1 Most-Needed Outdoor Recreation Opportunities

Richmond Recreational Planning Region

% of households in

activity	region	state
Natural areas	55	54
Parks	52	49
Trails	42	43
Historic areas	42	39
Water access	40	43
Scenic drives (driving for pleasure)	28	29
Playing fields, sports and golf facilities	25	22

Source: 2017 Virginia Outdoors Demand Survey

Table 15.2 Top 10 Outdoor Recreation Activities By Participation

Richmond Recreational Planning Region

activity	% household
Walking for pleasure	73
Visiting natural areas	68
Visiting parks (local, state & national)	66
Driving for pleasure	61
Sunbathing/relaxing on a beach	54
Swimming/outdoor pool	52
Viewing the water	45
Outdoor festivals (music festivals, outdoor-themed festivals, extreme sports festivals, etc.)	40
Swimming/beach/lake river (open water)	39
Visiting gardens/arboretums	38

*Source: 2017 Virginia Outdoors Demand Survey.
Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.*

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the Richmond region:

- Develop the East Coast Greenway and connections to county trail systems
- Develop the Regional Ride Center at Pocahontas State Park and connect to the James River Park system trails as well as connect to the Chesterfield bikeways and trails system.
- Develop the Trolley Line Trail.
- Develop the James River Heritage Trail.
- Expand the Virginia Capital Trail to include trail connectors.
- Develop and improve Hanover County Park.
- Improve water access throughout the region.
- Preserve Belmead on the James as a recreation and historical destination.
- Implement the Richmond Riverfront Plan.

Outdoor Recreation Economic Impact

Table 15.3 Per-Capita Spending on Parks and Recreation

Richmond Recreational Planning Region

locality	dollars
Charles City County	56.16
Chesterfield County	26.44
Hanover County	35.40
Henrico County	57.70
Goochland County	88.16
New Kent County	24.26
Powhatan County	5.21
City of Richmond	?
Town of Ashland	17.13
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.



Belle Isle Zipline | Virginia Department of Conservation and Recreation

Table 15.4 Virginia State Parks 2017 Attendance and Economic Impact*Richmond Recreational Planning Region*

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Pocahontas	Chesterfield County*	128,028	1,051,330	1,179,358	\$20.8M
Powhatan	Powhatan County	13,899	122,126	136,025	\$5.0M

* Richmond Regional and Crater regions share Chesterfield County.

Source: Virginia State Parks

Regional Health

Table 15.5 Health Trends*Richmond Recreational Planning Region*

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Charles City County	18	35	28	9	8.6
Chesterfield County	15	26	26	80	9.3
Hanover County	13	27	18	78	9.3
Henrico County	16	28	23	94	8.8
Goochland County	13	28	22	66	8.9
New Kent County	15	28	21	51	8.7
Powhatan County	14	30	22	62	8.7
City of Richmond	20	30	21	88	9.4
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2015. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

While the Richmond regional area is densely developed, the Richmond metropolitan area still contains numerous dense concentrations of historic buildings. The city encompasses numerous National Historic Landmarks that are evocative of all periods of its history and thematic contexts. Among these significant sites are: the Egyptian Building at the Medical College of Virginia, the Monument Avenue Historic District, the Jackson Ward Historic District, the John Marshall House, St. John’s Church and the Tredegar Iron Works. In spite of ongoing development, several rural areas within the region survive. Most notably, large portions of several Civil War battlefields associated with the Seven Days’ Battles are protected by either the National Park Service or held in conservation easement by private land trusts or local and state entities. In the summer of 2018, over 472 acres associated with the Malvern Hill farm and battlefield were protected under a perpetual conservation easement and the property will eventually be open to the public as a park.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 18th, 19th and early 20th century dwellings and commercial buildings/districts; historic schools and churches; Civil War battlefield landscapes and resources; historic transportation routes and crossroads; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 15.6 Regional Historic Resources

Richmond Recreational Planning Region

resource	location
James River Plantations	Charles City County
Glendale, Deep Bottom, Savage’s Station, New Market, Malvern Hill, Ware Bottom Church, Totopotomoy Creek, and Cold Harbor Battlefields	Region-wide
Malvern Hill	Henrico County
Thomas Jefferson’s Boyhood Home (Tuckahoe)	Goochland County
Belle Isle Historic District	City of Richmond

Source: Virginia Department of Historic Resources

Table 15.7 Conserved Lands

Richmond Recreational Planning Region

locality	easement acres	ownership acres
Charles City County	4,196.64	5,571.24
Chesterfield	2,238.65	12,303.84
City of Richmond	6.84	1,780.37
Goochland County	6,966.39	773.39
Hanover County	3,866.13	2,868.00
Henrico County	1,748.44	6,357.94
New Kent County	3,608.50	2,965.82
Powhatan County	3,040.78	6,870.48
Total	65,163.45	



Belle Isle kayak fun | Virginia Department of Conservation and Recreation

Natural Area Preserves and Natural Heritage Resources

The Richmond region lies on the fall line and includes about equal measures of the lower Piedmont and upper Coastal Plain. Consequently, the region includes a diversity of habitats, including some for rare species and significant natural communities. Tidal areas of the James, Chickahominy and Pamunkey rivers harbor outstanding examples of fresh tidal marshes, including habitat for the federally threatened sensitive joint-vetch and vital habitat for the bald eagle. Seepage wetlands with an assortment of rare plants, including the federally threatened swamp pink, are located in Henrico County and several populations of carnivorous pitcher plants occur in bogs in Chesterfield County.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance in the region include:

- Significant communities and rare species habitats along the Chickahominy and Pamunkey rivers
- Seepage wetlands in Henrico and Chesterfield counties

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 15.8 Natural Area Preserves

Richmond Recreational Planning Region

preserve name	owner	locality
Cumberland Marsh	The Nature Conservancy	New Kent County

Table 15.9 Natural Heritage Resources

Richmond Recreational Planning Region

Number of occurrences of rare species and significant natural communities	228
Number of different rare species and significant community types (natural heritage elements)	127
Number of globally rare natural heritage elements	29
Number of species listed as federally endangered or threatened	7
Number of species listed as state endangered or threatened	15
Number of terrestrial conservation sites identified by DCR	56
Number of conservation sites with little or no protection	40
Number of partially protected conservation sites	13
Number of well protected conservation sites	3

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program



REGION **16**
George Washington

Crow's Nest Natural Area Preserve, Stafford County | Gary Fleming/Virginia Department of Conservation and Recreation



Kayaking on the Potomac | Virginia Department of Conservation and Recreation

Introduction

The George Washington Recreational Planning Region includes Stafford, King George, Spotsylvania and Caroline counties, along with the city of Fredericksburg and towns of Bowling Green and Port Royal. Situated midway between Virginia's capital and Washington, D.C., the George Washington Recreational Planning Region has rapidly changing land-use patterns, possibly due to being bisected by the heavily traveled Interstate 95.

Regional Focus

Table 16.1 Most-Needed Outdoor Recreation Opportunities

George Washington Recreational Planning Region
% of households in

activity	region	state
Natural areas	54	54
Trails	52	43
Historic areas	43	39
Parks	41	49
Water access	33	43
Scenic drives (driving for pleasure)	27	29
Playing fields, sports and golf facilities	22	22

Source: 2017 Virginia Outdoors Demand Survey

Table 16.2 Top 10 Outdoor Recreation Activities By Participation

George Washington Recreational Planning Region

activity	% household
Visiting natural areas	73
Driving for pleasure	69
Walking for pleasure	66
Visiting parks (local, state & national)	57
Sunbathing/relaxing on a beach	56
Visiting historic areas	45
Swimming/outdoor pool	44
Visiting working farms, petting zoos, corn mazes, etc.	42
Swimming/beach/lake river (open water)	41
Viewing the water	38

Source: 2017 Virginia Outdoors Demand Survey.
Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.



Enjoying friends at Lake Anna State Park | Virginia Department of Conservation and Recreation

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the George Washington region:

- Develop the East Coast Greenway.
- Implement the Virginia Central Railway Trail.
- Implement the Potomac Heritage National Scenic Trail.
- Implement the Upper Rappahannock River Water Trail.
- Improve water access throughout the region.

Outdoor Recreation Economic Impact

Table 16.3 Per-Capita Spending on Parks and Recreation

George Washington Recreational Planning Region

locality	dollars
Caroline County	12.46
King George County	31.42
Spotsylvania County	21.13
Stafford County	55.27
City of Fredericksburg	101.62
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.

Table 16.4 Virginia State Parks 2017 Attendance and Economic Impact*George Washington Recreational Planning Region*

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Caledon	King George County	864	90,434	91,298	\$2.0M
Lake Anna	Spotsylvania County	32,980	389,186	422,166	\$9.9M
Widewater	Stafford County	0	0	0	\$2.3M

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.

Regional Health

Table 16.5 Health Trends*George Washington Recreational Planning Region*

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Caroline County	18	30	21	58	8.8
King George County	14	28	21	61	8.5
Spotsylvania County	15	33	25	75	8.9
Stafford County	14	30	21	81	9
City of Fredericksburg	18	29	22	96	8.7
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2016. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

Although the George Washington region has been the focus of intense development over several decades, the area retains numerous urban and rural historic districts, Civil War battlefields, and National Historic Landmarks. The city of Fredericksburg and Spotsylvania County witnessed some of the most intense fighting of the Civil War and large portions of the Fredericksburg, Spotsylvania Court House and Wilderness battlefields have been protected by either federal government ownership or under conservation easement. The region also contains resources from earlier eras including the town of Port Royal, an intact colonial period shipping center and Old Mansion in the town of Bowling Green. Old Mansion was the first easement donated to the Virginia Historic Landmarks Commission (now the Virginia Board of Historic Resources) in 1969.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 18th, 19th and early 20th century dwellings and commercial buildings/districts; historic schools and churches; Civil War battlefield landscapes and resources; historic transportation routes and crossroads; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 16.6 Regional Historic Resources

George Washington Recreational Planning Region

resource	location
Chancellorsville and Fredericksburg Civil War Battlefields	Spotsylvania County, City of Fredericksburg
George Washington's Ferry Farm	Stafford County
Belmont	Stafford County
Caroline County Courthouse	Caroline County
Historic Kenmore Plantation	City of Fredericksburg
Ralph Bunche High School	King George County

Source: Virginia Department of Historic Resources

Land Conservation

Table 16.7 Conserved Lands

George Washington Recreational Planning Region

locality	easement acres	ownership acres
Caroline County	11,959.78	65,744.17
City of Fredericksburg	254.80	274.77
King George County	7,974.28	7,368.47
Spotsylvania County	5,094.07	17,656.26
Stafford County	4,053.60	35,878.23
Total	156,258.42	

Natural Area Preserves and Natural Heritage Resources

Because the George Washington region straddles the fall line of the Piedmont and Coastal Plain, it has a variety of habitats ranging from tidal wetlands to dry uplands. Several outstanding examples of globally rare communities occur here, including seepage bogs, calcareous forests and hemlock-hardwood forests. Populations of three federally threatened plant species — sensitive joint-vetch, swamp pink and small whorled pogonia — occur in the district, and two species of globally rare mussels live in its streams. Some of the most important habitat for recovering bald eagle populations can be found here along the Potomac and Rappahannock rivers.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia’s Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.



View of the Potomac River from Widewater State Park | Virginia Department of Conservation and Recreation

Conservation targets of special significance in the region include:

- Expansion of the Rappahannock River National Wildlife Refuge
- Buffer lands around Fort A.P. Hill and Quantico
- Wetlands that support rare and threatened plant species
- Improve water quality for streams supporting rare mussels and other aquatic species

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 16.8 Natural Area Preserves

George Washington Recreational Planning Region

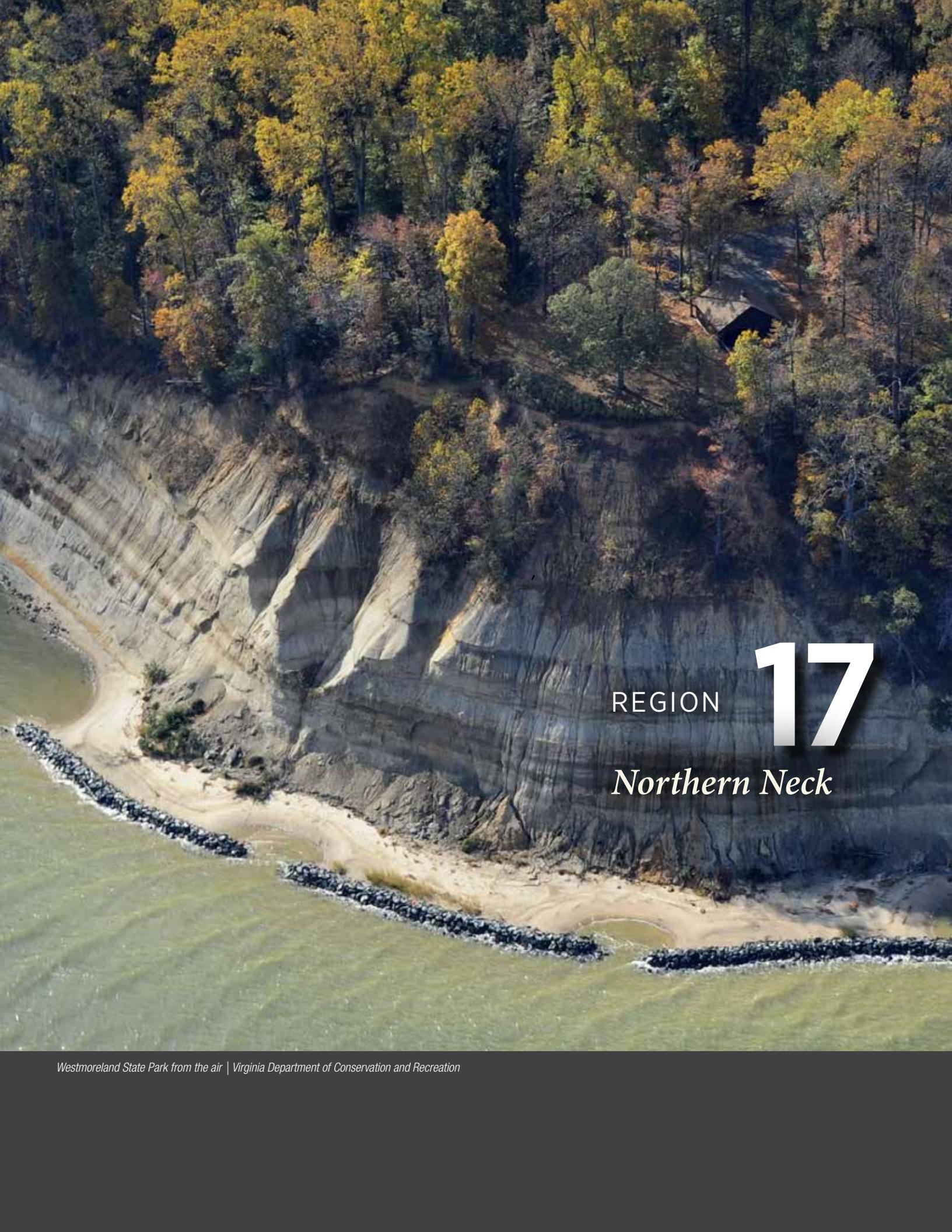
preserve name	owner	locality
Chotank Creek	Private	King George County
Crow's Nest	DCR and Stafford County	Stafford County

Table 16.9 Natural Heritage Resources

George Washington Recreational Planning Region

Number of occurrences of rare species and significant natural communities	255
Number of different rare species and significant community types (natural heritage elements)	106
Number of globally rare natural heritage elements	30
Number of species listed as federally endangered or threatened	7
Number of species listed as state endangered or threatened	10
Number of terrestrial conservation sites identified by DCR	74
Number of conservation sites with little or no protection	62
Number of partially protected conservation sites	11
Number of well protected conservation sites	1

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program



REGION **17**
Northern Neck

Introduction

The Northern Neck Recreational Planning Region includes Lancaster, Northumberland, Richmond and Westmoreland, and the towns of Colonial Beach, Irvington, Kilmarnock, Montross, Warsaw and White Stone. The Northern Neck includes farms, forests, tidal wetlands, rivers, streams and marshes. Tourism, outdoor recreation, history and rich natural resources beckon visitors and residents alike eager to escape the stresses of urban life. The Potomac and Rappahannock rivers and the Chesapeake Bay form three of the boundaries for the Northern Neck Recreational Planning Region. There are more than 1,000 miles of shoreline, which comprise 38 percent of the total Tidewater shoreline in Virginia. Wetlands cover 37,890 acres of the region. More than 50 percent of the region's land area is forested.

Regional Focus

Table 17.1 Most-Needed Outdoor Recreation Opportunities

Northern Neck Recreational Planning Region

activity	% of households in	
	region	state
Parks	48	49
Natural areas	47	54
Water access	47	43
Trails	40	43
Historic areas	33	39
Playing fields, sports and golf facilities	27	22
Scenic drives (driving for pleasure)	25	29

Source: 2017 Virginia Outdoors Demand Survey.

Table 17.2 Top 10 Outdoor Recreation Activities By Participation

Northern Neck Recreational Planning Region

activity	% household
Driving for pleasure	65
Walking for pleasure	64
Visiting natural areas	62
Viewing the water	48
Visiting parks (local, state & national)	45
Sunbathing/relaxing on a beach	44
Saltwater fishing	42
Swimming/beach/lake river (open water)	42
Swimming/outdoor pool	40
Visiting historic areas	38

*Source: 2017 Virginia Outdoors Demand Survey.
Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.*

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the Northern Neck region:

- Provide new public access, shoreline improvements and marina upgrades at Windmill Point Marina in Lancaster County.
- Construct water trail facilities at the Bush Mill Natural Area Preserve in Northumberland County.
- Provide gravel and low maintenance improvements at Hampton Hall Creek in Northumberland County.



Paddleboarding at Westmoreland State Park | Virginia Department of Conservation and Recreation

- Identify and obtain funds for a Monroe Creek boat launch in Westmoreland County.
- Implement a living shoreline at the Farnham Creek Pier and improve accessibility at this site and between Cat Point Creek.
- Support bayside public access as part of the Ditchley Land Conservation.
- Implement the Kilmarnock Town Center to include an amphitheater, playground, picnicking, green space, walking trail, dog park and splash pad.

Outdoor Recreation Economic Impact

Table 17.3 Per-Capita Spending on Parks and Recreation

Northern Neck Recreational Planning Region

locality	dollars
Lancaster County	6.64
Northumberland County	4.09
Richmond County	6.85
Westmoreland County	0.08
Town of Colonial Beach	4.97
Statewide	71.06

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.

Table 17.4 Virginia State Parks 2017 Attendance and Economic Impact

Northern Neck Recreational Planning Region

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Belle Isle	Lancaster County	19,346	23,074	42,420	\$2.0M
Westmoreland	Westmoreland County	77,443	185,736	263,179	\$7.4M

Source: Virginia State Parks



Pier Fishing | Virginia Department of Conservation and Recreation

Regional Health

Table 17.5 *Health Trends*

Northern Neck Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Lancaster County	14	30	25	50	8
Northumberland County	14	26	26	36	8
Richmond County	18	30	23	20	8.1
Westmoreland County	17	31	30	7	8.3
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation



Canoes | Virginia Department of Conservation and Recreation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

Owing to its more than 1,000 miles of shoreline along the Rappahannock and Potomac rivers as well as the Chesapeake Bay, the Northern Neck region has been a focal point of human settlement for thousands of years. For generations prior to the arrival of European settlers, Native American populations called this area their home. Modern-day archaeologists have defined numerous prehistoric settlements and hunting encampments that depended on the region’s waterways for their survival. After the arrival of English settlers, precursors to the towns of Irvington, Kilmarnock and Colonial Beach became focal points of trade as well as centers for commercial fishing and oyster operations. The area retains the agrarian setting that was established in the early 17th century and the high-style homes of wealthy planters such as Stratford Hall, Mount Airy and Sabine Hall.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register

or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 17th, 18th, 19th and early 20th century dwellings and commercial buildings/districts; historic schools and churches; historic transportation routes and crossroads; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 17.6 Regional Historic Resources

Northern Neck Recreational Planning Region

resource	location
Historic Christ Church	Lancaster County
Stratford Hall	Westmoreland County
Menokin	Richmond County
Hughlett's Tavern	Northumberland County
Irvington/Carter's Creek Historic District	Town of Irvington

Source: Virginia Department of Historic Resources

Land Conservation

Table 17.7 Conserved Lands

Northern Neck Recreational Planning Region

locality	easement acres	ownership acres
Lancaster County	3,336.41	1,346.13
Northumberland County	6,384.01	718.90
Richmond County	7,218.27	5,905.29
Westmoreland County	7,000.68	37,888.29
Total	69,797.98	

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory

Natural Area Preserves and Natural Heritage Resources

With abundant shoreline along the lower Potomac and Rappahannock rivers and the Chesapeake Bay, the Northern Neck region has very important habitat for a number of coastal species and plant communities. Beaches in the district have populations of the globally rare sea-beach knotweed, federally threatened northeastern beach tiger beetle and least tern nesting colonies. Single populations of Kentucky lady's slipper, sensitive joint-vetch and Parker's pipewort are part of the region's globally rare flora.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance in the region include:

- Protection of lands around Hughlett Point and Dameron Marsh natural area preserves
- Sandy beach habitats and associated wetlands and uplands that support the threatened northeastern beach tiger beetle

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 17.8 Natural Area Preserves

Northern Neck Recreational Planning Region

preserve name	owner	locality
Bush Mill Stream	DCR	Northumberland County
Dameron Marsh	DCR	Northumberland County
Hickory Hollow	Northern Neck Audubon Society	Lancaster County
Hughlett Point	DCR	Northumberland County

Table 17.9 Natural Heritage Resources

Northern Neck Recreational Planning Region

Number of occurrences of rare species and significant natural communities	64
Number of different rare species and significant community types (natural heritage elements)	42
Number of globally rare natural heritage elements	15
Number of species listed as federally endangered or threatened	4
Number of species listed as state endangered or threatened	4
Number of terrestrial conservation sites identified by DCR	18
Number of conservation sites with little or no protection	10
Number of partially protected conservation sites	6
Number of well protected conservation sites	2

Information as of Feb. 217. 2017. Source: Virginia Natural Heritage Program

A sailboat with its white sail partially unfurled is shown from a low angle, sailing across a body of water. The sun is setting, casting a warm glow over the sky and the water. In the distance, a long bridge stretches across the horizon.

REGION **18**
Middle Peninsula

Sailing at Deltaville | Mark Atkinson/Virginia Tourism Corp.

Introduction

The Middle Peninsula Recreational Planning Region includes the counties of Essex, Gloucester, King and Queen, King William, Mathews and Middlesex and the towns of Tappahannock, West Point and Urbanna. Located in the east-central Tidewater region, the district is largely rural, with thousands of acres of ecologically valuable tidal and nontidal wetlands, forests, pastures, rivers and streams. The topography ranges from flat, level areas to gently rolling hills as much as 200 feet above sea level. The Middle Peninsula economy, tourism and recreational opportunities are dependent on the region's abundant natural resources. The region offers opportunities for commercial and recreational harvesting of finfish and shellfish. The construction and maintenance of pleasure and workboats, and the use of waterways for transport and recreation, are vital facets of the community.

Regional Focus

Table 18.1 Most-Needed Outdoor Recreation Opportunities

Middle Peninsula Recreational Planning Region

activity	% of households in	
	region	state
Parks	48	49
Natural areas	47	54
Water access	47	43
Trails	40	43
Historic areas	33	39
Playing fields, sports and golf facilities	27	22
Scenic drives (driving for pleasure)	25	29

Source: 2017 Virginia Outdoors Demand Survey.



Crabs | Virginia Tourism Corp.

Table 18.2 Top 10 Outdoor Recreation Activities By Participation

Middle Peninsula Recreational Planning Region

activity	% household
Driving for pleasure	65
Walking for pleasure	64
Visiting natural areas	62
Viewing the water	48
Visiting parks (local, state & national)	45
Sunbathing/relaxing on a beach	44
Saltwater fishing	42
Swimming/beach/lake river (open water)	42
Swimming/outdoor pool	40
Visiting historic areas	38

Source: 2017 Virginia Outdoors Demand Survey.
Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the Middle Peninsula region:

- Develop the conceptual plan for the Route 17 Multiuse Path that would run through Gloucester County, Middlesex County, Essex County, ultimately ending in Fredericksburg.
- Connect blueways in Gloucester and Mathews counties with the York River and Mobjack Bay.
- Develop Middle Peninsula State Park.
- Develop water access at road endings.



Werowocomoco | John Henley/Virginia Tourism Corp.

- Develop Rotary Poor House Park in Essex County.
- Develop the June Parker Marina in Essex County.
- Improve Woodville County Park in Gloucester County.
- Construct a trail connector from the Gloucester County Courthouse to Beaverdam Park.
- Develop Werowocomoco.
- Develop the Urbanna Water Trail to connect the Pirates Cove Blueway with the Museum in the Streets walking trail and the Captain John Smith Chesapeake National Historic Trail.

Outdoor Recreation Economic Impact

Table 18.3 Per-Capita Spending on Parks and Recreation

Middle Peninsula Recreational Planning Region

locality	dollars
Essex County	53.68
Gloucester County	28.76
King and Queen County	21.87
King William County	15.86
Mathews County	21.03
Middlesex County	11.19
Town of West Point	12.10
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.

Table 18.4 Virginia State Parks 2017 Attendance and Economic Impact

Middle Peninsula Recreational Planning Region

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Middle Peninsula	Gloucester County*	-	-	-	-

* Middle Peninsula and Hampton Roads regions share Gloucester County.

Source: Virginia State Parks

Regional Health

Table 18.5 Health Trends

Middle Peninsula Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Essex County	18	33	27	15	8.3
Gloucester County	16	35	23	57	8.3
King and Queen County	18	30	26	28	8.3
King William County	16	26	28	48	8.7
Mathews County	14	28	22	66	8
Middlesex County	15	26	23	37	8.2
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

The Middle Peninsula region is another area that relies heavily on the Chesapeake Bay and the rivers that feed into it. Prior to the arrival of European settlers, Native American populations called this area their home. Modern-day archaeologists have defined numerous prehistoric settlements and hunting encampments that depended on the region’s waterways for their survival. Recently, the National Park Service was able to acquire over 260 acres of land that comprise the archaeological remains of Werowocomoco, a Late Woodland/Contact Native American village that served as a leadership and spiritual center for the Powhatan tribe at the time of English settlement in the early 17th century. With respect to resources that were established after English settlement, places such as Rosewell, the King and Queen Courthouse tavern and the Urbanna Historic District remain places on the gently rolling landscape for visitors to enjoy.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of

historic preservation and open space easements. Conservation targets include: 17th, 18th, 19th and early 20th century dwellings and commercial buildings/districts; historic schools and churches; historic transportation routes and crossroads; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 18.6 Regional Historic Resources

Middle Peninsula Recreational Planning Region

resource	location
Rosewell	Gloucester County
Werowocomoco	Gloucester County
Walter Reed Birthplace	Gloucester County
New Point Comfort Lighthouse	Mathews County
Urbanna Historic District	Middlesex County/ Town of Urbanna
King and Queen Courthouse Tavern	King and Queen County

Source: Virginia Department of Historic Resources.

Land Conservation

Table 18.7 Conserved Lands

Middle Peninsula Recreational Planning Region

locality	easement acres	ownership acres
Essex County	25,523.12	1,079.33
Gloucester County	2,600.92	2,314.06
King and Queen County	23,177.28	12,263.82
King William County	17,115.75	3,741.04
Mathews County	1,104.37	308.27
Middlesex County	3,182.83	210.16
Total	92,620.94	

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory

Natural Area Preserves and Natural Heritage Resources

With abundant shoreline along the lower Potomac and Rappahannock rivers and the Chesapeake Bay, the Northern Neck region has very important habitat for a number of coastal species and plant communities. Beaches in the district have populations of the globally rare sea-beach knotweed, federally threatened northeastern beach tiger beetle and least tern nesting colonies. Single populations of Kentucky lady's slipper, sensitive joint-vetch and Parker's pipewort are part of the region's globally rare flora.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance in the region include:

- Protection of lands around Hughlett Point and Dameron Marsh natural area preserves
- Sandy beach habitats and associated wetlands and uplands that support the threatened northeastern beach tiger beetle

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 18.8 Natural Area Preserves

Middle Peninsula Recreational Planning Region

preserve name	owner	locality
Bethel Beach	DCR	Mathews County
New Point Comfort	The Nature Conservancy	Mathews County

Table 18.9 Natural Heritage Resources

Middle Peninsula Recreational Planning Region

Number of occurrences of rare species and significant natural communities	141
Number of different rare species and significant community types (natural heritage elements)	76
Number of globally rare natural heritage elements	16
Number of species listed as federally endangered or threatened	3
Number of species listed as state endangered or threatened	8
Number of terrestrial conservation sites identified by DCR	41
Number of conservation sites with little or no protection	38
Number of partially protected conservation sites	3
Number of well protected conservation sites	0

Information as of Feb. 218, 2018. Source: Virginia Natural Heritage Program

A photograph of a person spraying water from a hose onto another person in a swimming pool. The person being sprayed is wearing a red swimsuit and has water splashing around them. Other people are visible in the background.

REGION
Crater

19

Introduction

The Crater Recreational Planning Region includes Charles City, Dinwiddie, Greensville, Prince George, Sussex and Surry; the cities of Colonial Heights, Emporia, Hopewell and Petersburg; and the towns of Claremont, Dendron, Jarratt, McKenney, Stony Creek, Surry, Wakefield and Waverly. The army post of Fort Lee has witnessed a massive population increase and averages 34,000 troops daily. In response to intense development pressures, due to the proximity to the Richmond region, more landholders are looking to protect agricultural and rural landscapes. The preservation of remaining open space in urban areas, and the effective management and protection of undeveloped land, will help prevent suburban sprawl.

Regional Focus

Table 19.1 Most-Needed Outdoor Recreation Opportunities

Crater Recreational Planning Region

activity	% of households in	
	region	state
Water access	46	43
Parks	45	49
Historic areas	43	39
Natural areas	40	54
Playing fields, sports and golf facilities	31	22
Trails	30	43
Scenic drives (driving for pleasure)	27	29

Source: 2017 Virginia Outdoors Demand Survey.

Table 19.2 Top 10 Outdoor Recreation Activities By Participation

Crater Recreational Planning Region

activity	% household
Driving for pleasure	60
Visiting natural areas	60
Walking for pleasure	57
Freshwater fishing	46
Visiting parks (local, state & national)	41
Swimming/outdoor pool	39
Sunbathing/relaxing on a beach	35
Visiting historic areas	30
Viewing the water	28
Gardening	28

Source: 2017 Virginia Outdoors Demand Survey.
Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.



Bring the kids for a day in the park | Virginia Department of Conservation and Recreation

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the Crater region:

- Develop the Appomattox River Trail based on the master plan.
- Implement the Lower Appomattox River Blueway master plan.
- Develop the Beaches to Bluegrass Trail.
- Develop the East Coast Greenway.
- Renovate Ferndale Park.
- Renovate Lee Park in Petersburg.
- Develop Appomattox River Regional Park in Prince George.
- Enhance Surry County regional parks with water access and expanded recreational opportunities.
- Develop Sussex County Regional Park.
- Acquire and develop Slagle's Lake in the town of Emporia and Greensville County.

- Expand conservation and improve woodland and water-oriented recreational access in Sussex County in the vicinity of the Airfield 4-H Educational Center and Big Woods State Forest and Wildlife Management Area.
- Implement Greensville County's Spanglers Lake Recreation Park Plan.

Outdoor Recreation Economic Impact

Table 19.3 Per-Capita Spending on Parks and Recreation

Crater Recreational Planning Region

locality	dollars
Charles City County	56.16
Chesterfield County	26.44
Dinwiddie County	43.05
Greenville County	19.42
Prince George County	24.10
Surry County	84.62
Sussex County	1.35
City of Colonial Heights	88.41
City of Emporia	31.94
City of Hopewell	0
City of Petersburg	64.41
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.



Hopewell City Park | Danette Poole/Virginia Department of Conservation and Recreation

Table 19.4 Virginia State Parks 2017 Attendance and Economic Impact

Crater Recreational Planning Region

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Chippokes Plantation	Surry County*	33,081	71,028	104,109	\$4.0M
Pocahontas	Chesterfield County**	128,028	1,051,330	1,179,358	\$20.8M

* Crater and Hampton Roads regions share Surry County.

** Crater and Richmond Regional regions share Chesterfield County.

Source: Virginia State Parks

Regional Health

Table 19.5 Health Trends

Crater Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Charles City County	18	35	28	9	8.6
Dinwiddie County	17	33	27	44	8.9
Greensville County	22	33	27	27	8.6
Prince George County	17	33	24	73	9
Surry County	18	35	26	9	8.2
Sussex County	21	36	26	3	8.6
City of Colonial Heights	15	27	26	99	9
City of Emporia	24	30	28	97	8.5
City of Hopewell	19	32	26	94	9
City of Petersburg	22	41	26	93	8.9
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

Despite increasing development pressure in this area, the Crater region retains a great deal of historic integrity in the form of numerous historic districts, individually listed properties on the National Register of Historic Places, as well as several Civil War battlefields. The Petersburg battlefield receives the highest amount of visitation due to the large amount of land that remains preserved and high degree of preservation of numerous siege-related fortifications, breastworks and other military defense features. There are numerous driving, biking and walking trails in the area to provide visitors with a better understanding of the history and development of the region. The trail system is highlighted by the Virginia Capital bike path that extends through the Charles City County portion of the region.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 17th, 18th, 19th and early 20th century dwellings and commercial buildings/districts; historic schools and churches; Civil War-related resources and battlefields; historic transportation routes and crossroads; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.



Bacon's Castle, Surry County | Bill Crabtree Jr./Virginia Tourism Corp.

Table 19.6 Regional Historic Resources

Crater Recreational Planning Region

resource	location
Petersburg, Peebles Farm, The Breakthrough, White Oak Road, Hatcher's Run, and Ream's Station Battlefields	Region-wide
Centre Hill	City of Petersburg
Battersea	City of Petersburg
Chippokes Plantation Historic District	Surry County
Old Dinwiddie County Courthouse	Dinwiddie County
King and Queen Courthouse Tavern	King and Queen County

Source: Virginia Department of Historic Resources.

Land Conservation

Table 19.7 Conserved Lands

Crater Recreational Planning Region

locality	easement acres	ownership acres
City of Colonial Heights	0.64	0.00
City of Emporia	0.00	0.00
City of Hopewell	23.30	23.19
City of Petersburg	97.50	1,413.29
Dinwiddie County	5,477.09	15,779.69
Greensville County	2,596.92	428.00
Prince George County	6,162.91	7,770.41
Surry County	3,938.60	6,288.19
Sussex County	4,931.09	11,629.99
Total	66,560.81	

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory

Natural Area Preserves and Natural Heritage Resources

The Crater Planning region is the most biologically diverse of the regions along the fall line. On the border with North Carolina, many species reach their northern limit here including the oak toad, sandhills lily and red-cockaded woodpecker. Western areas of the district include habitat for the federally endangered Michaux's sumac and eastern areas include expansive bottomland forests and remnants of fire-maintained woodland communities. Several species of rare fishes, mussels and salamanders occur in the region's rivers.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance in the region include:

- Expand protection and ecological management of forestland around Piney Grove Preserve
- Forestland along the Blackwater, Meherrin and Nottoway rivers
- Pine flatwoods and coastal plain depression pond communities in Prince George and Sussex counties
- Restore native longleaf pine communities on sandhills and other habitats
- Buffer lands around Fort Pickett.

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 19.8 Natural Area Preserves

Crater Recreational Planning Region

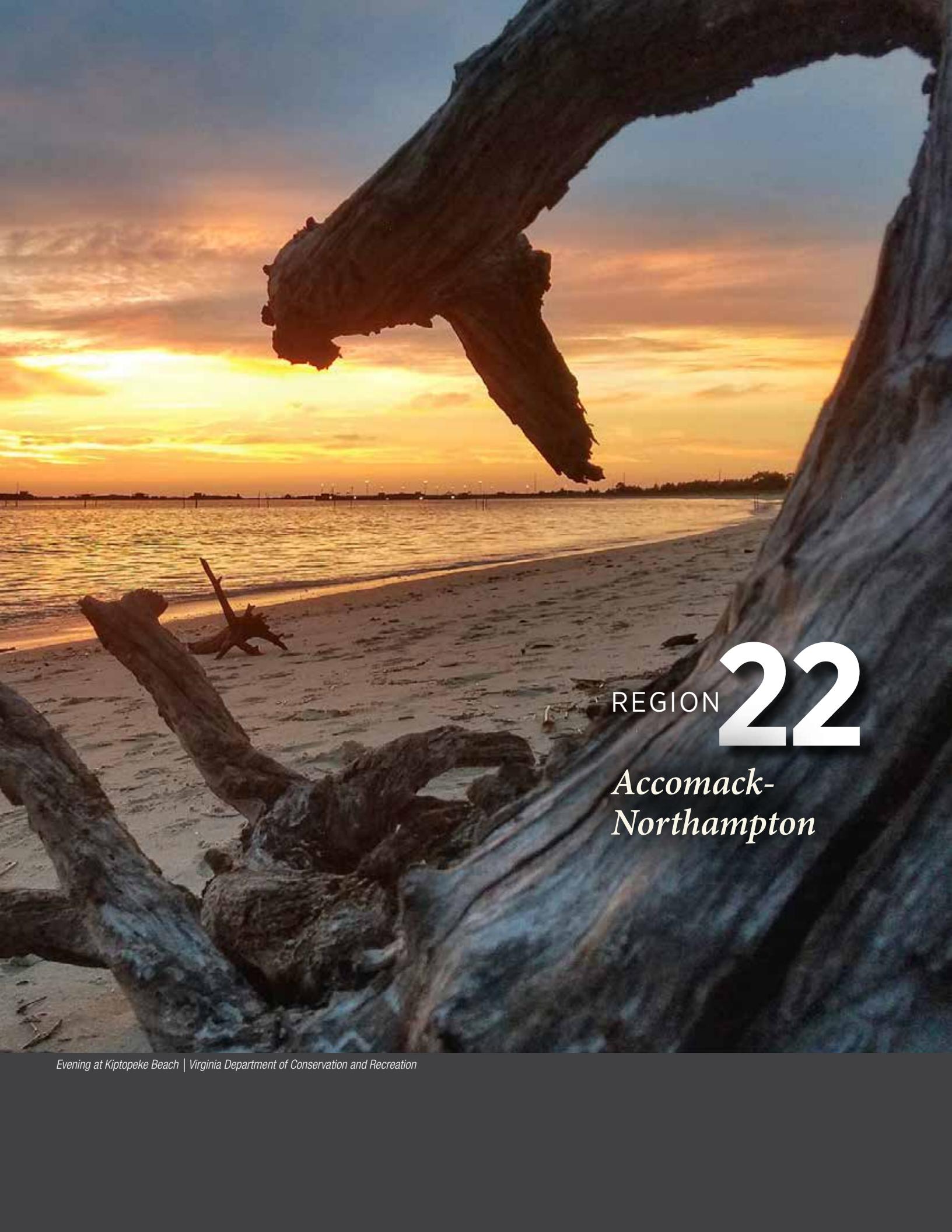
preserve name	owner	locality
Cherry Orchard Bog	DCR and Stafford County	Sussex, Prince George counties
Chub Sandhill	DCR	Sussex County
Dendron Swamp	DCR	Sussex County

Table 19.9 Natural Heritage Resources

Crater Recreational Planning Region

Number of occurrences of rare species and significant natural communities	591
Number of different rare species and significant community types (natural heritage elements)	213
Number of globally rare natural heritage elements	46
Number of species listed as federally endangered or threatened	9
Number of species listed as state endangered or threatened	20
Number of terrestrial conservation sites identified by DCR	98
Number of conservation sites with little or no protection	90
Number of partially protected conservation sites	8
Number of well protected conservation sites	0

Information as of Feb. 219. 2019. Source: Virginia Natural Heritage Program

A photograph of a large, weathered piece of driftwood on a sandy beach. The wood is dark brown and textured, with several branches extending from its base. In the background, the ocean meets a sky filled with warm, orange and yellow hues of a setting sun. The overall atmosphere is serene and natural.

REGION **22**
*Accomack-
Northampton*

Evening at Kiptopeke Beach | Virginia Department of Conservation and Recreation



Chincoteague | Jason Barnette/Virginia Tourism Corp.

Introduction

The Accomack-Northampton Recreational Planning Region includes the counties of Accomack and Northampton and the towns of Accomac, Belle Haven, Bloxom, Cape Charles, Cheriton, Chincoteague, Eastville, Exmore, Hallwood, Keller, Melfa, Nassawadox, Onancock, Onley, Painter, Parksley, Saxis, Tangier and Wachapreague. Virginia's Eastern Shore is the narrow, 70-mile long, southern portion of the Delmarva Peninsula separating the Atlantic Ocean from the Chesapeake Bay. In addition, the region provides five major metropolitan areas with premier outdoor recreation opportunities. Emerging technologies, including investments in broadband, the Virginia Space Coast, solar, wind and offshore oil and gas, enhance the region's economic status. Outstanding natural resources, valued rural and agricultural lifestyle combined with education, health care and job creation are integral to the success the region enjoys as a destination for outdoor recreation.

Regional Focus

Table 22.1 Most-Needed Outdoor Recreation Opportunities

Accomack-Northampton Recreational Planning Region

% of households in

activity	region	state
Parks	48	49
Natural areas	47	54
Water access	47	43
Trails	40	43
Historic areas	33	39
Playing fields, sports and golf facilities	27	22
Scenic drives (driving for pleasure)	25	29

Source: 2017 Virginia Outdoors Demand Survey



Cape Charles | Sarah Hauser/Virginia Tourism Corp.

Table 22.2 Top 10 Outdoor Recreation Activities By Participation

Accomack-Northampton Recreational Planning Region

activity	% household
Driving for pleasure	65
Walking for pleasure	64
Visiting natural areas	62
Viewing the water	48
Visiting parks (local, state & national)	45
Sunbathing/relaxing on a beach	44
Saltwater fishing	42
Swimming/beach/lake river (open water)	42
Swimming/outdoor pool	40
Visiting historic areas	38

Source: 2017 Virginia Outdoors Demand Survey.
Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the Accomack-Northampton region:

- Develop Bike and Hike Trail as part of the Beaches to Bluegrass Trail initiative.
- Develop and enhance regional water trails, including the Seaside Water Trail and the Bayside Water Trail incorporating Chesapeake Bay Gateways and the Captain John Smith Chesapeake National Historic Trail.
- Connect Eastern Shore towns and waterfront public access using multiuse trails.
- Develop small community parks and larger district parks to provide athletic facilities, sports fields, picnic areas, swimming and other recreational activities.
- Implement the East Coast Greenway.

Outdoor Recreation Economic Impact

Table 22.3 Per-Capita Spending on Parks and Recreation

Accomack-Northampton Recreational Planning Region

locality	dollars
Accomack County	17.29
Northampton County	18.16
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2013. In 2017, Virginia Tourism compiled "Nature & Outdoors" recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

Occupying perhaps the most individual landscape in Virginia, the Accomack-Northampton region includes the two counties comprising Virginia's portion of the Eastern Shore as well as Tangier Island.

Multiple small towns and communities are linked by Route 13, the region's only north-south highway, and are separated by stretches of low, level fields and pine forests. Bounded to three sides by the Chesapeake Bay and the Atlantic Ocean, the region's residents have focused on the acquisition and use of marine resources for thousands of years. Archaeological sites along the Eastern Shore indicate the presence of significant prehistoric Native American occupations, as well as some of the earliest evidence for permanent European settlement in Virginia. Shoreline villages such as Saxis and Onancock contain dwellings and buildings reflective of the surviving waterman's culture in this region, while larger towns like Cape Charles contain the historic hotels, theaters and other amenities associated with earlier

Table 22.4 Virginia State Parks 2017 Attendance and Economic Impact

Accomack-Northampton Recreational Planning Region

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
Kiptopeke	75,495	354,262	429,757	\$8.4M	\$8,645,852

Source: Virginia State Parks

Regional Health

Table 22.5 Health Trends

Accomack-Northampton Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
Accomack County	18	35	28	41	8.1
Northampton County	18	36	27	44	7.8
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation

steamship and later automobile tourism. Visitors to the region can enjoy educational exhibits at the Poor House Farm (Barrier Islands Center), view the 1740 brick house known as Pear Valley, eat at the historic Exmore Diner and tour the Late Victorian-style Accomack County Courthouse. Adventurous visitors can book passage to Tangier Island and visit a truly unique and historic Virginia community.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 17th, 18th, 19th and early 20th century dwellings and commercial buildings/districts; historic schools and churches; resources associated with waterman history; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 22.6 Regional Historic Resources

Accomack-Northampton Recreational Planning Region

resource	location
Poor House Farm (Barrier Islands Center)	Northampton County
Pear Valley	Northampton County
Accomack County Courthouse	Accomack County
Tangier Island	Accomack County
Arlington Archaeological Site and Custis Tombs	Northampton County
King and Queen Courthouse Tavern	King and Queen County

Land Conservation

Table 22.7 Conserved Lands

Accomack-Northampton Recreational Planning Region

locality	easement acres	ownership acres
Accomack County	19,716.46	61,320.58
Northampton County	13,390.00	38,422.60
Total	132,849.64	

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory.

Natural Area Preserves and Natural Heritage Resources

Occupying Virginia's Eastern Shore, the Accomack-Northampton Planning District plays an important role in preserving biodiversity on the East Coast — particularly for birdlife. Every autumn, migratory land birds funnel onto the Delmarva Peninsula en route to their southern wintering grounds and concentrate near the southern tip to feed and rest before continuing the journey across the mouth of the Chesapeake Bay and beyond. Other important biodiversity highlights of the region include globally rare sea-level fen communities and the federally and state threatened northeastern beach tiger beetle.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance in the region include:

- Migratory land bird habitat.
- Freshwater marshes and associated uplands in Accomack County.
- Sandy beach habitats and associated wetlands and uplands that support threatened northeastern beach tiger beetle

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.



Chincoteague ponies | Todd Wright/Virginia Tourism Corp.

Table 22.8 Natural Area Preserves

Accomack-Northampton Recreational Planning Region

preserve name	owner	locality
Cape Charles	DCR	Northampton County
Magothy Bay	DCR	Northampton County
Mark's and Jack's Island	The Nature Conservancy	Accomack County
Mutton Hunk Fen	DCR	Accomack County
Parkers Marsh	DCR	Accomack County
Parramore Island	The Nature Conservancy	Accomack County
Pickett's Harbor	DCR	Northampton County
Savage Neck Dunes	DCR	Northampton County
Wreck Island	DCR	Northampton County

Table 22.9 Natural Heritage Resources

Accomack-Northampton Recreational Planning Region

Number of occurrences of rare species and significant natural communities	415
Number of different rare species and significant community types (natural heritage elements)	132
Number of globally rare natural heritage elements	26
Number of species listed as federally endangered or threatened	4
Number of species listed as state endangered or threatened	8
Number of terrestrial conservation sites identified by DCR	64
Number of conservation sites with little or no protection	28
Number of partially protected conservation sites	32
Number of well protected conservation sites	4

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program



REGION **23**
Hampton Roads

Norfolk Harborfest | Robbie Hickman/Virginia Tourism Corp.



Scenic Virginia Beach | Sarah Hauser/Virginia Tourism Corp.

Introduction

The Hampton Roads Recreational Planning Region includes the counties of Isle of Wight, James City, Southampton and York. The region also includes the cities of Chesapeake, Franklin, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach and Williamsburg and the towns of Boykins, Branchville, Capron, Courtland, Ivor, Newsoms, Smithfield and Windsor.

Three major Mid-Atlantic Coastal Plain river drainage systems in the region are the York, James and Chowan basins. To the east, the Atlantic Ocean and the Chesapeake Bay form an undulating natural boundary for the region. Natural features include coastal shorelines, vast expanses of open water and marshlands. The James and York rivers are predominantly estuarine. Freshwater systems include the Nottoway, Blackwater, Meherrin, North Landing and Northwest Rivers, Back Bay and the Dismal Swamp.

Regional Focus

Table 23.1 Most-Needed Outdoor Recreation Opportunities

Hampton Roads Recreational Planning Region

activity	% of households in	
	region	state
Parks	56	49
Natural areas	47	54
Water access	43	43
Trails	42	43
Historic areas	42	39
Scenic drives (driving for pleasure)	28	29
Playing fields, sports and golf facilities	21	22

Source: 2017 Virginia Outdoors Demand Survey



Enjoying the Beach | Sam Dean/Virginia Tourism Corp.

Table 23.2 Top 10 Outdoor Recreation Activities By Participation

Hampton Roads Recreational Planning Region

activity	% household
Visiting natural areas	65
Walking for pleasure	65
Driving for pleasure	63
Visiting parks (local, state & national)	57
Swimming/outdoor pool	48
Sunbathing/relaxing on a beach	47
Viewing the water	43
Visiting historic areas	41
Outdoor festivals (music festivals, outdoor-themed festivals, extreme sports festivals, etc.)	40
Swimming/beach/lake river (open water)	35

Source: 2017 Virginia Outdoors Demand Survey.
Visit www.dcr.virginia.gov/vop to view regional participation rates for more than 100 activities.

Regional Featured Projects

To be considered a regional featured project, a project must meet at least one of the following criteria:

- Has statewide or regional significance.
- Addresses top statewide or regional needs identified by the Virginia Outdoors Demand Survey.
- Has involvement and support from multiple jurisdictions in the region.
- Able to be initiated within the next five years.

Featured projects for the Hampton Roads region:

- Implement regional greenway plans including the Stony Run Greenway and the Green Sea Blueway and Greenway and Water Trail.
- Connect regional multi-use trails including South Hampton Roads Trail, Dismal Swamp Connector Trail and the Virginia Capital Trail from Jamestown to Fort Monroe and Jamestown to the South Hampton Roads Trail.
- Develop the Southeast Coast Saltwater Paddling Trail as a regional water trail.
- Create recreation opportunities at Fort Monroe.
- Implement the Eastern Branch Restoration Plan for the Elizabeth River.

- Initiate development of the Birthplace of America Trail, connecting the Hampton Road Region to Richmond Virginia.

The vision of the Birthplace of America Trail (BoAT) is to connect the Virginia Capital Trail to Fort Monroe and the South Hampton Roads Trail via two off-road shared-use paths, designed for active transportation. Once this vision is a reality, users can bike/walk from Richmond to the Atlantic Ocean in Virginia Beach on over 140 miles of off-road shared-use paths. In addition to connecting the region through active transportation, the BoAT seeks to link and showcase the region's unique cultural and historic heritage. There is currently a grassroots effort underway to create a foundation to support and promote the development of the BoAT.

The Hampton Roads Transportation Planning Organization (HRPTO) recently completed a study to identify the route for the BoAT. It can be found at: <https://www.hrpto.org/page/birthplace-of-america-trail/>



Lake Drummond inside the Great Dismal Swamp | John Henley/Virginia Tourism Corp.

Outdoor Recreation Economic Impact

Table 23.3 Per-Capita Spending on Parks and Recreation

Hampton Roads Recreational Planning Region

locality	dollars
Gloucester County	28.76
James City County	76.74
Isle of Wight County	56.88
Southampton County	0
Surry County	84.62
York County	30.28
City of Chesapeake	46.49
City of Franklin	42.39
City of Hampton	129.01
City of Newport News	104.62
City of Norfolk	105.23
City of Poquoson	61.04
City of Portsmouth	81.77
City of Suffolk	80.88
City of Virginia Beach	95.40
City of Williamsburg	75.42
Statewide	71.09

Source: Virginia Auditor of Public Accounts, "Comparative Report on Local Government Revenues and Expenditures," 2016.

Table 23.4 Virginia State Parks 2017 Attendance and Economic Impact

Hampton Roads Recreational Planning Region

state park	location	overnight visitors	day-use visitors	total visitors	economic impact
False Cape	Virginia Beach	5,022	59,132	64,154	\$1,322,762
First Landing	Virginia Beach	131,841	1,448,745	1,580,586	\$33,067,995
Middle Peninsula	Gloucester County*	-	-	-	-
York River	James City County	0	141,624	141,624	\$2,265,984

* Middle Peninsula and Hampton Roads regions share Gloucester County.

Source: Virginia State Parks

Regional Health

Table 23.5 Health Trends

Hampton Roads Recreational Planning Region

locality	adult smoking (% of adults)	adult obesity (% of adults with BMI over 30)	physical inactivity (% of adults age 20 or over reporting no leisure time/ physical activity)	access to exercise opportunities (% population with adequate access to locations for physical activity)	air pollution – particulate matter (micrograms per cubic meter)
James City County	13	25	20	91	8.4
Isle of Wight County	15	29	54	66	8.6
Southampton County	17	31	30	17	8.5
York County	13	26	22	86	8.5
City of Chesapeake	15	32	21	88	8.8
City of Franklin	20	34	26	59	8.2
City of Hampton	18	35	24	92	8.4
City of Newport News	20	32	26	92	8.6
City of Norfolk	19	30	24	96	8.6
City of Poquoson	13	25	22	51	8.3
City of Portsmouth	20	37	29	91	8.7
City of Suffolk	16	32	25	71	8.7
City of Virginia Beach	16	28	19	90	8.3
City of Williamsburg	17	26	23	100	8.2
Statewide	17	27	21	81	8.7

Source: Robert Wood Johnson Foundation

Outdoor Recreation Interface with Virginia Tourism

The Virginia State Tourism Plan was completed by Virginia Tourism Corp. in March 2023. In 2017, Virginia Tourism compiled “Nature & Outdoors” recommendations in Appendix 13 for each recreation planning region.

Regional Historic Resources

For those interested in heritage tourism, the Hampton Roads region most likely represents the most attractive area to spend time. Including Jamestown, the restored 18th century town of Colonial Williamsburg, and the site of the 1781 surrender of British forces at Yorktown, the area encompasses some of the most significant historic and cultural resources in the entire country. In addition to numerous walking, biking and driving trails, the area also contains large sections of the Captain John Smith Chesapeake National Historic Trail, a water trail

that commemorates the early 17th century journeys of Captain John Smith and his explorations of the Chesapeake Bay and its tributaries. Aided by smart buoys that contain interpretive information, users of the trail can see cultural landscapes and historic sites from the unique perspective of being on the water.

Appropriate conservation activities may include installation of highway markers to commemorate historic locations and events, placement of historic properties on the Virginia Landmarks Register or National Register of Historic Places and placement of historic preservation and open space easements. Conservation targets include: 17th, 18th, 19th and early 20th century dwellings and commercial buildings/districts; historic schools and churches; Revolutionary and Civil War-related resources and battlefields; historic transportation routes and crossroads; and significant prehistoric habitation sites. Information about historic buildings, structures and archaeological sites is maintained in the permanent files of the Virginia Department of Historic Resources and is available to local planners.

Table 23.6 Regional Historic Resources

Hampton Roads Recreational Planning Region

resource	location
Historic St. Luke's Church	Isle of Wight County
Windsor Castle	Isle of Wight County
Endview Plantation	City of Newport News
Adam Thoroughgood House	City of Virginia Beach
Great Dismal Swamp Canal	Cities of Chesapeake/Suffolk
King and Queen Courthouse Tavern	King and Queen County

Land Conservation

Table 23.7 Conserved Lands

Hampton Roads Recreational Planning Region

locality	easement acres	ownership acres
City of Chesapeake	1,991.97	72,001.74
City of Franklin	8.81	0.00
City of Hampton	72.51	1,616.20
City of Newport News	15.22	11,870.41
City of Norfolk	0.00	3,133.76
City of Poquoson	0.00	3,535.22
City of Portsmouth	0.00	247.89
City of Suffolk	1,442.85	38,490.30
City of Virginia Beach	835.86	31,011.04
City of Williamsburg	14.20	237.17
Isle of Wight County	3,992.65	3,791.43
James City County	3,145.34	8,586.19
Southampton County	5,515.18	1,938.14
York County	970.35	25,635.95
Total	220,100.38	

Source: Virginia Department of Conservation and Recreation Protected Lands Inventory.

A land conservation benefits analysis may benefit this region. The importance of connecting green corridors for habitat and recreation was recognized for both urban and rural landscapes.

Natural Area Preserves and Natural Heritage Resources

Hampton Roads, though located entirely within the Coastal Plain, spans a diverse range of habitats, including sandy ocean beaches, salt marshes of the Chesapeake Bay, wind tidal fresh marshes, dry sandhills, seasonally wet ponds and blackwater swamps. These habitats support many rare and significant plant communities and rare species, including: globally rare Coastal plain dry calcareous forests, the federally and state threatened sensitive joint-vetch, and the state endangered eastern big-eared bat.

DCR recommends that conservation activities and land protection efforts in the region focus on unprotected Essential Conservation Sites and all unprotected portions of Natural Area Preserve resiliency areas. Secondarily, strategic land conservation should expand upon existing managed areas and seek connectivity via protecting and/or managing intact ecological cores and natural vegetation cover between currently protected lands. Finally, attention on remaining unprotected natural heritage resources within the region should be considered on a case-by-case basis.

The appropriate conservation activities and methods of protection will vary with each site but may include placing the site on Virginia's Registry of Natural Areas; developing a voluntary management agreement with the landowner; securing a conservation easement through a local land trust; acquiring the site through a locality or local land trust; dedicating the site as a natural area preserve with the current owner; or acquiring the site as a state-owned natural area preserve.

Conservation targets of special significance in the region include:

- Pine barren communities
- Seasonal depression ponds and other significant wetlands.
- Large blocks of old-growth cypress-tupelo swamps
- Habitat for rare reptiles and amphibians
- Lands along the Northwest and North Landing rivers.

Information about the location of conservation sites and the natural heritage resources they contain, as well as management assistance, is available to local planners from DCR's Natural Heritage Program. For more on the Natural Heritage Program, see Chapter 11 and Appendix 11.

Table 23.8 Natural Area Preserves*Hampton Roads Recreational Planning Region*

preserve name	owner	locality
Antioch Pines	DCR	Isle of Wight County
Blackwater Ecological Preserve	Old Dominion University	Isle of Wight County
Blackwater Sandhills	Isle of Wight County	Isle of Wight County
Cypress Bridge	DCR	Southampton County
False Cape	DCR	Virginia Beach
Grafton Ponds	Newport News	York County
North Landing River	DCR	Virginia Beach
Northwest River	DCR and The Nature Conservancy	Chesapeake
South Quay Sandhills	DCR and private	Southampton County and Suffolk

Table 23.9 Natural Heritage Resources*Hampton Roads Recreational Planning Region*

Number of occurrences of rare species and significant natural communities	1,109
Number of different rare species and significant community types (natural heritage elements)	339
Number of globally rare natural heritage elements	59
Number of species listed as federally endangered or threatened	10
Number of species listed as state endangered or threatened	25
Number of terrestrial conservation sites identified by DCR	165
Number of conservation sites with little or no protection	133
Number of partially protected conservation sites	30
Number of well protected conservation sites	2

Information as of Feb. 28, 2018. Source: Virginia Natural Heritage Program