COMMONWEALTH of VIRGINIA

Office of the Governor

ConserveVirginia

2020 Update

In April 2018, Governor Ralph Northam announced a new approach to land conservation in Virginia:

"I believe that we need a land conservation strategy that is focused and targeted toward making measurable progress on our natural resource goals...Through this data-driven process, we will prioritize the most important targeted lands and direct limited resources toward those conservation projects that provide the greatest benefit in the most cost-effective manner."

Virginia's land conservation investments are essential to making the Commonwealth a wonderful place to live and visit. Land and water conservation protects the places we love, supports a high quality of life and fosters economic growth and prosperity. In 2016, the Trust for Public Land reported that every $1 invested in land conservation returns $4 in economic value in natural goods and services in the form of improved air and water quality, carbon sequestration, and enhanced fish and wildlife habitat[1]. Governor Northam is dedicated to ensuring the highest conservation outcomes from state funds spent on protecting land. *ConserveVirginia* will be a key tool in guiding those investments.

ConserveVirginia represents a data driven approach to land conservation that builds upon work already underway here and in other states. Virginia's first in the nation strategy takes the next step in identifying how and where to achieve the best conservation outcomes, and meets the Governor's directive to prioritize the most important lands from a statewide perspective, target limited resources toward those areas, and measure the progress we make toward achieving multiple conservation goals. *ConserveVirginia* creates a roadmap for land conservation across Virginia now and for years to come.

ConserveVirginia's central feature is a living "smart map" that identifies approximately 6.9 million acres of priority lands for conservation. The *ConserveVirginia* map is the synthesis of 21 mapped data inputs, which have been divided into seven categories, each representing a different overarching conservation values. The categories are: Agriculture & Forestry; Natural Habitat & Ecosystem Diversity; Floodplains & Flooding Resilience; Cultural & Historic Preservation; Scenic Preservation; Protected Landscapes Resilience and Water Quality Improvement. The categories contain more than 5.45 million acres of agricultural and forest lands. Outdoor recreation is a critical component of the Strategy and will be addressed across the categories. As with most land conservation, resource benefits cross multiple categories.

The *ConserveVirgini*a map is designed to be regularly updated as new data become available, and additional resources and protection tools emerge. Similarly, the administration will work to add new data models to the *ConserveVirginia* map as data and technology allow.

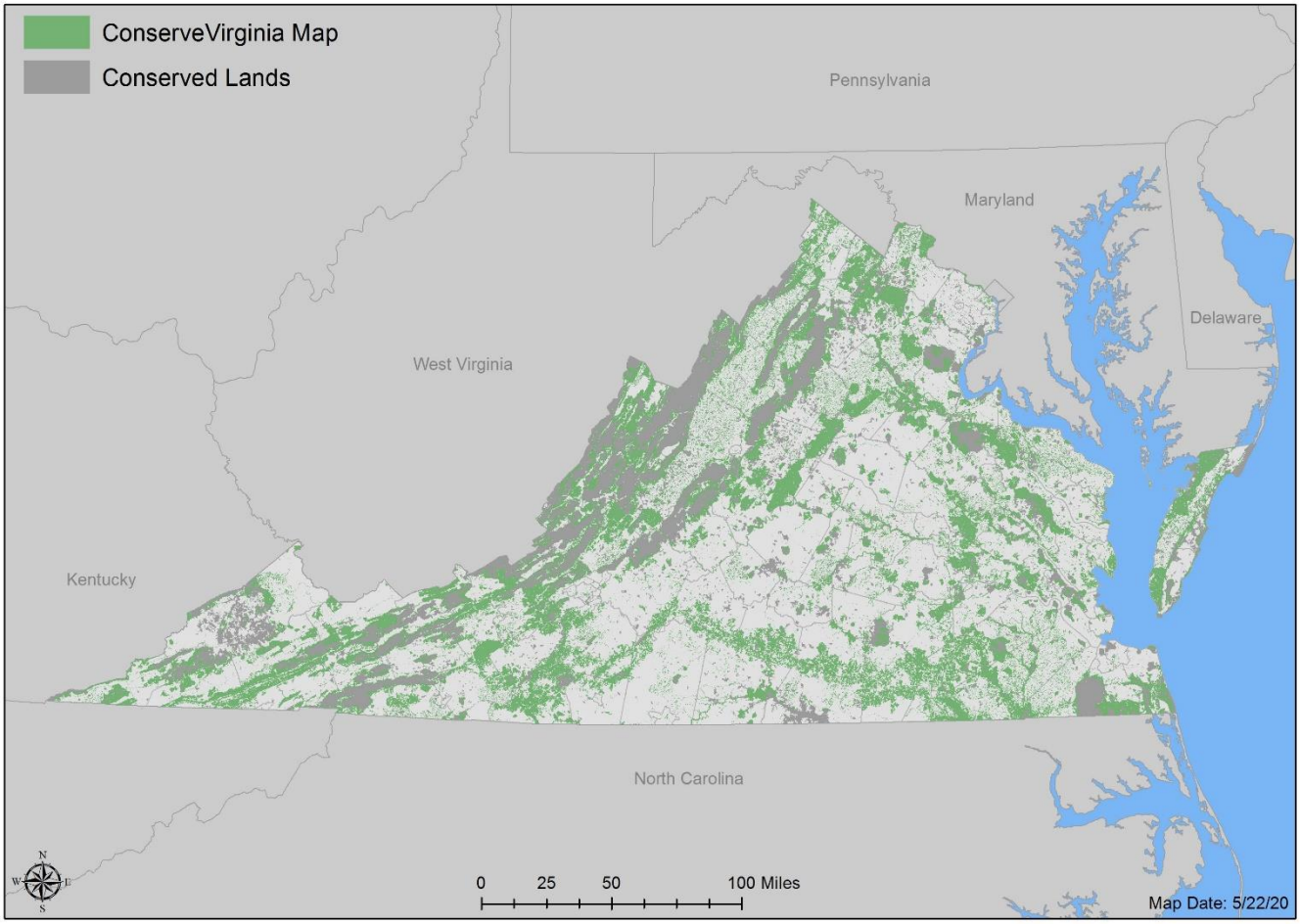
The 6,863,268 acres outlined in this Strategy are envisioned to guide land conservation in Virginia for the next generation. This Strategy charts a new path for data driven prioritized land conservation and a method by which to set both conservation and funding needs and monitor progress.

To help advance *ConserveVirginia*, Governor Northam has outlined three broad approaches;

- Engage the Virginia Land Conservation Foundation and other state grant programs to place emphasis on funding projects identified in the strategy.
- State agencies will focus land conservation funds and efforts on these priority lands.
- Expand existing funding sources and create new funding sources and tools to advance protection of these priority lands.

Through the *ConserveVirginia* initiative, Virginia will be a leader in targeted, value-based land conservation to ensure the greatest conservation outcomes and prosperity for future generations across the Commonwealth of Virginia.

ConserveVirginia Map



ConserveVirginia **Methodology**

To create *ConserveVirginia*, the Office of the Secretary of Natural Resources led an extensive effort to identify and map the Commonwealth's highest value conservation lands. Knowing that land conservation can address a wide array of interests and needs, the process began by identifying what conservation values were important to Virginians. In total, the Secretary, working closely with the land conservation community and a number of state agencies, identified 21 mapped data models, which have been divided into seven categories, each representing a different overarching conservation value. The categories are: Agriculture & Forestry; Natural Habitat & Ecosystem Diversity; Floodplains & Flooding Resilience; Cultural & Historic Preservation; Scenic Preservation; Protected Landscapes Resilience, and Water Quality Improvement.

To ensure that *ConserveVirginia* identifies high value lands of concern to each community, 25 Land Trusts based or working in Virginia were consulted and their maps cross-referenced against priorities provided by 14 Land Trusts that had priority maps, or descriptions for which maps of Land Trust priorities could be produced. A similar cross reference exercise was conducted for regional projects such as the Department of Environmental Quality's Coastal Virginia Ecological Value Assessment and the Chesapeake Conservation Partnership's watershed-wide maps.

Each category is composed of multiple data models, each based on the best available information and science. Existing datasets were shared by 14 state and federal agencies and organizations including the U.S. Department of Agriculture, VA Department of Agriculture and Consumer Services, Department of Interior, The Nature Conservancy, VA Department of Game and Inland Fisheries, VA Department of Conservation and Recreation, U.S. Geological Survey, VA Institute of Marine Sciences, VA Department of Emergency Management, VA Department of Historic Resources, National Park Service, VA Department of Transportation, the U.S. Fish & Wildlife Service, and VA Department of Environmental Quality. When a conservation value was requested for which a data model was unavailable, a methodology and a dataset were created, whenever possible. New methodologies and/or data models have been created for the Floodplains & Flooding Resilience, Cultural & Historic Preservation, Scenic Preservation, and Water Quality Improvement categories.

Outdoor recreation is a significant component of Virginia's economy and tourism industry and growing as new generations engage with the outdoors. These needs can often be met by a small trailhead or water access point to existing public lands and waters, thus it does not directly correlate to the modeling effort used for the seven categories. A Recreation Model has been developed to identify priority recreation gaps across Virginia and will be used to help sort funding and protection priorities for grant programs, public land acquisitions and easements as permitted.

Existing datasets were refined by selecting the highest ranked lands within each category using pre-existing prioritizations. Data models created specifically for this exercise only include the highest ranked lands within that category.

All told, the exercise identified 6,863,268 acres of land deemed to be of the highest conservation value across the seven categories detailed above. Just over 670,000 of the 6.86 million acres already have some level of permanent protection, but lack the specific conservation requirements necessary to protect the resource for which the acres were identified. For example, some open space easements that restrict development lack permanent protection for priority forests or riparian buffer protections that will ensure water quality protection.

ConserveVirginia **Categories, Datasets and Methodologies**

Agriculture & Forestry: Virginia's agriculture and forestry industries contribute a combined $91 billion annually to Virginia's economy and generate more than 450,000 jobs throughout the Commonwealth. Whether it is beer, wine, equine, aquaculture, timber or livestock – Virginia's agricultural and forestry products are enjoyed locally, used throughout the country and exported around the world. To support this important industry, it's important that Virginia conserve high value agricultural and forest lands that face potential development. A total of 5.45 million acres of agricultural and forest lands are included across the seven *ConserveVirginia* categories.

The Agriculture & Forestry Category identifies priority agricultural and forest lands across Virginia. It is comprised of two datasets. The Virginia ConservationVision *Agricultural Model* quantifies the relative suitability of lands for agricultural activity across the state. This model went through rigorous testing and review by state and federal agricultural professionals. Agricultural value is assessed primarily based on inherent soil suitability, but also accounts for current land cover and travel time between agricultural producers and consumers. These mapped lands include five categories and the largest contiguous agricultural blocks from the top class distributed proportionally by locality are included in *ConserveVirginia*.

The Department of Forestry's *Forest Conservation Value (FCV) Model* strategically identifies priority forestland in Virginia for conservation by identifying those of the highest quality, most productive, and most vulnerable statewide. The model classifies forestlands based on watershed integrity; size of forested blocks; management potential; connectivity and proximity to other conserved lands; threat of conversion, and diminished tree species and significant forest community attributes. The model assigns a relative FCV rank to all forestland in Virginia from 1 (lowest) to 5 (highest); the highest class was used for the Strategy. The *ConserveVirginia* mapped lands include the largest contiguous forest blocks from the Class 5 category. The data resource areas in the Agriculture & Forestry Category represent a total of 1,396,356 acres.

Natural Habitat & Ecosystem Diversity: Virginia's natural lands protect water and air quality, support tourism and outdoor recreation, contain a rich biological diversity and array of wildlife corridors, enhance economic development and increase our fiscal and human health. Outdoor recreation generates $13.6 billion in consumer spending and $923 million in state and local tax revenues[1]. The 2017 Virginia Outdoors Demand Survey found that the most popular activity is visiting natural areas. Large diverse landscapes provide a buffer against climate change and sea-level rise and support exemplary habitats and species.

The Natural Habitat & Ecosystem Diversity category has been developed by working with five key data resource areas. The *Virginia Natural Landscape Assessment* identifies large patches commonly referred to as Cores of forests, marshes, dunes and beaches with at least 100 acres of interior natural habitat. The cores are ranked based upon many variables including environmental diversity, species diversity, water quality benefits and habitats. The Outstanding category (C1) was used in the strategy, excluding the four lower ranked categories. *Landscape Corridors* of natural land cover were included connecting C1 Cores to maintain connectivity to allow species movement between larger natural land patches, elevations, latitudes and from ocean to inland.

[1] "Virginia's Return on Investment in Land Conservation," The Trust for Public Land. August 2016. Available at: https://www.tpl.org/virginias-return-investment-land-conservation#sm.000008332nxb7mem0pn44a9f9sm98 [Accessed November 29, 2018].

Resilient and Connected Landscapes represent a map developed by The Nature Conservancy and its partners highlighting areas that represent climate resilient sites and species movement areas (corridors) across Virginia that include key habitats and the space for nature to adapt and change in the face of a changing climate. *Natural Heritage Conservation Sites* are areas of the landscape that contain Virginia's and the planet's rarest aquatic and terrestrial natural communities and plant and animal species. This set includes cave and karst habitats, terrestrial sites and aquatic systems, and only the top ranked sites have been included. *Brook Trout Streams* identified by Game and Inland Fisheries are streams supporting native brook trout that are in a natural state representing high ecological integrity. The data resource areas in the Natural Habitat & Ecosystem Diversity Category represent a total of 3,940,770 acres.

Floodplains & Flooding Resilience: Flooding represents a major and growing threat to Virginia. It is the most common and costly disaster in the state. The vast majority of disasters in Virginia have been flood-related, and the state has experienced many additional local flood events. From 1996 to 2016, flood insurance claims in Virginia totaled more than $515 million. Floodplains support local economies and increase the quality of life by providing valuable ecosystem services and recreational opportunities. Natural floodplains and wetlands boost nearby property values and can provide recreational tourism opportunities, increasing personal and shared wealth in the community. These areas also provide a buffer against fast moving flood water, absorb and store excess runoff, and filter pollutants from our water resources. As a result, protected floodplains reduce flood damage and cleanup costs and allow for faster recovery from flood events. Community projects in floodplains can tie together multiple goals including hazard mitigation, open space, historic preservation, recreation, and quality of life, giving these projects the potential to use multiple funding sources. Wetlands protect against flooding with one-acre typically storing one million gallons of water. The Floodplains & Flooding Resilience Category is comprised of four data-models.

Riverine flooding is addressed by mapping the undeveloped forest and agricultural lands upstream of the 10 worst flooding disasters across Virginia based upon jurisdictional risk, dollar losses and federal disaster declarations based on data from the Commonwealth of Virginia Hazard Mitigation Plan.

Statewide flooding is also addressed by wetlands maps. *Wetlands* are included directly via the ConservationVision Virginia Wetlands Catalog map project. Wetlands include mapped and predicted wetlands, streams and floodplains. They are prioritized based on variables including water quality, natural land networks and buffers, ecosystem services and biodiversity. The two highest-class priorities are included.

Coastal Flooding is addressed by the wetlands maps and coastal ecological resiliency map models developed by the Virginia Institute of Marine Science and by The Nature Conservancy. Coastal wetlands are critical to the productivity and diversity of marine ecosystems and to the human economies they support. Mapped priorities include those wetlands identified as above average and far above average resilience indicating the greatest long-term potential for adaptive response, based on a projected rise in sea level of six feet. Coastal resilience is also addressed via wetlands identified by the VIMS model that represent the highest class in estuarine and freshwater areas that provide the highest ecological services and provide for the highest marsh migration potential to adjacent natural lands. The data resource areas in this Category represent a total of 538,868 acres.

Cultural & Historic Preservation: Virginia's rich cultural and historical resources represent a significant component of the state's economic well-being. Heritage tourism is an important driver of Virginia's economy, generating almost $7.7 billion a year, according to a study commissioned by Preservation Virginia and

conducted by the L. Douglas Wilder School of Government and Public Affairs at Virginia Commonwealth University[2]. The Historic Rehabilitation Tax Credit Program alone in 2014 resulted in $467 million in economic output, supported 9,960 jobs and generated $3.50 for every $1 invested through the first three years.

The Cultural & Historic Preservation category includes lands identified by the Department of Historic Resources as those unprotected National Historic Landmarks, Priority 1 Class A Battlefield Study Areas, Priority 1 Class B Battlefield Core Areas, National Register of Historic Places and the Virginia Landmarks Register or with potential for eligibility in these registers. National Historic Landmarks are nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States. The model includes lands categorized as "Priority 1, Class A Battlefield Study Areas," the most intact and threatened battlefield landscapes according to the American Battlefield Protection Program, and "Priority 1 Class B Battlefield Core Areas" within which fighting actually occurred. Also included are lands in the National Register of Historic Places and the Virginia Landmarks Register or with potential for eligibility in these registers. The resource areas in the Cultural & Historic Resource Category represent a total of 1,181,326 acres.

The *USCT-African American Units Involvement Battlefields* input identifies 128,964 acres from the American Battlefield Protection Program's (ABPP) study area data that include American Civil War battlefields in Virginia with involvement from the United States Colored Troops (USCT) and/or other African-American units. The list of the battlefields included for this dataset was provided by Civil War Trails®.

Note: Within the Cultural & Historic Preservation category, lands already protected by conservation easement held by the Virginia Board of Historic Resources are not included.

Scenic Preservation: Nearly 90%of Virginians think scenery is important when making travel plans, and 51% feel protecting scenery and scenic views is very important, according to the 2017 Virginia Outdoors Demand Survey.

The Scenic Preservation Category identifies lands by mapping national and state designated scenic byways, state designated scenic rivers, All-American roads, national scenic trails, national historic trails, national millennium trails, and national recreational trails. A statewide map for these resources did not exist. These resources were mapped and boundaries created using river banks, shorelines and jurisdictional boundaries where necessary and then expanded by 200 feet on either side of the resource to capture adjacent lands. The individual resource areas in this category represent a total of 270,870 acres.

Protected Landscapes Resilience: Virginia's publicly owned lands provide a wealth of natural goods and services in the form of clean air and water, carbon sequestration and flood reduction, benefiting local economies and improving physical health by providing safe outdoor recreation. In 2019, visitors to Virginia State Parks alone spent an estimated $286.2 million in the Commonwealth. Approximately $130.2 million of this spending was by out-of-state visitors, and the total economic activity stimulated by Virginia State Parks during 2019 was approximately $437.7 million[3].

[2] Accordino, J. and F. Fasulo. 2014. Economic Impact of Historic Rehabilitation Tax Credit Programs in Virginia. Virginia Commonwealth University. Available at: https://www.dhr.virginia.gov/pdf_files/VCU_Historic%20Tax%20Credit%20Report_FINAL_21-1-2014.pdf [Accessed November 29, 2018]

[3] Magnini, V.P. 2020. Virginia State Parks 2019 Economic Impact Report. Available at: https://www.dcr.virginia.gov/state-parks/document/virginia-state-parks-2019-economic-impact-study.pdf [Accessed May 26, 2020]

Protected Landscapes Resilience represents priority areas identified by five public resource agencies as lands and waters around existing protected lands that are important habitats, connections to the landscape, critical to enhance climate resilience, and protect key scenic and recreational values. The Protected Landscapes Resilience category was developed and provided by the U.S. Fish and Wildlife Service, National Park Service, Department of Game and Inland Fisheries, Department of Conservation and Recreation and Department of Forestry. The resource areas in this category represent a total of 596,954 acres.

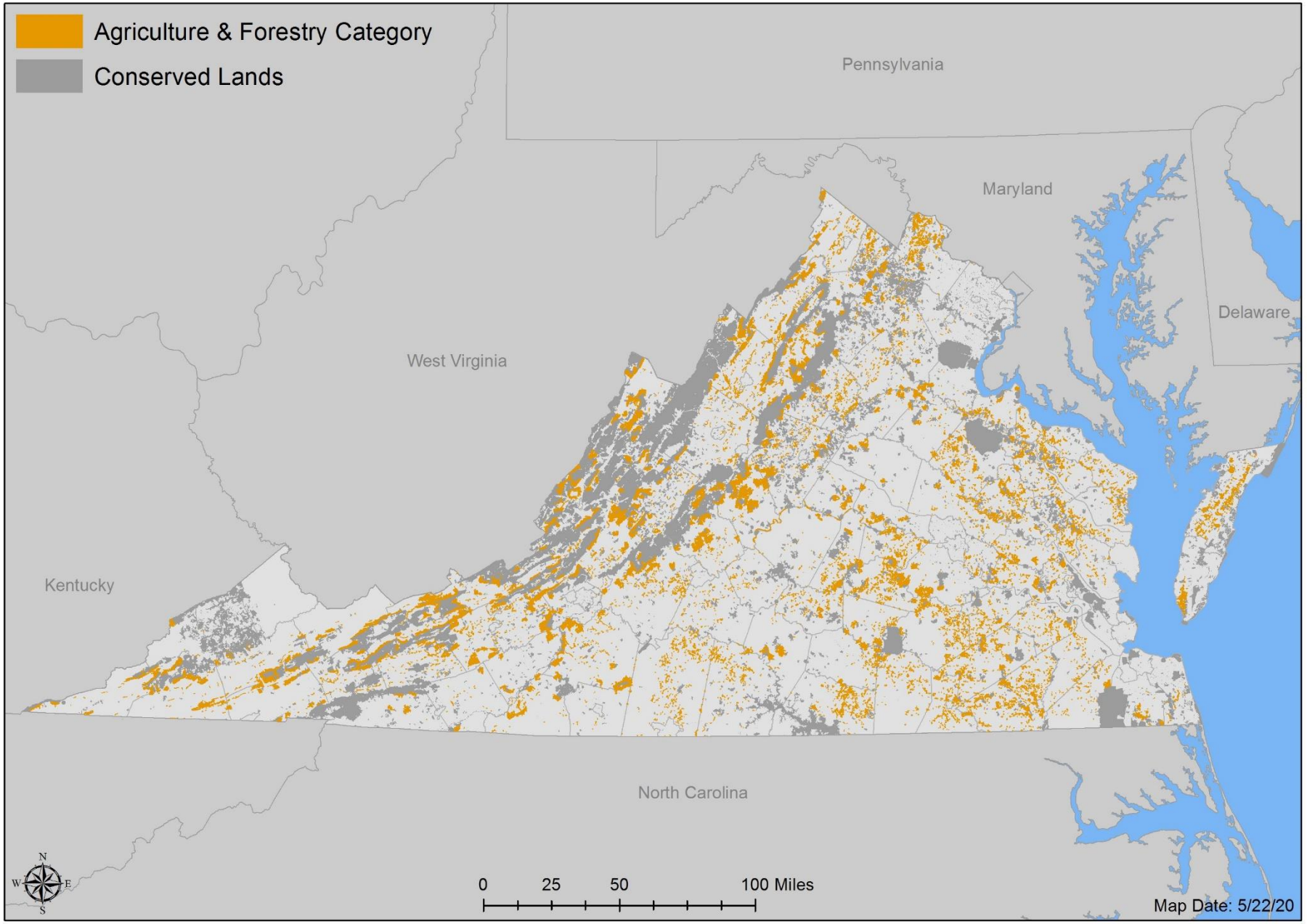
Water Quality Improvement Category: When rain runs off farmland and suburban lawns, it often carries harmful substances including excess nutrients and sediments into nearby waterways. This type of pollution is called nonpoint source because it does not come from a single source, or point, such as a sewage treatment plant or an industrial discharge pipe. Nutrients are substances that help plants and animals live and grow, but excessive amounts of nutrients, especially nitrogen and phosphorus, can result in algal blooms and depleted oxygen levels that can suffocate animals and plants. An estimated 50%of the nitrogen and 29%of the phosphorus entering surface waters come from farmland. Sediments are caused mainly by water running over bare land and carrying soil particles into streams, lakes, rivers, and bays, where they reduce light needed by aquatic plants, cover aquatic habitats, plants, and animals, and obstruct waterways. Comprehensive estimates of the damages from agricultural pollution are lacking, but soil erosion alone is estimated to cost water users $2 billion to $8 billion annually. Virginia's nonpoint source pollution prevention efforts focus strongly on managing nutrients and sediments because they pose the most significant threat to the health of our waterways, especially the Chesapeake Bay and its tributaries.

The *Water Quality Improvement Opportunity Areas* input identifies **790,112** acres of the highest priority lands for conservation in the interest of water quality improvement in general. It was developed via collaboration between the Department of Conservation and Recreation and the Department of Environmental Quality using estimates of nitrogen, phosphorus, and sediment loadings from agricultural sources from the Chesapeake Bay Program Phase 6 Watershed Model (CAST-2017d) and the Virginia Water Quality Assessment, and with consideration of the goals of the Chesapeake Bay Watershed Implementation Plan (WIP III). The basic approach was to identify watersheds (12-digit hydrologic units) with the highest (i.e., those in the 90th percentile) loadings of nitrogen, phosphorous, or sediment from any of the assessments used. Riparian areas along streams, creeks, and rivers in those watersheds are the focus of this *ConserveVirginia* input. Buffers were mapped for these waterways, where buffers ranged from 100 to 400 ft., depending on steepness of slope of adjacent lands. Generally, wider buffers were mapped for steeper slopes and for headwater streams. These buffer lands are where land conservation would be most effective to maintain and improve water quality. Once conserved permanently, water quality benefits of these lands will be further increased by establishing and maintaining natural vegetation in buffers. Conservation easements including deed requirements for such vegetated buffers will qualify as a *ConserveVirginia* success.

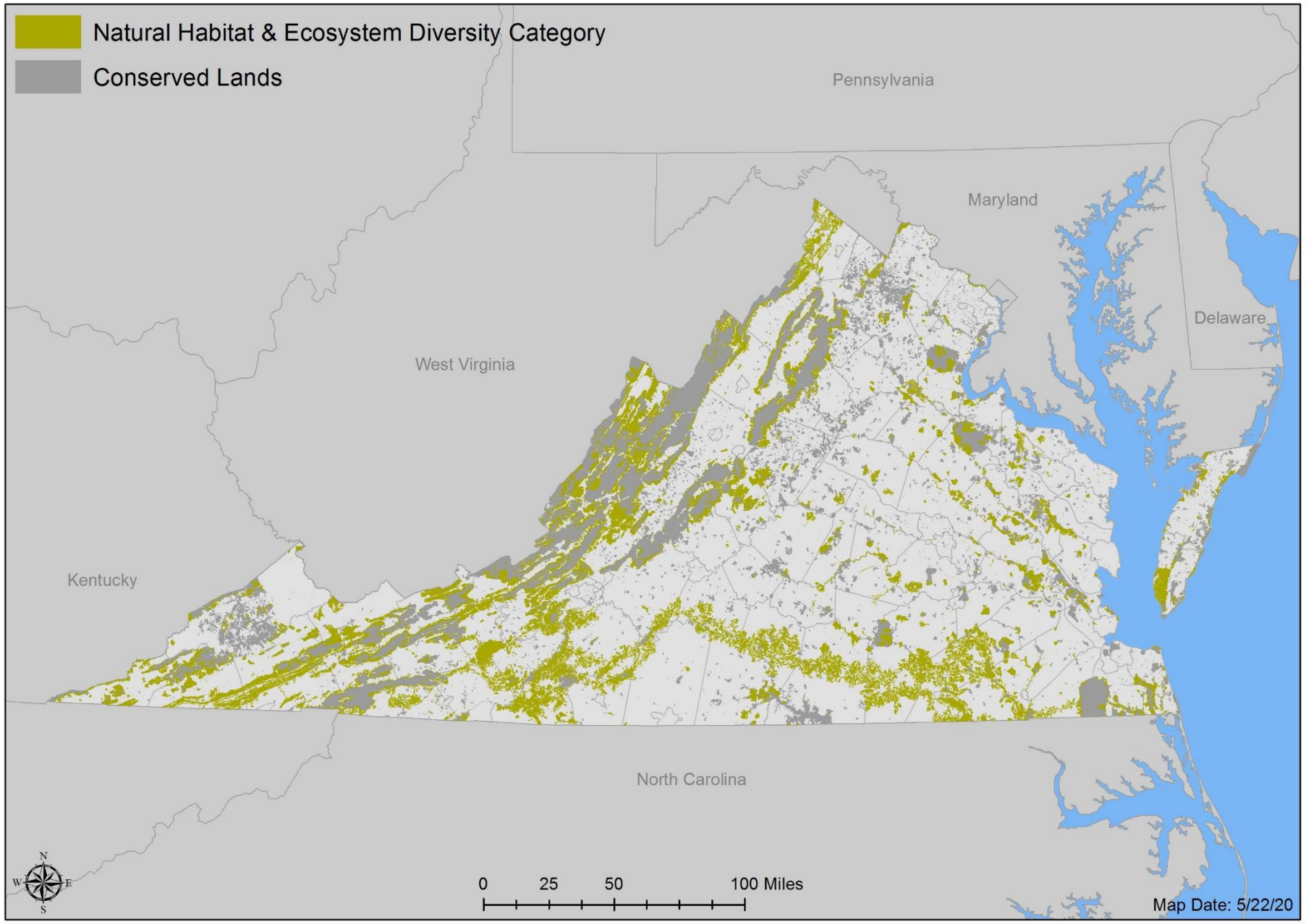
Outdoor Recreation: This *ConserveVirginia* category represents a significant component of Virginia’s tourism and economy. Access to hiking trails and water are consistently two of the most sought after outdoor recreation amenities. The Virginia ConservationVision Recreation Access Model has been developed to quantify access to outdoor recreation opportunities in Virginia, and to identify areas where more recreational access is needed at both local and regional scales. Quantifying access to outdoor recreation is complex, and this model is not directly comparable to the models used for the other seven *ConserveVirginia* categories. This model will be used to help sort funding and protection priorities.

This model quantifies public access to outdoor recreation in the state of Virginia, with attention given to both terrestrial (i.e., land-based) and aquatic (i.e. water-based) recreational access. Data used in the development of the terrestrial component of the model include all public access lands and trails, along with access points to these lands and trails. Data used in the development of the aquatic component of the model include boat launches, public fishing lakes, stocked trout reaches, public beaches and other non-pool swimming access, along with access points to these and other public waters. The model provides a variety of informative attributes based on the number or size of recreational opportunities within reasonable driving or walking distances, the size of the population served by these resources, and benchmarks for adequate levels of service (i.e. recreational access need). Thus, the model is designed to identify where access to these outdoor recreation resources are in short supply, and what would be needed to bring an area up to specific benchmark standards.

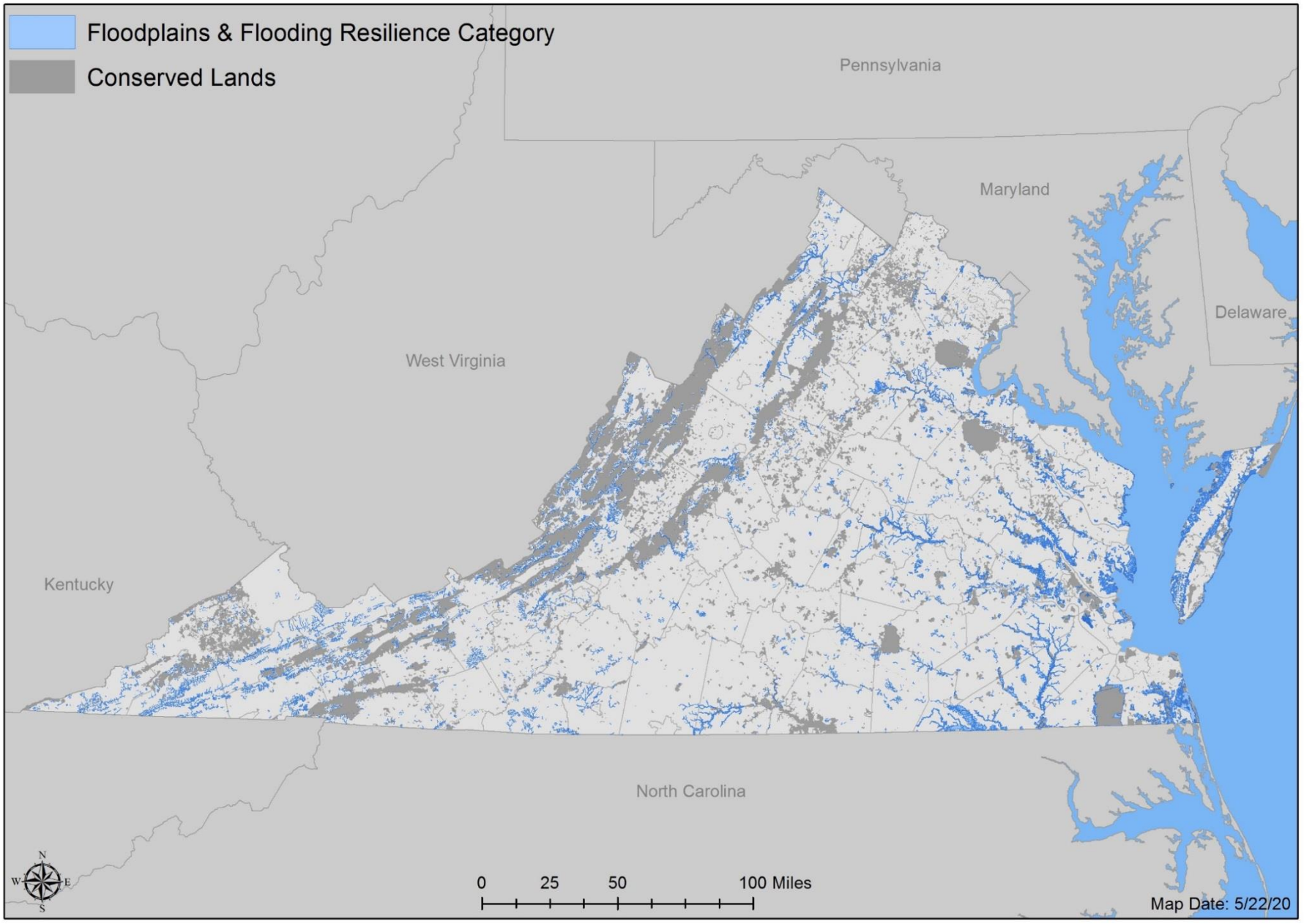
Agriculture and Forestry Category



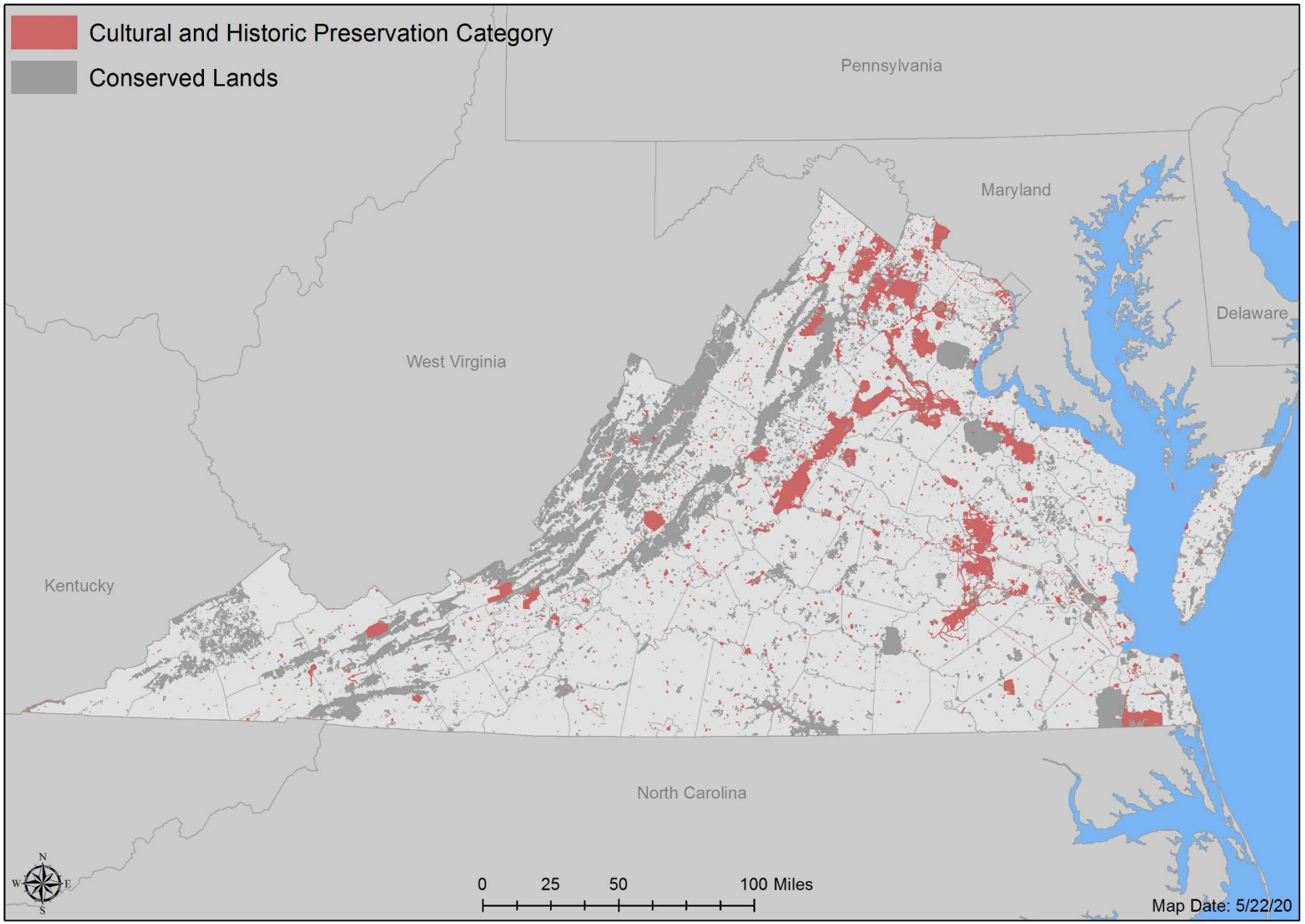
Natural Habitat and Ecosystem Diversity Category



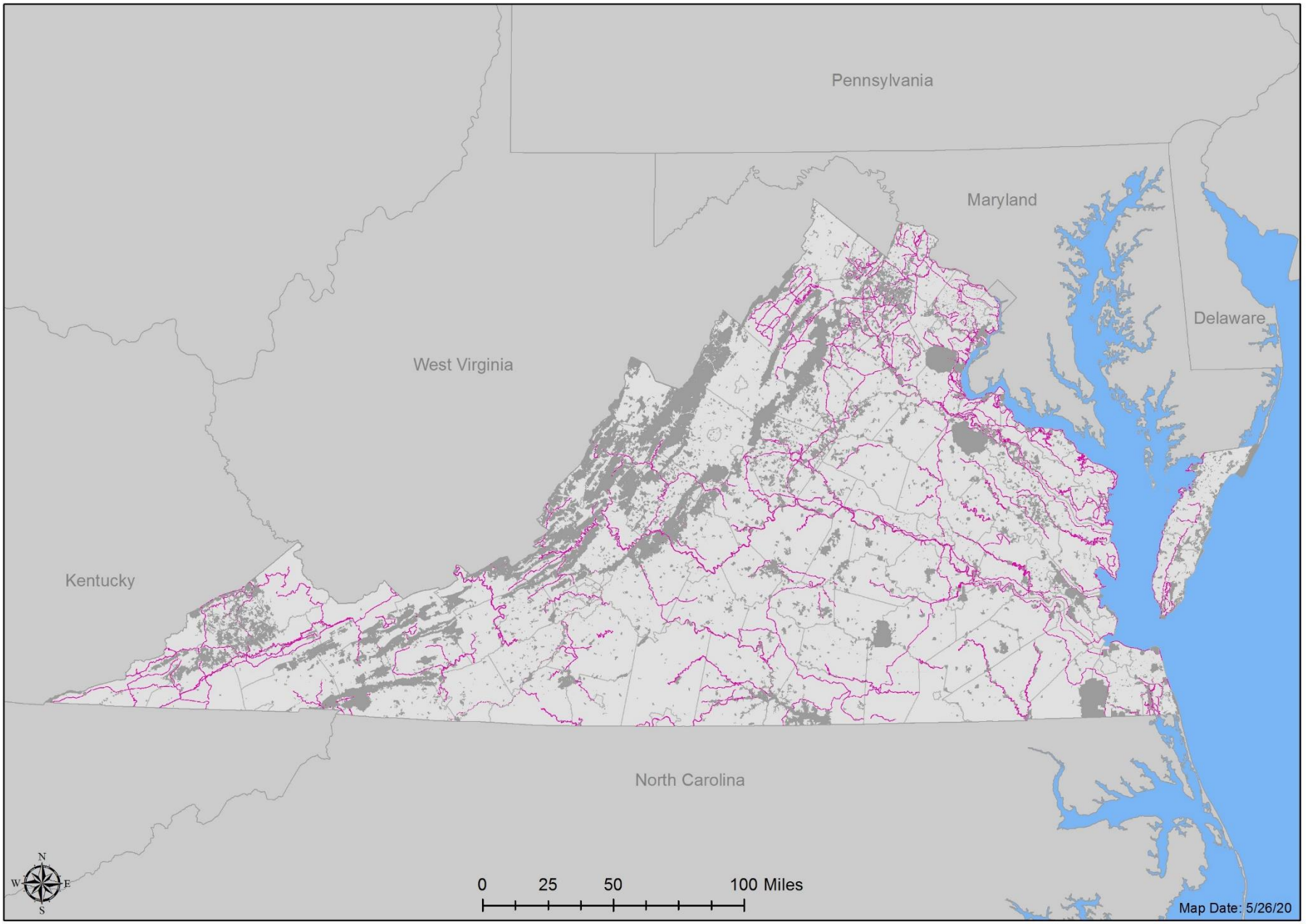
Floodplains and Flooding Resilience Category



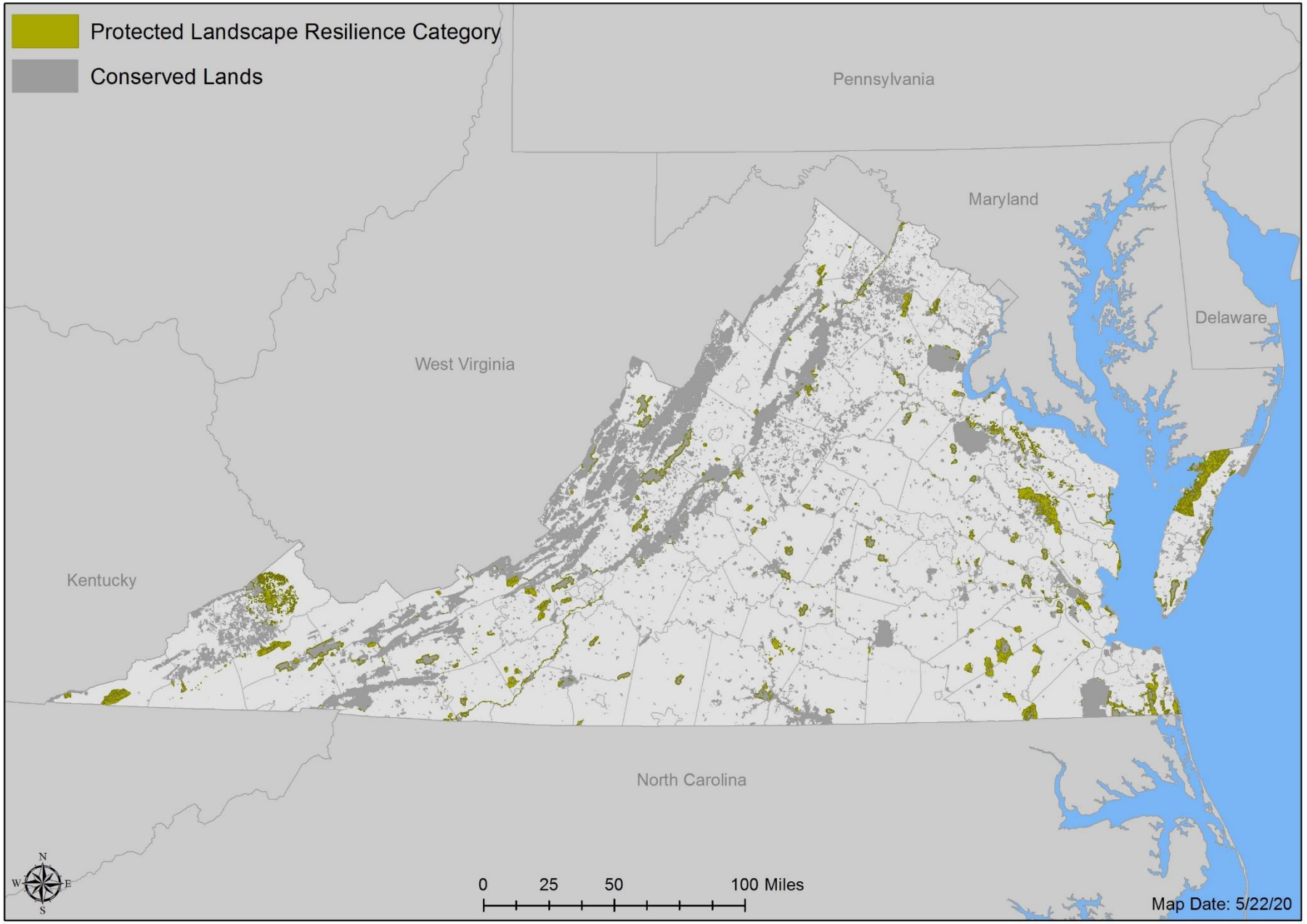
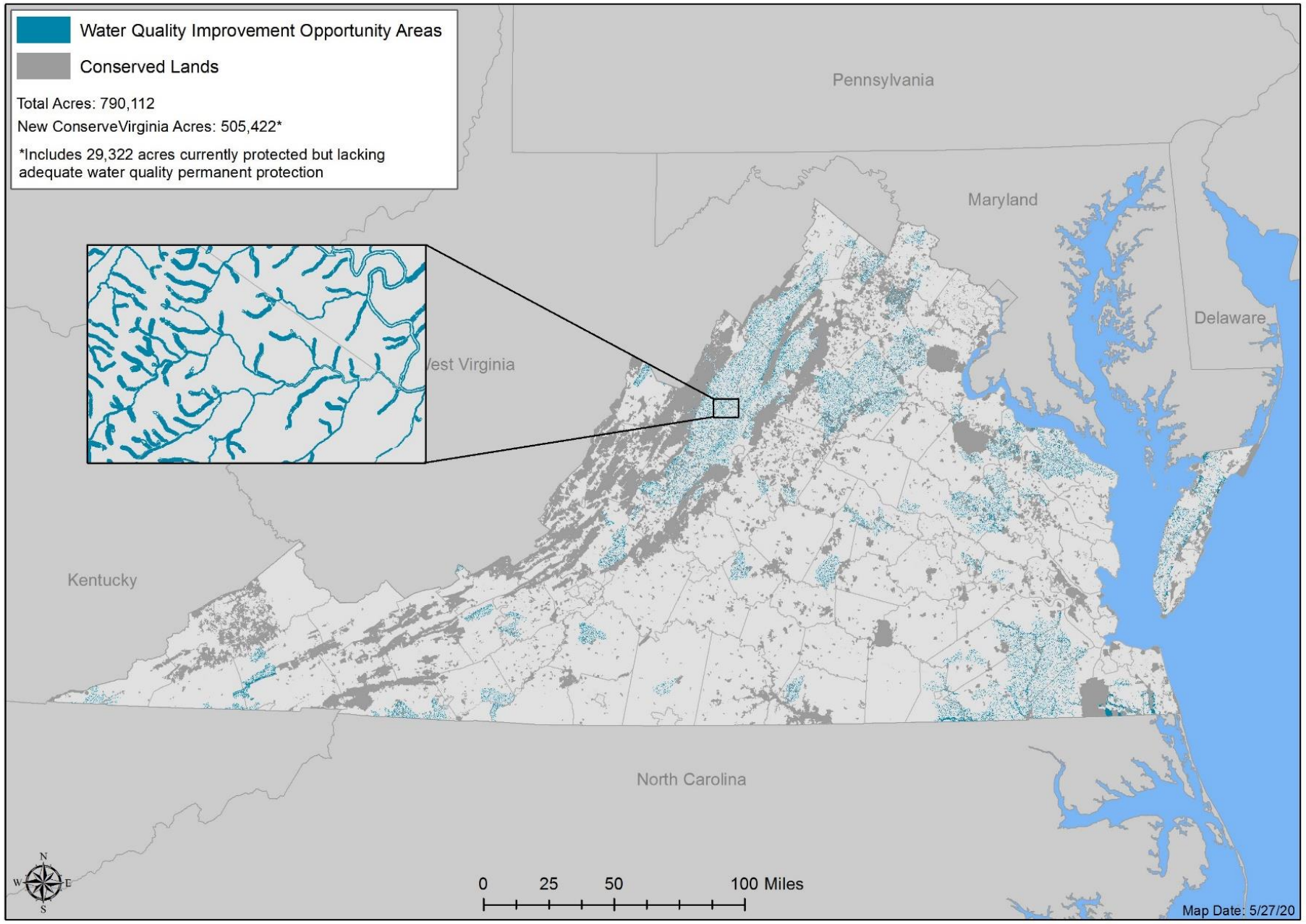
Cultural and Historic Preservation Category



Scenic Preservation Category



Protected Landscapes Resilience Category



Water Quality Improvement