

April 28, 2015

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

RE: Docket Nos. PF15-5-000, PF15-6-000; Notice of Intent to Prepare an Environmental Impact Statement for the Planned Supply Header Project and Atlantic Coast Pipeline Project, and Request for Comments on Environmental Issues.

Dear Ms. Bose:

On behalf of our colleagues at The Nature Conservancy, thank you for the opportunity to provide comments on the scope of the issues to be addressed within the Environmental Impact Statement (EIS) that will be prepared for the Atlantic Coast Pipeline (ACP) and associated projects. These comments are submitted on behalf of The Nature Conservancy state programs in North Carolina, Virginia, and West Virginia as well as the Conservancy's Central Appalachian and Albemarle Sound Whole System Projects.

The Nature Conservancy's Mission and Investment in the Mid-Atlantic

The mission of The Nature Conservancy is to conserve the lands and waters on which all life depends. The Conservancy is a leading conservation organization working in all 50 states and more than 35 countries. We have helped conserve nearly 15 million acres of land in the United States and more than 118 million acres with local partner organizations globally.

The proposed route of the ACP crosses through two areas of deep investment for The Nature Conservancy: the Central Appalachians and Albemarle Sound (Map 1). In these areas, The Conservancy has worked with public agencies, corporations, private landowners, and local communities to undertake land protection, management, and restoration actions across public and private lands. We have worked with others to rigorously develop and implement strategies to protect the best large, intact habitats that will continue to support a diversity of species, in the face of a changing landscape and a changing climate.

The Central Appalachians Whole System Project of The Nature Conservancy was formed to provide organizational capacity to deal with large-scale threats to natural systems that cross state borders and boundaries. For the Central Appalachians, these threats include energy development-related impacts, management of public and private lands incompatible with biodiversity conservation, and the mounting pressure of climate change. The program strives to

provide integrated conservation actions that abate such threats and ensure effective conservation of priority places.

Spanning six states, from central Pennsylvania to northeastern Tennessee, the Central Appalachians are home to one of the most diverse deciduous forests on earth and shelter one of the richest concentrations of endemic plants and animals in North America. The headwaters of the Ohio and Tennessee Rivers – the most diverse river system in North America - emerge here, as do those of the major tributaries to the Chesapeake Bay. The boundaries of the Central Appalachian Whole System encompass one of the three major eastern cave regions which together are a global center of cave species diversity (Christman et al. 2005). In total, this area represents one of the foremost examples of intact, diverse, temperate deciduous forests, and well-connected freshwater systems in the world.

A key partner in conservation efforts in the Central Appalachians is the USDA Forest Service, which manages 3.1 million acres in the whole system including the largest intact forests east of the Mississippi. The proposed route of the ACP crosses both the Monongahela and the George Washington National Forests with which we are actively working on several landscape scale projects including red spruce/high elevation forest restoration, management of forest invasives, pests and pathogens, and restoration of fire-adapted ecosystems. Three major collaborative networks involving over 40 federal, state, academic and private partners have been leveraging significant resources and building capacity to conduct this restoration work, particularly in the Potomac and Allegheny Highlands where the ACP is proposed to cross. These and additional partners are also focused on the management and restoration of key habitats for neotropical migratory birds and forest-dwelling bats.

The Albemarle Sound Whole System spans over 6 million acres in the Piedmont and Coastal Plain provinces of rural northeastern North Carolina and southeastern Virginia. At its core is the largest primarily freshwater estuary on the East Coast, heavily buffered by large intact blocks of forested wetlands and upland forest containing globally-rare northern-range longleaf pine habitat. Like other major estuaries, the riches of Albemarle Sound's fish and wildlife resources have sustained human communities for thousands of years. The Sound is the drowned river valley of the lower Roanoke. One of America's "Great Rivers", the Roanoke flows over 400 miles from its headwaters in the Blue Ridge Mountains of Virginia, across the Piedmont, and into the coastal zone before joining the smaller but biologically rich Chowan River to form the western mouth of the Albemarle Sound.

The riparian forests and extensive cypress-tupelo swamps studded with 500+ year old trees constitute very significant concentrations of intact bottomland hardwood habitat. Albemarle Sound's famed river herring fishery, at one time representing over 10% of the entire Atlantic Coast catch, thrived in the nursery areas found in these forests. Extensive reaches of protected river floodplain stand ready for the return of the great spring herring runs and provide a cascade of benefits for wildlife, water quality, and public recreation.

The ecological importance of the Albemarle Sound's watersheds is reflected in the deep investment made by federal, state and private partners to protect over 850,000 acres of land including over 40% of the National Wildlife Refuges on the eastern seaboard. The Nature Conservancy has been a leader in this conservation effort for over 40 years, helping to protect key holdings such as Great Dismal Swamp and Alligator River National Wildlife Refuges. The Conservancy is now actively engaged with numerous partners to increase the resiliency of these protected lands to climate change through active management and restoration of wetland hydrology and globally-rare forest communities. Collectively, these land protection and management successes are ensuring continued health of the Albemarle Sound's tributaries. Our investments in the Sound's blue and green networks – its freshwater and forest frameworks – are critical to the maintaining and improving the Sound's resiliency for the benefit of future generations.

Take a Programmatic Approach to Pipeline Review

As stated in FERC's Notice of Intent (NOI) "the ACP Project would involve the construction and operation of 554 miles of variable diameter natural gas pipeline in West Virginia, Virginia, and North Carolina. The pipeline facilities associated with the ACP Project would be comprised of four main components as follows:

- approximately 295.6 miles of 42-inch-diameter pipeline in Harrison, Lewis, Upshur, Randolph, and Pocahontas Counties, West Virginia; Highland, Augusta, Nelson, Buckingham, Cumberland, Prince Edward, Nottoway, Dinwiddie, Brunswick, and Greenville Counties, Virginia; and Northampton County, North Carolina;
- approximately 179.9 miles of 36-inch-diameter pipeline in Northampton, Halifax, Nash, Wilson, Johnston, Sampson, Cumberland, and Robeson Counties, North Carolina;
- Approximately 75.7 miles of 20-inch-diameter lateral pipeline in Northampton County, North Carolina; and Greenville, Southampton, Suffolk, and Chesapeake Counties, Virginia; and approximately 3.1 miles of 16-inch-diameter natural gas lateral pipeline in Brunswick County, Virginia."

In its pre-filing letter to FERC, Atlantic Coast Pipeline LLC indicated its desire to commence construction activities in the fall of 2016, and a planned in-service date in the fall of 2018.

In addition to the ACP, The Conservancy is aware of three other pipeline projects in the region:

- 1) Mountain Valley Pipeline, LLC, has pre-filed with FERC for a Certificate of Public Convenience and Necessity to construct and operate the proposed **Mountain Valley Pipeline Project**, an approximately 294.1-mile, 42-inch diameter natural gas pipeline located in 16 counties in West Virginia and Virginia. The stated purpose of the project is to deliver gas from the Marcellus and Utica production areas to Transcontinental Gas Pipe Line Company, LLC (Transco) Zone 5 compressor station 165 to serve markets in the Mid-Atlantic, Southeast and Appalachian regions. In its pre-filing letter, the applicant indicated their desire to commence construction activities in January 2017.

- 2) Columbia Gas Transmission, LLC has pre-filed with FERC for a Certificate of Public Convenience and Necessity to construct and operate the proposed **WB XPress Project**. The WB XPress Project would involve the construction and operation of approximately 30 miles of various diameter pipeline, modifications to seven existing compressor stations, construction of two new compressor stations, and uprating the maximum allowable operating pressure on various segments of the WB pipeline system. All project components would be located in West Virginia and Virginia. The stated purpose of the project is to provide an additional 1.3 billion cubic feet per day of capacity for bi-directional firm transportation service to markets in western West Virginia and northern Virginia. In its pre-filing letter, Columbia has requested that FERC staff review the Project on a timeline that allows for construction activities to commence in early 2017.
- 3) On its company [website](#), Williams has announced that it is in the preliminary planning stages for the **Appalachian Connector** project (formerly called the Western Marcellus project). Williams is in the early stages of performing desktop analysis to identify a study area for the potential route, which would extend from the Rockies Express pipeline near Clarington, Ohio, and Williams Oak Grove processing plant in Marshall County, West Virginia, to Transco's compressor station 165 in Chatham, Virginia. This project is an expansion of the Transco pipeline designed to move up to 2 billion cubic feet of natural gas per day by late 2018.

Each of these four projects is designed to transport shale gas from the Utica and Marcellus plays to customers in the eastern and southeastern U.S. and each must in some manner cross the rugged and ecologically sensitive terrain of the Appalachian Mountains. In light of the similarities in purpose, nature of environmental concerns, and timeline among these projects, and in order to meet the requirement that FERC consider cumulative impacts, The Nature Conservancy strongly urges FERC to consider the ACP, the Mountain Valley Pipeline, the WB XPress Project, and the Appalachian Connector under a Programmatic Environmental Impact Statement (PEIS) that would simultaneously consider the purpose and need of each project, the cumulative impacts of these projects on the Central Appalachian Region, and the optimal combination and alignment of pipelines to deliver gas from the Marcellus and Utica shale gas plays to eastern and southeastern markets. Our request is consistent with the Council on Environmental Quality (CEQ) Guidance on "Effective use of Programmatic NEPA Reviews" issued on December 18, 2014, which states that a programmatic NEPA review may be appropriate when an agency is approving multiple actions, for example "Several similar actions or projects in a region."

A Programmatic and tiered NEPA review is clearly the most efficient means by which to conduct cumulative assessments of impacts from the suite of recently proposed projects and from additional pipelines that are a reasonably foreseeable result of the presence of a large reservoir of natural gas in the Marcellus and Utica formations and limited supply in the southeastern U.S. Again, as stated in the CEQ Guidance, "one advantage of preparing a programmatic NEPA review for repetitive agency activities is that the programmatic NEPA review can provide a starting point

for analyzing direct, indirect, and cumulative impacts. Using programmatic NEPA reviews allows an agency to subsequently tier to this analysis, and analysis narrower, site- or proposal specific issues. This avoids repetitive broad level analyses . . . and provides a more comprehensive picture of the consequences of multiple proposed actions.”

Analysis of different alignments and alternatives from multiple pipelines would also streamline evaluation consistent with George Washington National Forest land and resource management plan direction for special use authorizations and utility corridors to: “Locate uses where they minimize the need for additional designated sites and best serve their intended purpose. Require joint use on land when feasible.” The Monongahela National Forest plan has similar direction requiring that: “Proposals for utility and communication facilities outside existing sites or corridors shall be considered only after improvement or expansion of existing facilities is determined to be inadequate or impractical.”

Such a process also affords FERC a transparent and streamlined opportunity to evaluate the total demand for gas that infrastructure will be needed to meet. The Nature Conservancy strongly recommends that FERC develop a Final PEIS for mid-Atlantic shale gas pipelines prior to the issuing of a Certificate of Public Convenience and Necessity for any of the proposed mid-Atlantic pipeline projects.

Development of such a programmatic approach should, we suggest, include the USDA Forest Service (USFS) U.S. Fish and Wildlife Service (FWS) and could be modeled on similar programmatic efforts, such as the [PEIS for Solar Energy Development in Six Southwestern States](#) (Solar PEIS) undertaken by The Office of Energy Efficiency and Renewable Energy (EERE), Department of Energy (DOE) and the Bureau of Land Management (BLM), Department of the Interior (DOI). The purpose of the Solar PEIS was to evaluate utility-scale solar energy development, develop and implement agency-specific programs or guidance that would establish environmental policies and mitigation strategies for solar energy projects, and to amend relevant BLM land use plans with the consideration of establishing a new BLM Solar Energy Program.

Consider Cumulative impacts of Reasonably Foreseeable Actions

Cumulative impacts result from the incremental effect of the action when considered in light of other past, present, and reasonably foreseeable actions (40 C.F.R. §1508.7). Consideration of cumulative impacts allows for avoidance, minimization, and compensation for impacts that individually may be minor but over time and in concert with other activities may be significant.

In the absence of a PEIS, FERC should include in its analysis the pipeline routes cited above in the project specific analysis for the ACP. While we do not believe this is as efficient as undertaking a PEIS, this approach would allow evaluation of the cumulative impacts of multiple projects, as well as the cumulative need for each project.

Take a Landscape Approach to Mitigation for the Proposed ACP

Landscape-scale application of the mitigation hierarchy (avoidance, minimization, and measures to offset or compensate) for energy and other infrastructure development is a focus of the President's Executive Order 13604 and the subsequent May 2013 Presidential Memorandum (PM) on "Modernizing Federal Infrastructure Review and Permitting Regulations, Policies, and Procedures." The PM identifies as a best management practice, "utilizing landscape- and watershed-level mitigation practices."

To fulfill our mission in the 21st century, The Nature Conservancy has made landscape scale application of the mitigation hierarchy a global priority which we implement through an approach called Development by Design (DbD). The science behind this approach is well-established and documented in the peer-reviewed literature ([Kiesecker, et. al., 2009](#); [Kiesecker, et. al., 2010](#)). Through this approach we can provide a holistic view of how potential development conflicts with natural systems and the people, wildlife, and wildlife habitats that depend upon them. The Conservancy is working with partners to apply the full mitigation hierarchy to energy projects in areas as diverse as Australia, Colombia, Mongolia and the United States.

We believe that the ACP permitting process can utilize this framework by undertaking the following actions:

- Taking a landscape-scale approach to identifying priorities for avoidance, minimization, and compensatory mitigation;
- Observing the full mitigation hierarchy of avoiding, minimizing, and compensating for unavoidable impacts; and
- Taking full advantage of existing authorities to require compensation for critical resources.

Priorities for Avoidance, Minimization, and Compensatory Mitigation along the Proposed ACP Pipeline Route

Areas of Conservation Investment and Critical Habitats

We have previously written to Dominion, lead applicant for the ACP, to provide specific information regarding TNC preserves, easements, and conservation priorities that lie within a four-mile buffer of the route centerline, current as of September, 2014. Specifically we notified Dominion that our assessments suggest the pipeline project has potential to intersect many sites identified as Critical Habitats for conservation including seven preserves owned and managed by The Nature Conservancy, and eleven tracts over which the Conservancy holds conservation easements. The Nature Conservancy requested that Dominion ensure the final preferred alternative for the Atlantic Coast Pipeline avoids all preserves, easements and Critical Habitats for conservation.

Each preserve or easement was established for a specific conservation purpose, which is detailed in Table 1, and has been the target of significant financial investment by The Nature Conservancy and our conservation partners. It is important to note that the term “Critical Habitats” is not used here in the same way as it is generally used by the U.S. Fish and Wildlife Service (FWS). Instead, The Conservancy has used this term for designated areas with high biodiversity value, consistent with the definitions of Critical Habitats as outlined in the [International Finance Corporation Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources](#). Critical Habitats includes occurrences of Federally Listed Endangered or Threatened species, and endemic and/or restricted range species, as well as highly threatened and unique ecosystems, and areas associated with key evolutionary processes. Within the region affected by this project, the dataset identifies large patches of intact forest, cave and karst, and riparian habitats areas of high conservation significance. The Conservancy’s current delineation of Critical Habitats for the Central Appalachian Region is shown in Map 2, and can also be viewed and downloaded from our [web map server](#).

Within the Central Appalachians Whole System project we note three areas of very high concern that could be adversely affected by the proposed ACP project route: 1) Cheat Mountain; 2) Laurel Fork; and 3) the Sugarloaf Mt / Rockfish / Shields Gap Complex. These areas are mapped in Map 3.

Area 1, Cheat Mountain, is a flagship conservation area of our West Virginia program. Our ownership on Cheat Mountain is limited to the approximately 100 acre Upper Shavers Fork Preserve that protects red spruce swamps, and forests that are high quality potential habitat for the federally listed threatened Cheat Mountain salamander, the recently delisted West Virginia northern flying squirrel, as well as known occurrences of 5 other globally rare species. This holding should not be viewed in isolation, as it provides the basis for ongoing work with 60,000 acres on the adjacent Monongahela National Forest and with the historic Cheat Mountain Club. Our priority conservation area is represented by the green outline on panel 1 of Map 3. In addition to our preserve and easement, our work on Cheat Mountain has included retiring surface mineral rights on the National forest and spearheading the formation of the [Central Appalachians Spruce Restoration Initiative](#). Over \$1.6 million dollars have been leveraged to restore and protect this high elevation ecosystem since 2009. The concerns raised in our correspondence to Dominion were echoed in a December 9, 2014 letter to Dominion from the WV Field Office of the US Fish and Wildlife Service which states that “the Service highly recommends avoiding Cheat Mountain”.

Area 2 is the Laurel Fork Highlands. The habitats at Laurel Fork are similar to those on Cheat Mt, and are among a very few occurrences of high elevation red spruce and northern hardwoods forest in Virginia. These forests provide habitat for a diversity of animals and plants which are rare in the Commonwealth of Virginia including snowshoe hare, northern flying squirrel, and breeding neotropical songbirds. Our 1,680-acre Rifle Ridge Farm easement includes approximately two miles of Laurel Fork, an exemplary, high elevation cold water

stream that drains into the Shenandoah and Potomac River Basins and the Chesapeake Bay Watershed, providing habitat for native brook trout, and other characteristic aquatic species. Collectively, this easement and our 370-acre preserve contain at least 23 records of Natural Heritage element species or communities. The Nature Conservancy has a decades-old partnership with adjacent landowners to protect this area, and the critical habitats surrounding our legal interest support similar rare and unique habitats and wildlife.

Area 3 is a complex of preserves and easements that captures a biological transition from the Piedmont to the Blue Ridge Mountains. Our 1,000-acre Fortunes Cove preserve is a popular hiking destination and supports a globally rare glade community. The Shields Gap Forest Block contains over 11,000 acres of contiguous, interior forest habitat, while the Sugarloaf Forest Block contains over 28,000 acres of contiguous interior forest habitat – one of the largest patches of hardwood forest anywhere in the Piedmont region. Again, the conservation purpose of these preserves and easements is not met exclusively within the bounds of currently conserved lands, but rather within the critical habitats that represent the best opportunity for long term sustainability of native diversity over time. We have acquired 2,500 acres of easements to preserve unfragmented, interior forest, and we are engaged with these easement landowners to restore native forest habitat by eliminating invasive tree species.

In the Albemarle Sound Whole System our current state of knowledge regarding critical habitats is not as developed as it is in the Central Appalachians. Nonetheless, we have delineated areas of large intact wetland and floodplain forests that support high levels of use by migratory and breeding birds (Buler and Dawson 2014) and buffer some of the best migratory fish spawning and nursery habitats on the East Coast ([see here for details of the Conservancy's Atlantic Coast Diadromous Fish Assessment](#)). Area 4 on Map 3, indicates the floodplain forest areas of the Meherrin River and Fountains Creek watersheds traversed by the proposed pipeline alignment where the Conservancy has several active land conservation projects. The proposed alignment will also cross the north end of the 114,000-acre Great Dismal Swamp National Wildlife Refuge (area 5) that the Conservancy helped establish in 1974 and where we are actively assisting the U.S. Fish and Wildlife Service with restoration actions. Again we ask that the Atlantic Coast pipeline avoid not only our legal interests, but also the intact bottomland hardwood forests we have identified as critical habitats.

The Nature Conservancy has not yet undertaken a Critical Habitats assessment of the Piedmont, and as such we did not make specific requests for adjustments to the pipeline route through central VA or NC in our correspondence with Dominion. However, we have previously conducted an [Ecoregional Assessment of the Piedmont](#) to delineate essential populations of rare and endangered species and high conservation priority forests, as well as an assessment of aquatic habitat conservation priorities that can be seen in Map 4 and accessed [here](#).

Sites Resilient to Climate Change Impacts

The Nature Conservancy has analyzed and reported ([Anderson et al 2014](#), [Anderson et al, 2012](#); [see here for related work](#)) on an approach to species conservation in the face of a changing

climate that focuses on inherent site resilience. We use the term “site resilience” (modified from Gunderson 2000) to refer to the capacity of a site to adapt to climate change while still maintaining diversity and ecological function. We have sought to identify key areas for conservation across the Eastern U.S. based on land characteristics that increase diversity and resilience.

These characteristics fall into two categories. The first, landscape diversity, refers to the number of microhabitats and climatic gradients available within a given area. Landscape diversity is measured by counting the variety of landforms, the elevation range, and the density and configuration of wetlands present in a small area. Because topographic diversity buffers against climatic effects, the persistence of most species within a given area increases in landscapes with a wide variety of microclimates (Weiss et al. 1988). Local connectedness, the second factor, is defined as the number of barriers and the degree of fragmentation within a landscape. A highly permeable landscape promotes resilience by facilitating range shifts and the reorganization of communities. Roads, development, dams, and other structures create resistance that interrupts or redirects movement and, therefore, lowers the permeability. Maintaining a connected landscape is the most widely cited strategy in the scientific literature for building resilience (Heller and Zavaleta 2009) and has been suggested as an explanation for why there were few extinctions during the last period of comparable rapid climate change (Botkin et al. 2007).

Map 5 shows the relationship between areas that exhibit above average characteristics of resilience and the proposed ACP route as well as the three other projects referenced above. As noted above, the activity of traversing a relatively unfragmented area with a structure that requires a permanent change in habitat condition diminishes the connectedness and therefore resiliency of the site. It is immediately apparent that each of these projects has the potential to adversely affect sites that currently possess attributes that would tend to make them resilient to climate change. The Nature Conservancy requests that FERC consider the loss of site resilience to climate change consequent to an interruption in connectedness within large patches of intact habitats to be an indirect effect of pipeline construction within the scope of its EIS. This is consistent with draft guidance issued on December 18, 2014 by CEQ on “Consideration of Greenhouse Gas Emissions and the Effects of Climate Change”, which counsels agencies to consider alternatives that are more resilient to the effects of a changing climate.

Migratory Birds

The Nature Conservancy is a partner in both the [Appalachian Mountain](#) and [Atlantic Coast](#) Joint Ventures. Migratory Bird Joint Ventures are cooperative, regional partnerships that work to conserve habitat for the benefit of birds, other wildlife, and people. There are twenty-two habitat-based Joint Ventures, each addressing the bird habitat conservation issues found within their geographic area. The proposed ACP project route would traverse habitats known to be important to migratory birds including very large patches of intact interior forest, riparian forests, and large patches of intact bottomland hardwood forest, as well as focal conservation

areas for cerulean warbler, a [priority species](#) within the Appalachian Mountain Joint Venture (AMJV). We have identified exemplary occurrences of these habitat types within the Central Appalachians and the Albemarle Sound in the Critical Habitats assessment described above.

The Migratory Bird Treaty Act (MBTA), first passed in 1918 and later amended, makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to Federal regulations. In 2001, President Clinton issued Executive Order (EO) 13186, which clarifies the responsibilities of federal agencies with respect to the Migratory Bird Treaty Act and directs the agencies to, among other things, develop memoranda of understanding (MOU) with the U.S. Fish and Wildlife Service to support the objectives of MBTA and its related conventions. In March 2011, FERC entered into such an MOU with USFWS: *Memorandum of Understanding Between the Federal Energy Regulatory Commission and the U.S. Department of the Interior United States Fish and Wildlife Service Regarding Implementation of Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds"*. The MOU calls for FERC applicants to provide compensatory mitigation not only for impacts to migratory birds, but for impacts to their habitat as well and directs applications to develop "project-specific conservation measures" with USFWS during the pre-filing and/or initial planning phases of projects. The MOU language is also quite broad in what it covers, including migratory birds and their habitats with an emphasis on (but no restriction to) species of conservation concern; identification and evaluation of direct, indirect, and cumulative effects; and full consideration of seasonal habitats (breeding, migrating, roosting, over-wintering).

With regard to the ACP, we focus particular attention on the provisions of the MOU defining FERC's responsibilities to include:

F.4. Address migratory birds and their habitats, where appropriate, with emphasis on, but not exclusive to, species of concern, in the scope of any environmental review, including the NEPA analysis. This review shall include, as necessary, identifying and evaluating:

- a. Direct, indirect, and cumulative effects, of the proposed action on migratory birds, including take, and detrimental alteration of important habitats such as breeding, migrating, roosting, or over-wintering habitats using best available demographic, population, or habitat association data. Where the potential for impacts on raptors or other species of concern is likely, require applicant to conduct pre-application surveys to facilitate the evaluation of effects to migratory birds and their habitats.
- b. Reasonable modifications and alternatives to the proposed action that avoid or minimize take.

The Nature Conservancy urges both the FWS and FERC to fully utilize the MOU Regarding "Responsibilities of Federal Agencies to Protect Migratory Birds": to identify, avoid, and minimize impacts to migratory birds and their habitat, including large patches of intact forest.

Cave and Karst Resources

Other EIS documents prepared by FERC have addressed karst geology as a geologic hazard; e.g. the Ruby (CP09-54-000) and Constitution Pipelines (CP13-499-000 and CP13-502-000). Recommendations typically appear to entail requirements to minimize the risk of groundwater contamination through spills, and substrate instability through blasting. As we have noted above, the Ridge and Valley physiographic province through which this and other pipeline projects are proposed to traverse includes a large amount of karst geology, and is dense with biologically significant cave and karst systems (Map 6).

The Conservancy's Central Appalachians Critical Habitats Assessment includes 1,065,120 acres of modeled and verified cave occurrences that constitute priorities for conservation. Due to their subterranean nature and the cryptic intersections of groundwater flow, conservation areas for these habitats are very difficult to map. In 2007, the Conservancy mapped potential cave systems within a subsection of the Central Appalachians, based on karst geology. Each potential cave was evaluated with respect to its size, condition, landscape context and known biodiversity value then prioritized for conservation action using a standardized ranking method followed by expert review. This is the best cave and karst conservation area dataset we are aware of, although we expect it to be superseded by an effort currently being led by Dr. David Culver of the American University: "[Classification and Georeferencing Cave/Karst Resources across the Appalachian Landscape Conservation Cooperative](#)". The Conservancy requests that FERC and Dominion use the best available data, expert consultation, and field inventory to identify and avoid impacts to biologically significant cave systems along this and all other mid-Atlantic shale gas pipeline routes.

Priority River and Stream Systems

As mentioned above, The Nature Conservancy worked with experts to identify the streams, rivers, and lakes that would need to be conserved to protect all the representative native biodiversity in a given [freshwater ecoregion](#). (Map 4) The general approach for such an assessment is to select and set conservation goals for a set of targets that combined represent the native biodiversity of the freshwater ecoregion. Known occurrences of these targets are mapped and evaluated for viability, and occurrences are selected to meet goals based on the principles of efficiency and complementarity. The Conservancy requests that impacts to priority streams and rivers identified through the freshwater ecosystem assessment be avoided by routing the pipeline to minimize the total number of stream crossings and - where appropriate and not in conflict with karst resources – minimized through the use directional drilling techniques.

In conversations with Dominion and other companies proposing mid-Atlantic shale gas pipelines, we have often heard comments regarding the challenges associated with constructing such a large diameter pipeline through such rugged terrain (Map 7). It has been suggested to U.S. that the two projects most similar to the ACP in terms of engineering and construction challenges are the Ruby Pipeline (cited above) which entailed 675.2 miles of 42-inch-diameter pipeline to transport from suppliers in the Rocky Mountain region to customers

in Nevada and on the West Coast, and the Rockies Express - a 1,679-mile natural gas pipeline system intended to bring gas from the Powder River Basin in Colorado to then gas limited markets in Ohio.

A significant difference between projects originating in the Rocky Mountains and those traversing the Appalachians is the abundance of precipitation in the east. The topographical complexity and roughness of the terrain through which the ACP will travel and the industry-wide lack of experience constructing such a pipeline through this sort of terrain in a humid climate suggest that erosion and sedimentation impacts are very likely. The Conservancy requests that FERC and Dominion comprehensively evaluate potential impacts to ground and surface waters due to sedimentation and erosion from high intensity rain events during construction. The Conservancy further requests that recommended methods for minimizing anticipated impacts are of demonstrated effectiveness on pipeline construction projects in similar terrain and climate with similar diameter pipe.

Species of Particular Concern

The West Virginia, Virginia, and North Carolina Field Offices of the FWS have submitted project review letters to Dominion detailing Federally Listed, Petitioned, and Candidate species, as well as Federal Species of Concern. We incorporate their concerns by reference, as well as those of the Heritage Programs and wildlife agencies of the affected states.

These comments on scoping have thus far mostly focused on landscape scale impacts that would affect not just a specific occurrence of a species, but the size, quality, and connection of habitats for various vulnerable species across the landscape. We are also concerned about particularly vulnerable species. In addition to migratory birds, and cave and spring obligate species we have mentioned above, The Conservancy requests that the scope of the EIS address mitigation of landscape scale impacts to:

- Eastern tree bats which are known to be in precipitous decline due to white nose syndrome;
- Salamanders for which the Appalachians are a global center of endemism, including the endemic Cow Knob salamander which is documented on both sides of the proposed ACP pipeline route in Virginia and the endemic (and Federally Listed Threatened) Cheat Mountain salamander;
- Eastern brook trout, which are an important indicator of high quality coldwater habitat and are vulnerable to extirpation from climate change;
- Bald and golden eagles, both of which have expanded breeding or wintering ranges to the Potomac and Allegheny Highlands, and which depend upon the Appalachian ridges as migratory corridors.
- Diadromous fish, for which the many of the coastal plain rivers in eastern Virginia and North Carolina are important strongholds.

Observe the Full Mitigation Hierarchy

The White House Council on Environmental Quality defines the mitigation hierarchy to include, in order of preference, avoidance, minimization, and measures to offset or compensate for

unavoidable impacts (40 CFR § 1508.20). In the context of the EIS for the ACP, The Nature Conservancy requests that avoidance of both direct and indirect impacts be demonstrated by the applicant, and that any finding that avoidance is not reasonably practicable be supported by transparent, quantitative, and repeatable analyses. For instances where a substantive finding is made that avoidance is not practical, all effort should be made to minimize impacts to the greatest practical extent. The Conservancy further requests that the recommendations for impacts compensation adhere to the following principles:

- Landscape Context: the mitigation hierarchy should be applied in a landscape context.
- Additionality: offsets should provide a new contribution to conservation, additional to what would have occurred without the offset.
- Equivalence: offsets should provide ecologically equivalent values as those lost to project impacts.
- Location: offset benefits should accrue in the project-affected region.
- Timing and Durability: offsets should protect against temporal loss and should be durable.

Alternatives Analysis

One mechanism by which to demonstrate application of the mitigation hierarchy is through the promulgation of alternatives that avoid and minimize impacts to resources of concern.

The Nature Conservancy requests that the set of alternatives under consideration be expanded. As mentioned above, The Conservancy provided Dominion with information regarding the location of our preserves, easements, and critical habitats in September of 2014. We are extremely gratified that Dominion has, since that time, publicized route variations that would avoid impacts to most of the areas of concern indicated in our correspondence.

We continue to express serious concerns regarding the segment of the proposed pipeline that crosses Cheat Mountain in West Virginia. As noted above, this is an ecologically sensitive area that supports Federally Listed Threatened species and has been a target of significant investment by the Conservancy and State and Federal partners. Dominion argues that the route variations that avoid Cheat Mountain are of dubious constructability. If that is the case then The Conservancy calls upon Dominion and FERC to propose a constructible alternative that avoids Cheat Mountain, its globally significant biological resources, and the public and private investments that have been made to protect them.

Our second request is that the comparison of impacts among alternatives expand beyond the simple measure of miles of pipeline within a given resource type - as shown in Resource Report 10. Specifically, the Conservancy requests that the EIS quantify the area, rather than the length of a resource, that would be affected along an alternative within the temporary construction corridor, the permanent right-of-way, and along necessary new access roads. We have suggested some metrics we believe are appropriate to consider for natural resource impacts in Table 2. We further request that the EIS evaluate impacts to USFS lands according to the consistency of the introduction of linear infrastructure with management area objectives and

desired conditions stated within the area's resource management plan. This should also apply to other public lands to the extent that they have a spatially explicit management plan.

Take Full Advantage of Authorities to Require Compensation

We believe that FERC should take full advantage of existing authorities to require compensation for critical resources, including migratory bird habitat. In several regions of the country, FERC has relied on its MOU with FWS regarding "Responsibilities of Federal Agencies to Protect Migratory Birds" to assert the need for applicants to develop a Migratory Bird Conservation Plan in coordination with USFWS, outlining avoidance, minimization, and compensatory mitigation measures for impacts to migratory birds and migratory bird habitat. The Nature Conservancy recommends that FERC take full advantage of the MOU to require the project proponent to develop a Migratory Bird Conservation Plan in coordination with USFWS and include identified mitigation measures (avoidance, minimization, and compensatory mitigation) in the final EIS and ROD.

FERC has also encouraged pipeline applicants to develop mitigation plans for other critical resources for which impacts are anticipated. For example, in October 2014, FERC issued the [Final EIS the Constitution Pipeline](#) (CP13-499-000 and CP13-502-000). The EIS notes that the proposed pipeline would have both direct impacts on interior forest tracts by the proposed clearing during construction and maintenance operations and indirect impacts. Constitution filed a preliminary "Migratory Bird and Upland Forest Plan" in advance of the Final EIS, which details impacts on upland forest habitat, Constitution's valuation of these habitat impacts, and measures proposed to reduce impacts and offset temporary and permanent impacts through conservation. The Final EIS states that "Prior to construction, Constitution should file with the Secretary for review and written approval of the Director of OEP a final Migratory Bird and Upland Forest Plan developed in consultation with the FWS" and state resource agencies. The Nature Conservancy recommends that FERC require the Dominion to develop mitigation plans for similarly critical resources likely to be impacted by the proposed project, such as contiguous forests. Such plans should be developed in coordination with USFWS and relevant state resource agencies and should be included identified mitigation measures (avoidance, minimization, and compensatory mitigation) in the final EIS and ROD.

Conclusion and Summary

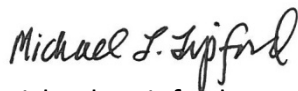
The Nature Conservancy's overarching recommendation is that **FERC consider the ACP, in conjunction with the Mountain Valley Pipeline, the WB XPress Project, and the Appalachian Connector under a Programmatic Environmental Impact Statement (PEIS)** that would simultaneously consider the purpose and need of each project, the cumulative impacts of these projects on the Central Appalachian Region, and the optimal combination and alignment of pipelines to deliver gas from the Marcellus and Utica shale gas plays to eastern and southeastern markets, **and that the PEIS be completed prior to issuing a Certificate of Public Convenience and Necessity for the proposed ACP.**

In addition, we request that, within the EIS for the ACP:

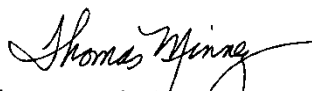
- In the absence of a PEIS, FERC include reasonably foreseeable actions in its project specific analysis for the ACP;
- The recommended alternative for the Atlantic Coast pipeline avoid all preserves, easements and Critical Habitats for conservation;
- The loss of site resilience to climate change consequent to an interruption in connectedness within large patches of intact habitats is considered to be an indirect effect of pipeline construction to be mitigated;
- the FWS and FERC fully utilize the MOU Regarding Implementation of Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds";
- best available data, expert consultation and field inventories for biologically significant caves and springs be conducted to ensure avoidance of impacts to such systems;
- Impacts to surface waters be avoided to the greatest extent possible, and recommended minimization strategies are based upon techniques shown to have been effective in projects in similar terrain, climate, and of comparable scale;
- Avoidance of both direct and indirect impacts be demonstrated by the applicant, and supported by robust, quantitative, and repeatable analyses;
- Compensatory mitigation recommendations consider landscape context, are in addition to business as usual and equivalent to functions and values lost, are located to benefit the area in which impacts occurred, incorporate temporal loss of functions and values, and are durable over time.
- Dominion and FERC propose a constructible alternative that avoids Cheat Mountain;
- The area, rather than the length, of resources that would be affected along an alternative within the temporary construction corridor, the permanent right-of-way, and along necessary new access roads be quantified;
- Impacts to public lands are evaluated according to the consistency of the introduction of linear infrastructure with management area objectives and desired conditions stated within the area's resource management plan.

Thank you for the opportunity to provide comments to FERC on this important issue. If you have any questions about these comments, please contact Judy Dunscomb, Senior Conservation Scientist at jdunscomb@tnc.org or (434) 951-0573.

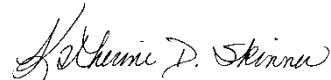
Sincerely,



Michael L. Lipford
Virginia Executive Director and
Mid-Atlantic Lead State
Director



Thomas Minney
West Virginia State
Director



Katherine D. Skinner
North Carolina State
Director

Enclosures

Cc: Pam Faggert, Vice President & Chief Environmental Officer, Dominion Resources
Clyde Thomson, Forest Supervisor, Monongahela National Forest
Thomas Speaks, Forest Supervisor, George Washington and Jefferson National Forests
Jennifer Adams, Project Coordinator, USFS
Wendi Weber, Regional Director, USFWS Region 5
Cindy Dohner, Regional Director, USFWS Region 4
Cindy Shulz, Field Supervisor, USFWS Virginia Field Office
John E. Schmidt, Field Supervisor, USFWS West Virginia Field Office
Pete Benjamin, Field Supervisor, USFWS North Carolina Field Office
Michelle B. Lakly, Eastern US Division Director, The Nature Conservancy
Nels C. Johnson, N. American Energy by Design Project Director, The Nature Conservancy

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Table 1: Detailed information regarding The Nature Conservancy's preserve and easement holdings within the Planning Corridor for the Atlantic Coast natural gas pipeline.

Area Name	TNC Interest	Conservation Purpose
Roanoke River Islands (NC)	Preserve	The Roanoke River Fall Line Islands Preserve contains over 73 acres of coastal plain levee and bottomland hardwood forests across 8 islands in Northampton, Co. NC and represents a significant proportion of the remaining islands not inundated due to the Roanoke Rapids and Gaston reservoirs.
Sugg's Millpond (NC)	Easement	Suggs Mill Pond Game Land is 10,838 acres owned and managed by the NC Wildlife Resources Commission in Bladen and Cumberland Counties that includes the 600-acre Horseshoe Lake which is dominated by stands of cypress trees, floating bog mats, and many yellow pitcher plants.
Great Dismal Swamp NW (VA)	Preserve	The Conservancy's preserve 80 acre preserve at the northwest corner of the Great Dismal Swamp was protected with funds from the Virginia Wetlands Restoration Trust Fund, to restore wetlands habitat adjacent to the Great Dismal Swamp National Wildlife Refuge. The Great Dismal Swamp is home to more than 200 species of birds and one of the last remaining stands of Atlantic white cedar. Two-thirds of all species that occur in Virginia are found in the Swamp, including butterflies and skippers, frogs, snakes, and turtles and more than 330 plant species. The refuge's population of black bears is one of the largest populations on the eastern seaboard.
Laurel Fork (VA)	Preserve and Easement	Rifle Ridge Farm Easement and Laurel Fork Highlands Preserve contain rare high elevation forest community types such as red spruce and northern hardwoods that provide habitat for snowshoe hare, northern flying squirrel breeding neotropical songbirds, and a diversity of animals and plants which are both rare and common in the Commonwealth of Virginia. Rifle Ridge Farm contains approximately two (2) miles of Laurel Fork, an exemplary, high elevation cold water stream that drains into the Shenandoah and Potomac River Basins and the Chesapeake Bay Watershed, providing habitat for native brook trout populations, and other characteristic aquatic species. Collectively, the properties contain at least 23 records of Natural Heritage element species or community types as identified by the VA Department of Conservation and Recreation, Division of Natural Heritage, including Shriver's frilly orchid, a G1/S1 species, saw-whet owl, a G5/S1BS2N species, purple oatgrass, a G5/S1 species, ground juniper, a G5T5/S1 species, and Twisted Sedge Rocky Bar and Shore terrestrial community, the best known occurrence of this community in Virginia.
South River (VA)	Preserve	On the western slope of the Blue Ridge in the Shenandoah Valley, South River Preserve and Cowbane Prairie Natural Area Preserve protects outstanding examples of wet prairies, mesic prairies, and

		calcareous spring marshes which were once common natural communities in the Shenandoah Valley. These communities have been reduced over the years by agricultural and industrial development. Eleven rare plants including queen-of-the-prairie, blueflag iris, and marsh-speedwell are found at the preserve. Additionally, a reach of the South River within South River Preserve and Cowbane Prairie NAP also provides habitat for two watchlisted freshwater mussel species.
Sugarloaf Mt / Rockfish / Shields Gap Complex (VA)	Preserve and Easement	The Shields Gap Forest Block straddles the Piedmont and central Appalachian ecoregions, and contains one very large patch of unfragmented hardwood forest; 11,000 acres are considered valuable, interior forest habitat. The Nature Conservancy holds a 1,600-acre conservation easement, and owns the 1,000-acre Fortunes Cove preserve, which is open to the public, and supports a globally rare glade community. The Sugarloaf Forest Block is in the Piedmont ecoregion, and contains some of the region's largest patches of unfragmented hardwood forest; over 28,000 acres are considered valuable, interior forest habitat. The Nature Conservancy holds six conservation easements here, totaling close to 900 acres.
Upper Shavers Fork Preserve (WV)	Preserve	Located in the 400,000 acre forest conservation priority area on Cheat Mountain that includes the most extensive subalpine red spruce and balsam fir forests between the Adirondacks and southern Blue Ridge, northern hardwood forests, peatlands, caves, and ice-scoured riverine communities along the highest-elevation large river in the East. The Cheat Mountain Forest Block supports 37 G1-G2/T1-T2 taxa occurrences, 9 G3/T3 taxa, and over 50 additional S1S2 species, one of the highest concentrations in the ecoregion. Three federally listed species (Cheat Mountain salamander, Indiana bat, running buffalo clover) occur in the Forest Block, along with the West Virginia northern flying squirrel, a recently delisted species. The site is also significant breeding range for several High Priority Partners in Flight breeding birds.

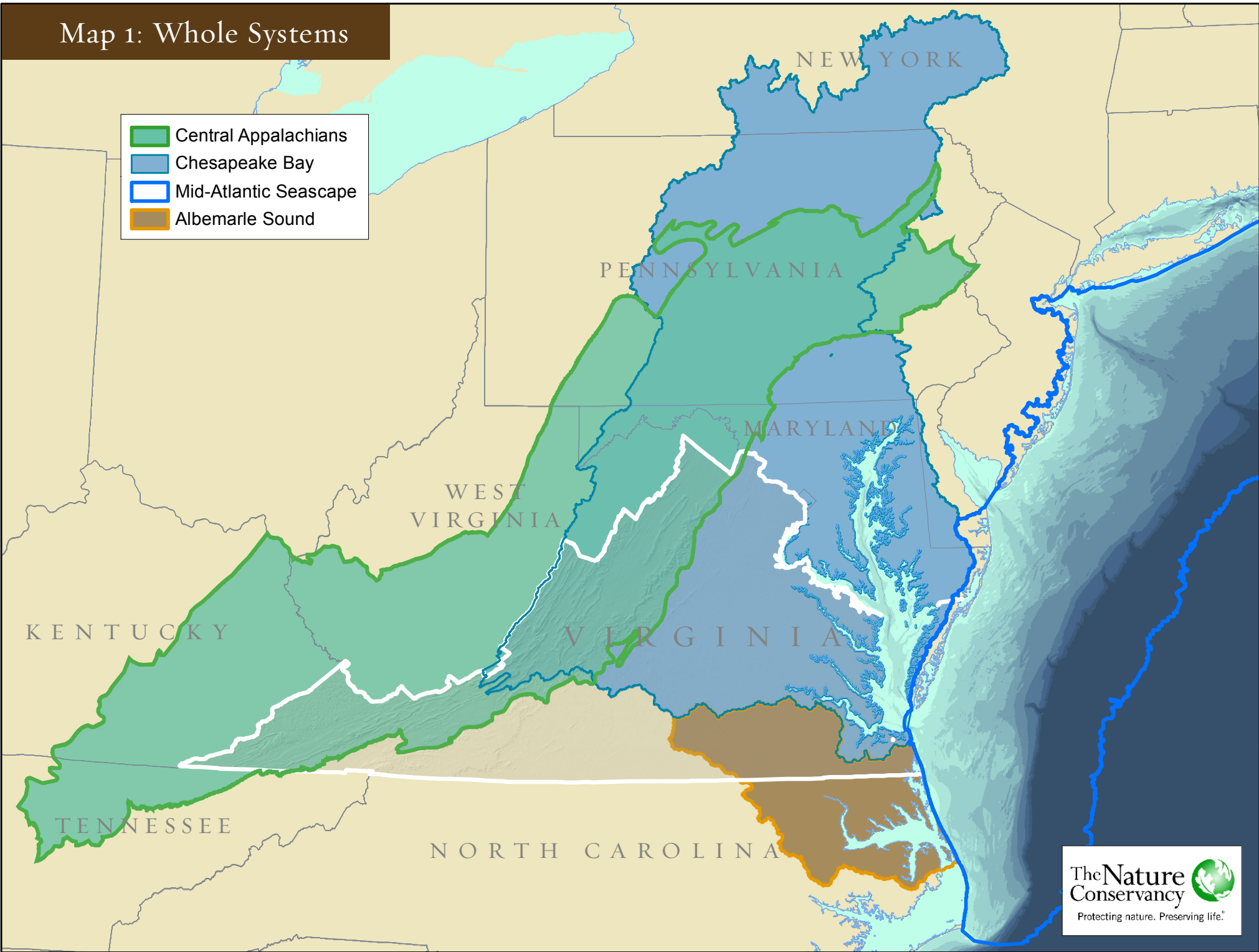
Table 2: Environmentally relevant criteria for comparing impacts of pipeline alternatives

Note: Metrics should include pipeline and new access roads constructed to implement the pipeline alternative.

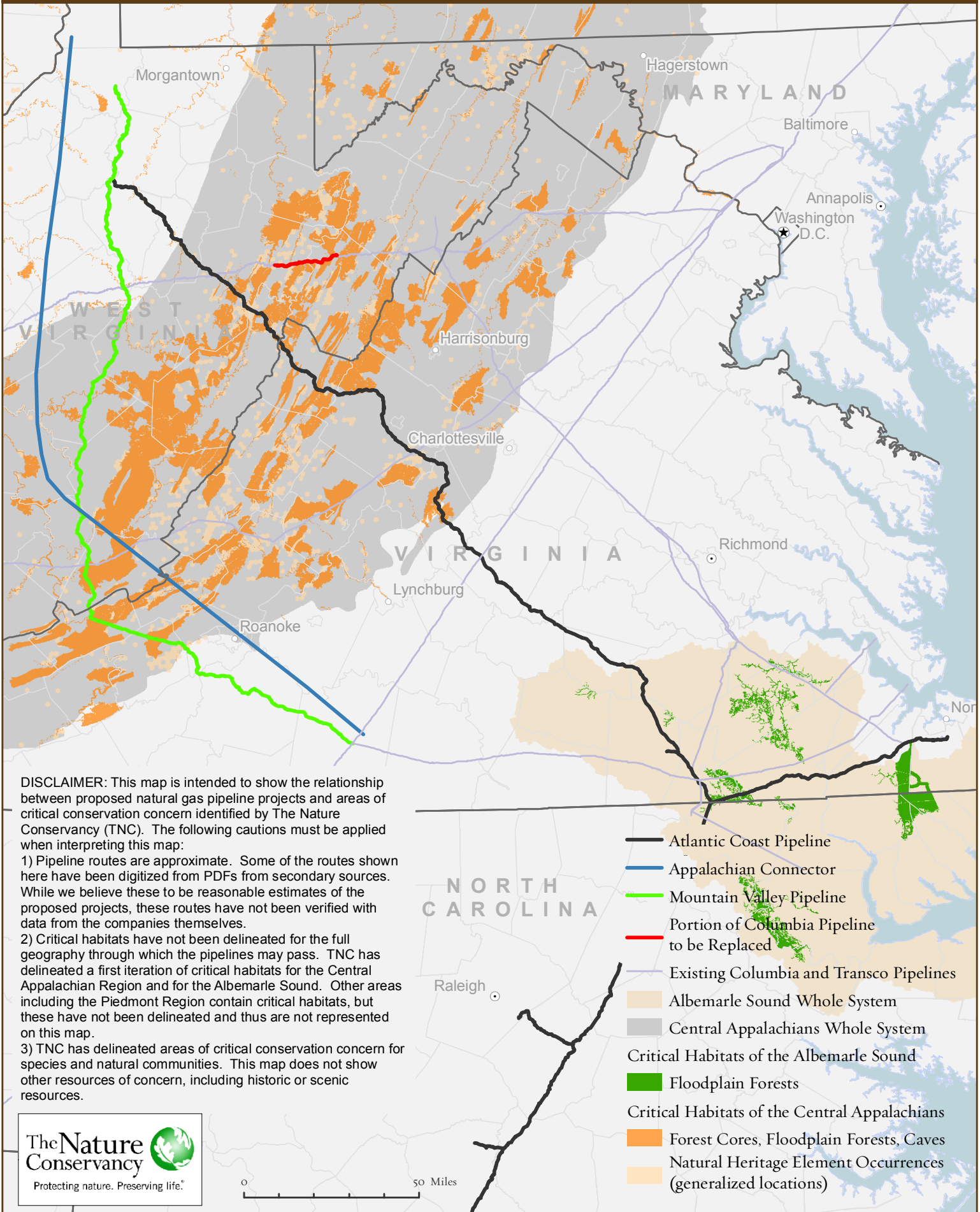
Criteria	Metric
Total Length	Miles
Construction Feasibility (e.g., length across ridgeline, length across steep side slopes associated)	Miles
Karst	Miles
Wetlands	Miles
Stream Crossings	Number
State and National Scenic Rivers	Number
Trout Streams	Number
State Heritage Program Element Occurrences	Number
Interior Forest (Migratory Bird Habitat)	Miles Crossed/Acres Affected (assume direct loss plus 100m on either side)
Interior Forest (Migratory Bird Habitat)	Number of patches before, number of patches after, number patches reduced to less than 5,000 acres contiguous interior forest habitat.
Red spruce crossing % cover	Miles/Acres affected
Rare Bat Habitat	Miles crossed/Acres affected
Public Lands – Federal	
Management Area with Objectives and Desired Condition	Miles Crossed/Acres affected
Public Lands – State	
Management Agency and Objective	Miles Crossed/Acres affected

Map 1: Whole Systems

- Central Appalachians
- Chesapeake Bay
- Mid-Atlantic Seascapes
- Albemarle Sound



Map 2: Critical Habitats



DISCLAIMER: This map is intended to show the relationship between proposed natural gas pipeline projects and areas of critical conservation concern identified by The Nature Conservancy (TNC). The following cautions must be applied when interpreting this map:













1) Pipeline routes are approximate. Some of the routes shown here have been digitized from PDFs from secondary sources. While we believe these to be reasonable estimates of the proposed projects, these routes have not been verified with data from the companies themselves.

2) Critical habitats have not been delineated for the full geography through which the pipelines may pass. TNC has delineated a first iteration of critical habitats for the Central Appalachian Region and for the Albemarle Sound. Other areas including the Piedmont Region contain critical habitats, but these have not been delineated and thus are not represented on this map.

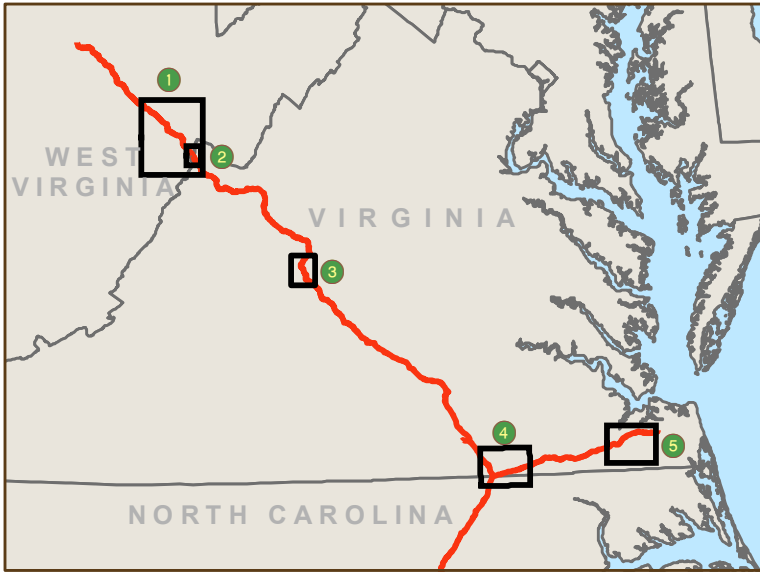
3) TNC has delineated areas of critical conservation concern for species and natural communities. This map does not show other resources of concern, including historic or scenic resources.



0 50 Miles

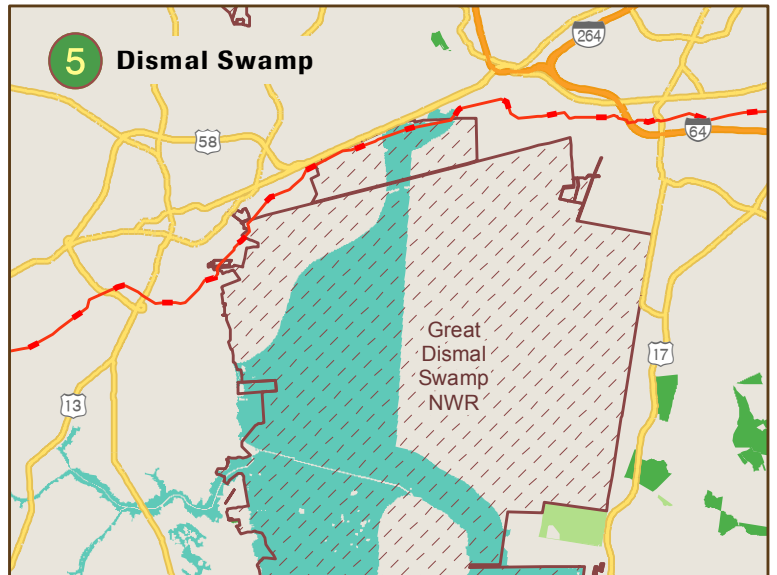
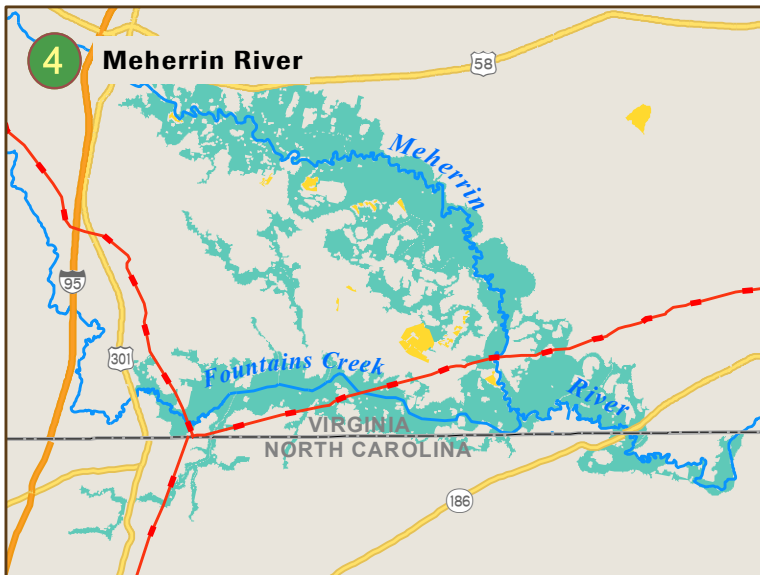
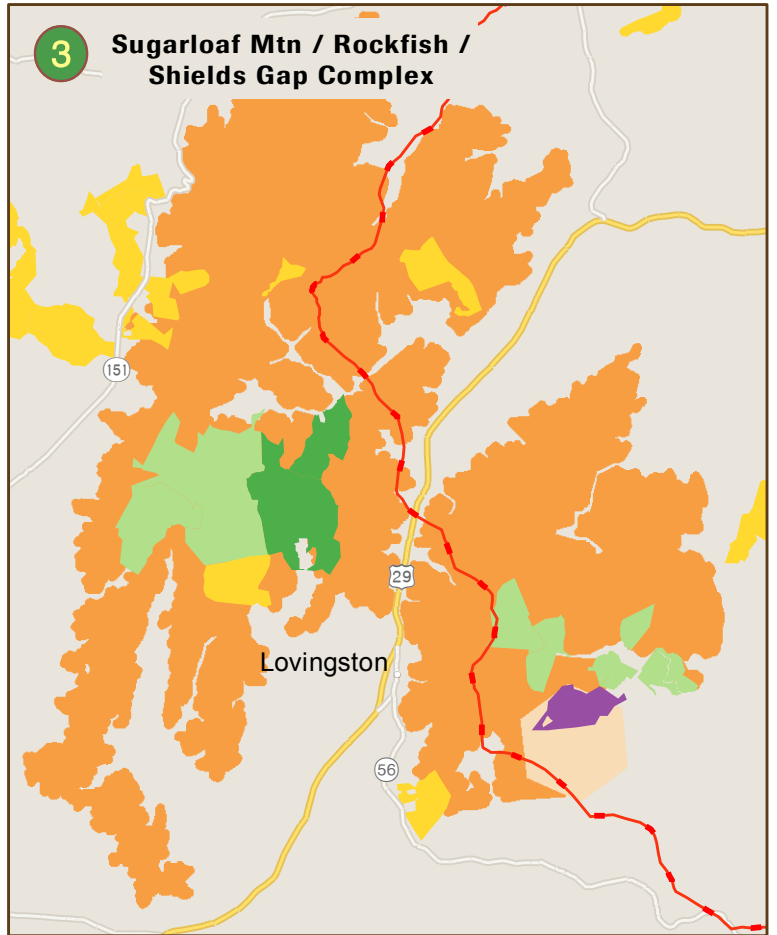
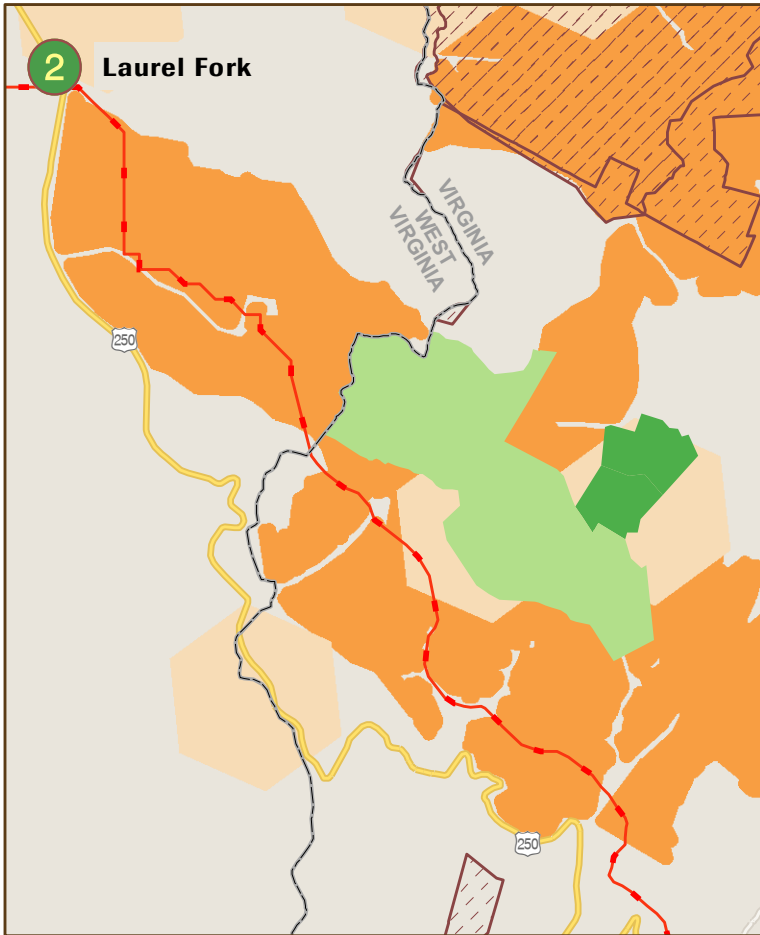
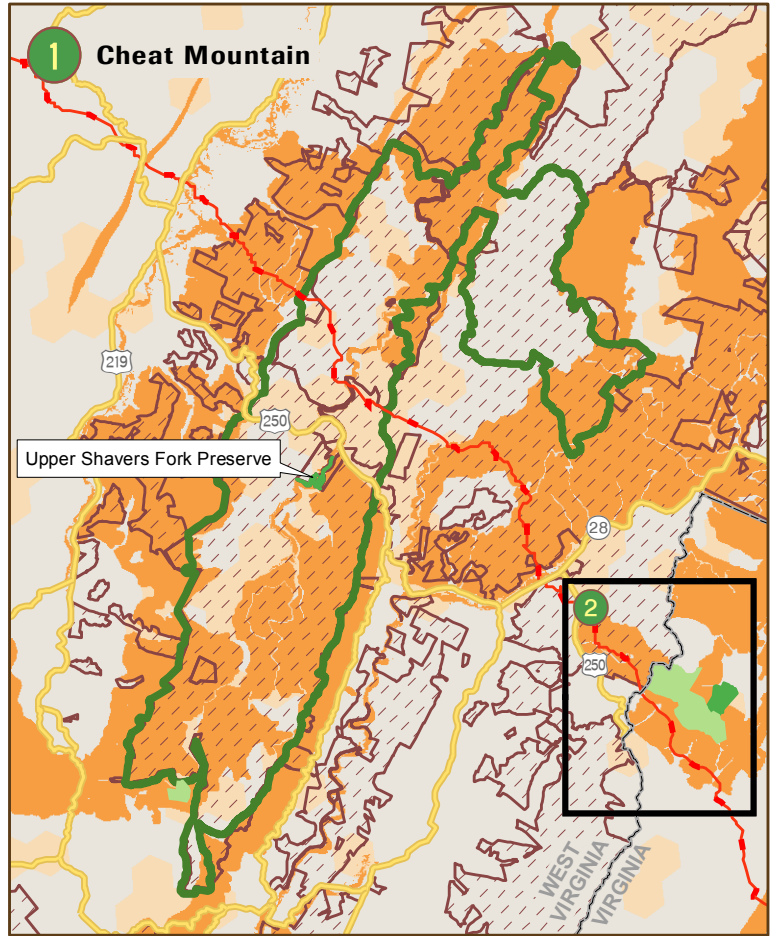
-  Atlantic Coast Pipeline
-  Appalachian Connector
-  Mountain Valley Pipeline
-  Portion of Columbia Pipeline to be Replaced
-  Existing Columbia and Transco Pipelines
-  Albemarle Sound Whole System
-  Central Appalachians Whole System
-  Critical Habitats of the Albemarle Sound
-  Floodplain Forests
-  Critical Habitats of the Central Appalachians
-  Forest Cores, Floodplain Forests, Caves
-  Natural Heritage Element Occurrences (generalized locations)

Map 3. Dominion Pipeline Route and Identified Critical Habitats

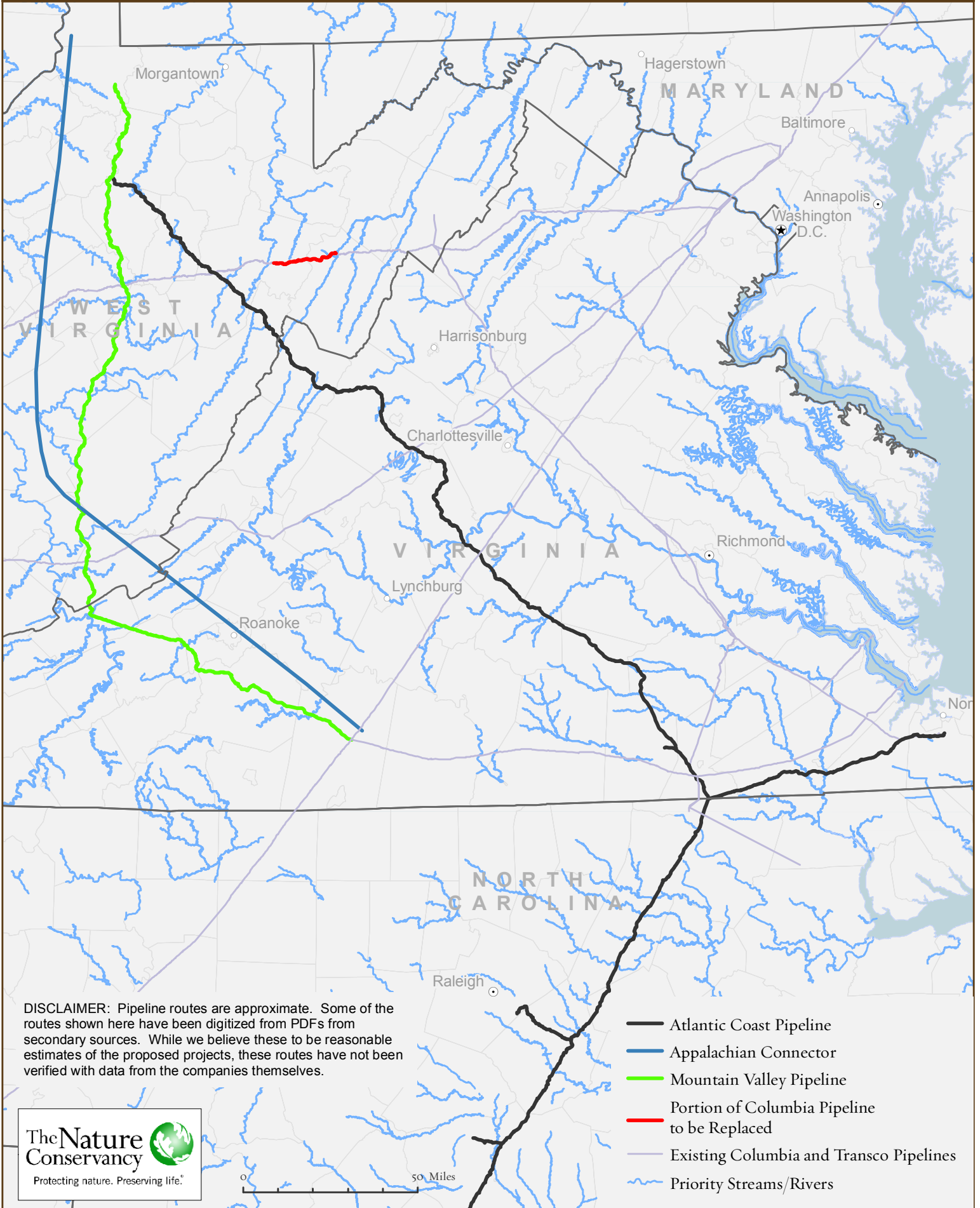


- | | |
|--|--|
| <ul style="list-style-type: none"> — Proposed Pipeline Route ■ TNC Preserve ■ TNC Conservation Easement ■ Other Conservation Easement ■ State Natural Area Preserve National Forest or National Wildlife Refuge Cheat Mt. Priority Spruce Restoration Area | <p>Critical Habitats</p> <ul style="list-style-type: none"> ■ Natural Heritage ■ Element Occurrences (generalized locations) ■ Forests, Caves and Riparian Areas ■ Critical Floodplain Forests in the Albemarle Sound Watershed |
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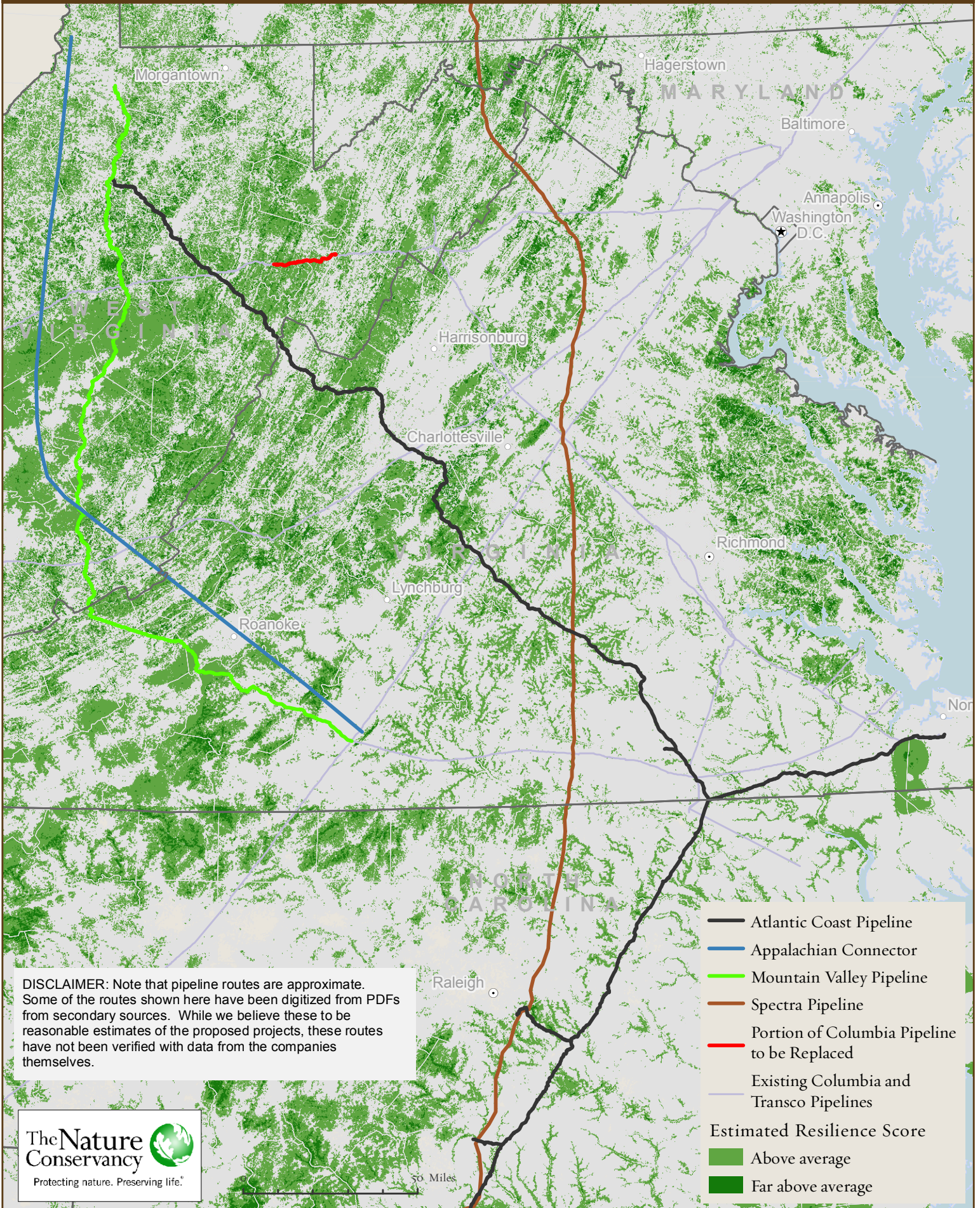
The Nature Conservancy Protecting nature. Preserving life.™



Map 4: Aquatic Conservation Priorities



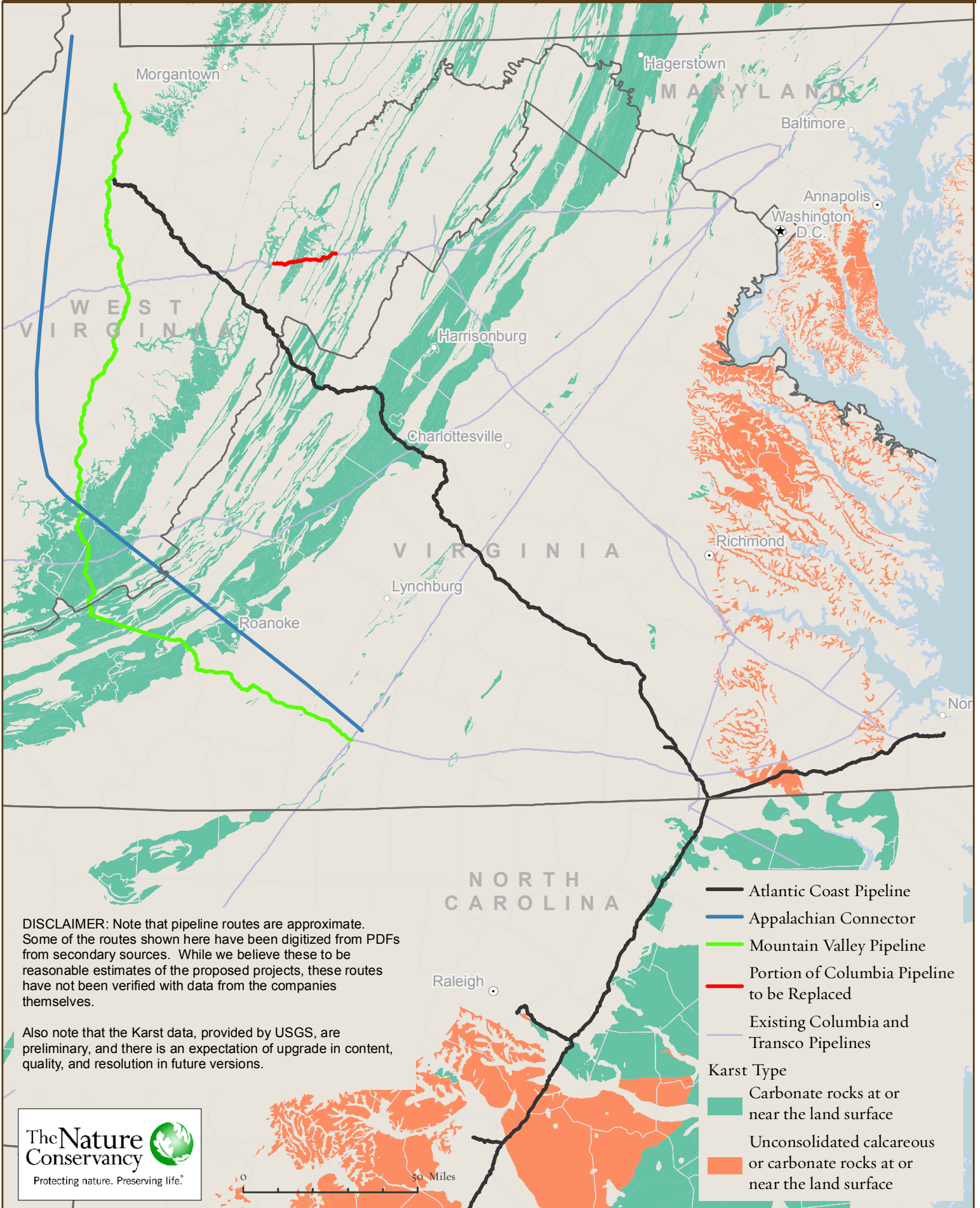
Map 5: Resilience



DISCLAIMER: Note that pipeline routes are approximate. Some of the routes shown here have been digitized from PDFs from secondary sources. While we believe these to be reasonable estimates of the proposed projects, these routes have not been verified with data from the companies themselves.



Map 6: Karst; Yc[m



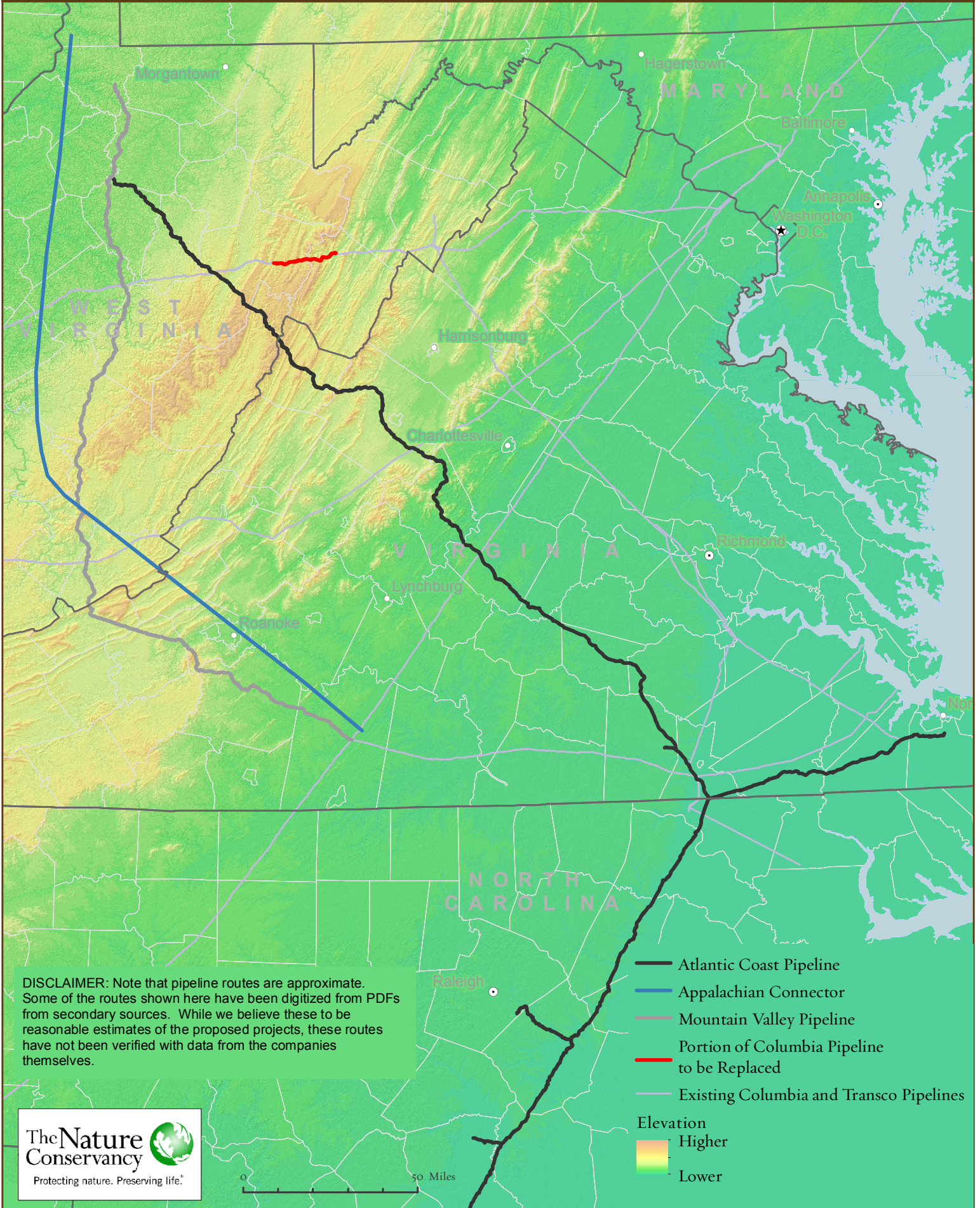
DISCLAIMER: Note that pipeline routes are approximate. Some of the routes shown here have been digitized from PDFs from secondary sources. While we believe these to be reasonable estimates of the proposed projects, these routes have not been verified with data from the companies themselves.

Also note that the Karst data, provided by USGS, are preliminary, and there is an expectation of upgrade in content, quality, and resolution in future versions.

- Atlantic Coast Pipeline
 - Appalachian Connector
 - Mountain Valley Pipeline
 - Portion of Columbia Pipeline to be Replaced
 - Existing Columbia and Transco Pipelines
- Karst Type**
- Carbonate rocks at or near the land surface
 - Unconsolidated calcareous or carbonate rocks at or near the land surface



Map 7: Topography



DISCLAIMER: Note that pipeline routes are approximate. Some of the routes shown here have been digitized from PDFs from secondary sources. While we believe these to be reasonable estimates of the proposed projects, these routes have not been verified with data from the companies themselves.

- Atlantic Coast Pipeline
- Appalachian Connector
- Mountain Valley Pipeline
- Portion of Columbia Pipeline to be Replaced
- Existing Columbia and Transco Pipelines

Elevation
Higher
Lower



0 50 Miles