

James Scenic River Report:

New Canton to Columbia

Prepared by

VCU ENVS 591: Scenic Resource and Policy Assessment

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I. REASON FOR THE STUDY

The Scenic Resources, Policy, and Assessment course at Virginia Commonwealth University has compiled the following report of an ~11-mile section of the Middle James River stretching from New Canton to Columbia through the counties of Buckingham, Fluvanna, Cumberland, and Goochland. The course was led by Dr. James Vonesh, assistant director for VCU's Center for Environmental Studies, in association with Lynn Crump of Virginia's Department of Conservation and Recreation.

The goal of this evaluation process was to acquire experience conducting scenic resource field assessments utilizing the Virginia Scenic Rivers Program Field Assessment Evaluation Criteria, in order to determine if the river section being assessed was adequate for Scenic River designation. We also sought to understand regional and state level implications of Scenic River designation. In addition to field assessments, “desktop analyses” were conducted utilizing the panoramic views provided by Terrain 360 and the data management capabilities of R Studio, in order to compare our focal segment with randomly selected virtual views across the middle James River.

To prepare for the field assessment, the class examined three different forms of evaluation criteria; Bureau of Land Management (BLM) Scenic Quality Rating Criteria, Scenic Virginia Viewshed Evaluation Form and Virginia Scenic Rivers Program Field Assessment Evaluation Criteria. Experts in the fields of viewshed management and designation, natural resource management, and scenic digital mapping were also invited for in-class lectures to create a reference for future assessments. With that being said, the one which was utilized for the data analysis and used to organize this report was the [Virginia Scenic Rivers Program Assessment](#)

Evaluation Criteria.

A. Virginia Scenic River Designation Process

A river or river section must contain significant natural, scenic, recreational, and historical attributes in order to be eligible for Scenic River designation under the Scenic Rivers Act, found in Title 10.1, [Chapter 4 §§ 10.1-400 through 10.1-418.1 of the Code of Virginia](#). The Scenic Rivers Act was created as a way to recognize Virginia's Scenic Rivers as well as their surrounding environments. Scenic River designation is a collaborative effort between the Virginia Department of Conservation and Recreation (DCR), cooperating state agencies, local and state governments, and local citizens of the surrounding areas in Virginia, with emphasis on local support. Before evaluating a potential scenic river, DCR must receive a letter from either the local governing body, county administrator, or city or town manager with a statement of request that a study be conducted. Under the Virginia Scenic Rivers Act, there is also an opportunity for community input during a public hearing before DCR submits an official recommendation of designation to the Governor and the General Assembly ([§ 10.1-403](#)).

The DCR evaluates a potential river or river section utilizing the following Virginia Scenic Rivers Program Field Assessment Evaluation Criteria:

1. Stream Corridor Vegetation
2. Streambed or stream flow modifications
3. Human Development of Visual Corridor
4. Historic Features
5. Landscape
6. Quality of Fishery
7. Additional Natural Features
8. Water Quality
9. Parallel Roads
10. Crossings
11. Special Features Affecting Aesthetics
12. Overall Aesthetic Appeal

13. Public Recreational Access
14. Significant Permanent Protection

These evaluation criteria allow for a numerical score, of which a minimum value must be met in order to qualify for Scenic River designation. A summary of these criteria, as well as an additional section for Land Use and Ownership can be found in Section III of this document.

The DCR also collects existing data from multiple sources pertaining to the potential Scenic River segment. Sources include cooperating state agencies, reviews of relevant literature, maps and geographic information systems. These additional data provide greater means to assess the qualities of the potential segment. Results from the evaluation and these data come together to confirm and support the existing land use information in order to rank the river correctly on the basis of historical significance, biodiversity and water quality.

Once DCR has finalized a report and concluded on designation recommendations, resolutions and letters of support are gathered from as many governmental and civic groups and local individuals as possible. These documents are able to become part of the official record in the case that a public hearing for the designation recommendation is held. It is the DCR's responsibility to assess rivers under consideration for Scenic River designation and to report those that qualify to the Governor and General Assembly under The Virginia Scenic Rivers Act. Local members of the General Assembly are part of the designation as well as they are tasked with introducing the designation legislation and providing support throughout the legislative process.

B. Benefits of Designation

Virginia Scenic River Designation provides river stakeholders with the following benefits:

- The program requires the authorization of the General Assembly before approval or initiation of any construction, operation or maintenance of any structure that may impede the natural flow of a Scenic River ([§ 10.1-407](#)).
- Local stakeholders, local citizens, and riparian landowners have more voice in the decision-making, planning, implementation and management of their section of river.
- The program allows riparian landowners to continue to use their land as they did before being designated as a Scenic River unless changed by [§ 10.1-407](#) ([§ 10.1-408](#)).
- The Department of Conservation and Recreation (DCR) is able to help localities interested in protecting their designated Scenic Rivers by assisting them in developing planning tools.
- The program provides an opportunity for the locality of a designated Scenic River to create a committee procured to help with proper management of the river.
- Designation of a segment as a Scenic River helps to recognize a high quality of life and concern for the river that can result in an increase in recreation, attracting new businesses, and promoting a love of nature.
- If localities choose to participate, landowners along the designated Scenic River section can benefit from land use tax credits.
- The program requires state agencies to consider a designated Scenic River section's scenic asset during planning and permitting processes ([§ 10.1-402](#)).
- The Scenic River evaluation conducted during the designation process establishes and provides proper documentation of that river's scenic qualities prior to any future alterations.
- The program requires the Federal Energy Commission (FERC) to consider the impact on scenic qualities of designated Scenic Rivers during the licensing and qualification process of federal projects.
- Promotion of the Scenic River designation by local business can provide economic benefits through increased recreational opportunities and ecotourism.

II. SUMMARY OF FINDINGS

The section began at New Canton Landing and ended approximately 10 miles downstream at Columbia Landing and the Route 690 bridge. Based on physical features of stream corridor, historic sites, natural resources, and recreational opportunities, this section should be considered for designation under the Virginia Scenic River system. For this designation process to move forward, the local governing bodies of Buckingham, Fluvanna, and Cumberland counties must show support for the designation by approving resolutions endorsing the designation. The local boards will then have a state legislator sponsor a bill to designate the river segment as scenic.

A. Corridor Study Map

The proposed section of the James River is an ~11-mile stretch flowing through Buckingham, Fluvanna, Cumberland, and Goochland Counties, beginning from the New Canton Buckingham County to Columbia Landing to a boat put in/take out in Fluvanna County. An ArcGIS map shows the river corridor through the proposed section (Figure 1).

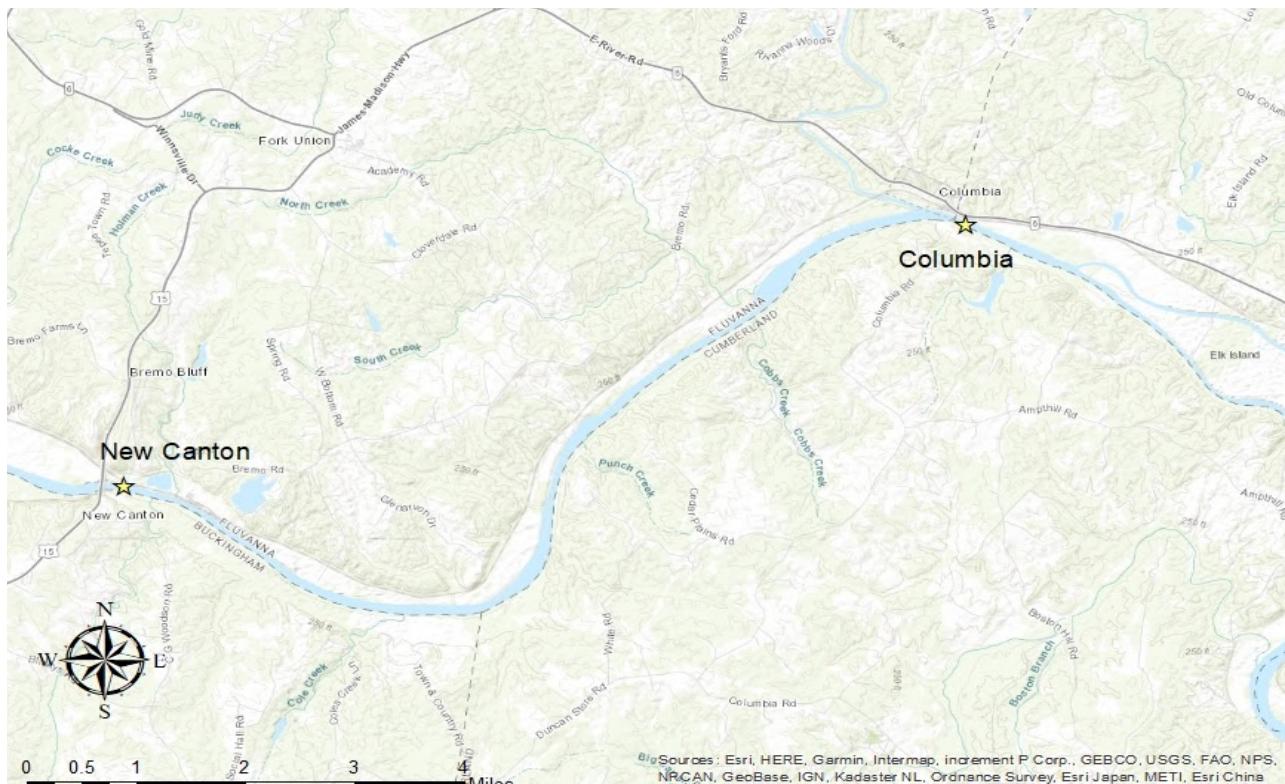


Figure 1: Map of the James River through Buckingham, Fluvanna, Cumberland, and Goochland Counties starting at the New Canton, Va. and ending at the Columbia Road Bridge.

B. Data Collection Methods and Analysis

Traditionally, each person who was evaluating a segment used one paper to make notes of structures and crossings along the trip. Once the section is floated, all of the observers come to an agreement about the visual criteria, which is then combined with the biological criteria which makes up the Virginia Scenic Score. In this approach we piloted, each observer takes multiple samples along different segments of the river. By taking the existing protocol and converting it into ArcGIS's Esri survey123 application, which was executed by VCU graduate student Ryland Skunkle, it allowed us to collect in-field data which can be directly uploaded into a cloud database. Continuous sampling of the visual elements allows for quantifiable comparisons of scenic scores along the focal segment.

Under the supervision and expertise of Lynn Crump, a small group of students enrolled in VCU's Freshwater Friday's course were educated on the traditional methods while in the field. Once were familiarized with the Virginia Scenic Rivers scoring metrics, the students practiced scoring virtual segments of the James River in tandem with physically floating and scoring along the proposed section. We had the opportunity to collaborate with [Terrain360](#), developed by Ryan Abrahamsen, a company providing virtual, high quality, panoramic imaging of trails, waterways and landscapes throughout the United States. When floating the focal segment, Terrain360 accompanied us and recorded multiple virtual tours for our use in the at home, desktop analyses.

We then wanted to answer the question of; does this segment of the middle James River have a higher, lower or similar Virginia Scenic Score relative to other random view samples of the middle James? Using the Esri USA Rivers data layer, we identified 30 random points along the Piedmont James River between Clifton Forge and just before the Falls of the James River outside of Richmond (excluding our focal segment). Those random points were visually scored on Terrain 360 and recorded in the Survey 123 application. After doing the "desktop analysis", we found that the focal segment had scenic scores that were just about equal to the other random points along the Piedmont James. After looking at the scores from the desktop analysis, we found that the focal segment had scenic scores that were 13% less scenic ($F_{1, 136} = 16.39, p < 0.001$) than other random parts of the Piedmont James. Though, these results could be skewed due to a lesser number of random samples being taken compared to the number of focal samples.

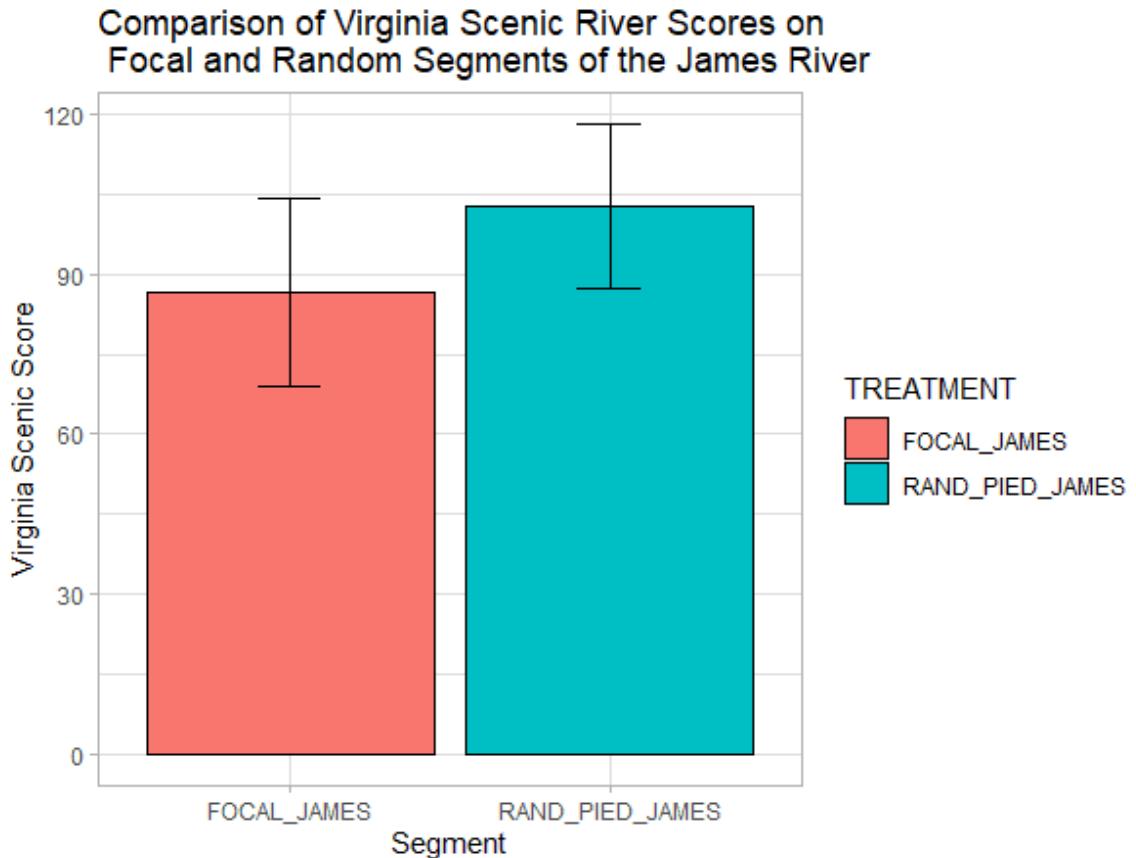


Figure 2. Comparison of Virginia Scenic River Scores for Focal and Random Segments of the James River using R Studio.



Figure 3. Founder of Terrain 360, Ryan Abrahamsen (right) and boat operator Ryan Crenshaw(left); in front of the 360-degree photo-capturing raft made by Abrahamsen.

III. ENVIRONMENTAL ANALYSIS

1. Stream Corridor Vegetation

The focal segment primarily flows through Deciduous and Mixed Forests, and Pasture and Croplands, shown by the National Land Cover Database data from 2016, collected by the USGS (Figure 4). A geospatial analysis using ArcGIS computed the classifications of land use occurring within a 100' buffer of the riparian zone along the focal segment. Overall, the vegetation provided a moderate amount of visual complexity, remaining consistent along both riverbanks, and even upon several islands along the segment route. Most of the vegetation provided some amount of shade along their respective banks. Evergreen and deciduous trees and saplings make up about 70% of the riparian zone within 100' of the river (Figure 5)

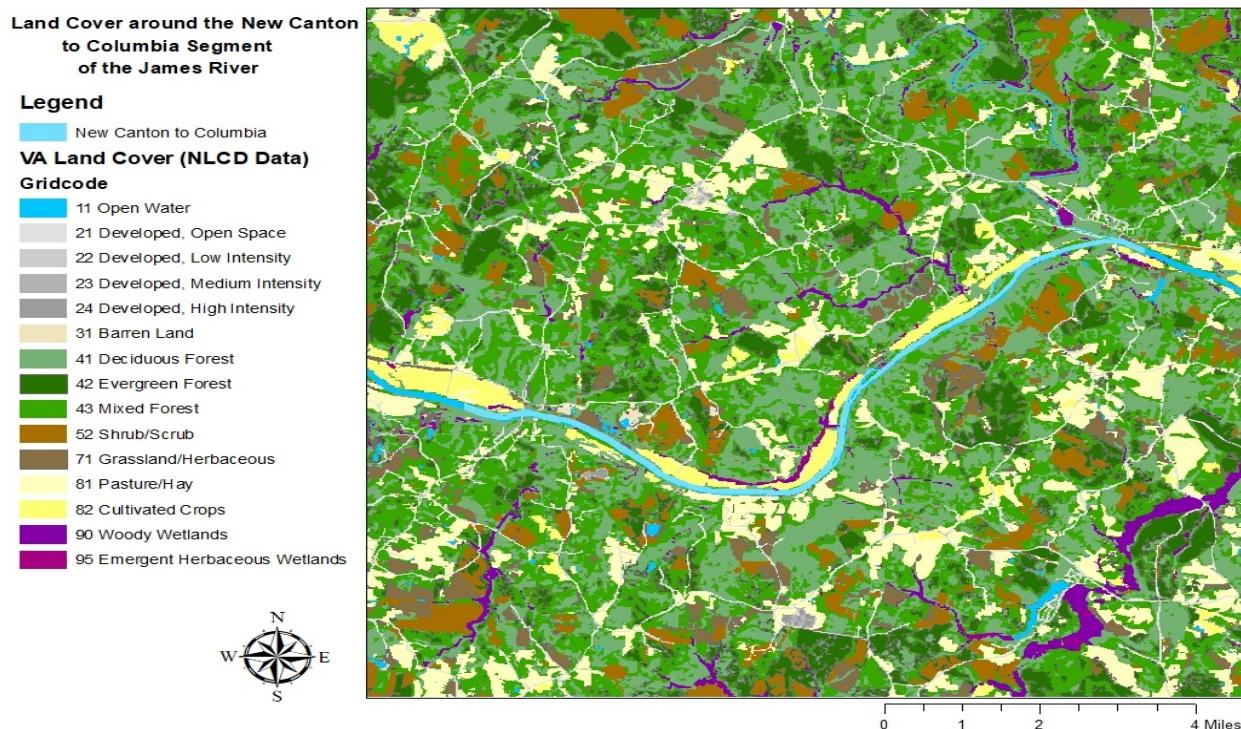


Figure 4: Land cover along and around the studied section of the river.

The riparian buffer along the river segment was variable, with some instances of gaps in tree and shrub cover and some instances of denser vegetation. Though widely dispersed, approximately 22% of the 100-foot forested riparian buffer was fragmented in some way by development, croplands and pastures, based on National Land Cover Data from 2016. It is likely to be an understatement given the active development by the [James River Water Authority](#) that we observed just before the Columbia Road Bridge.

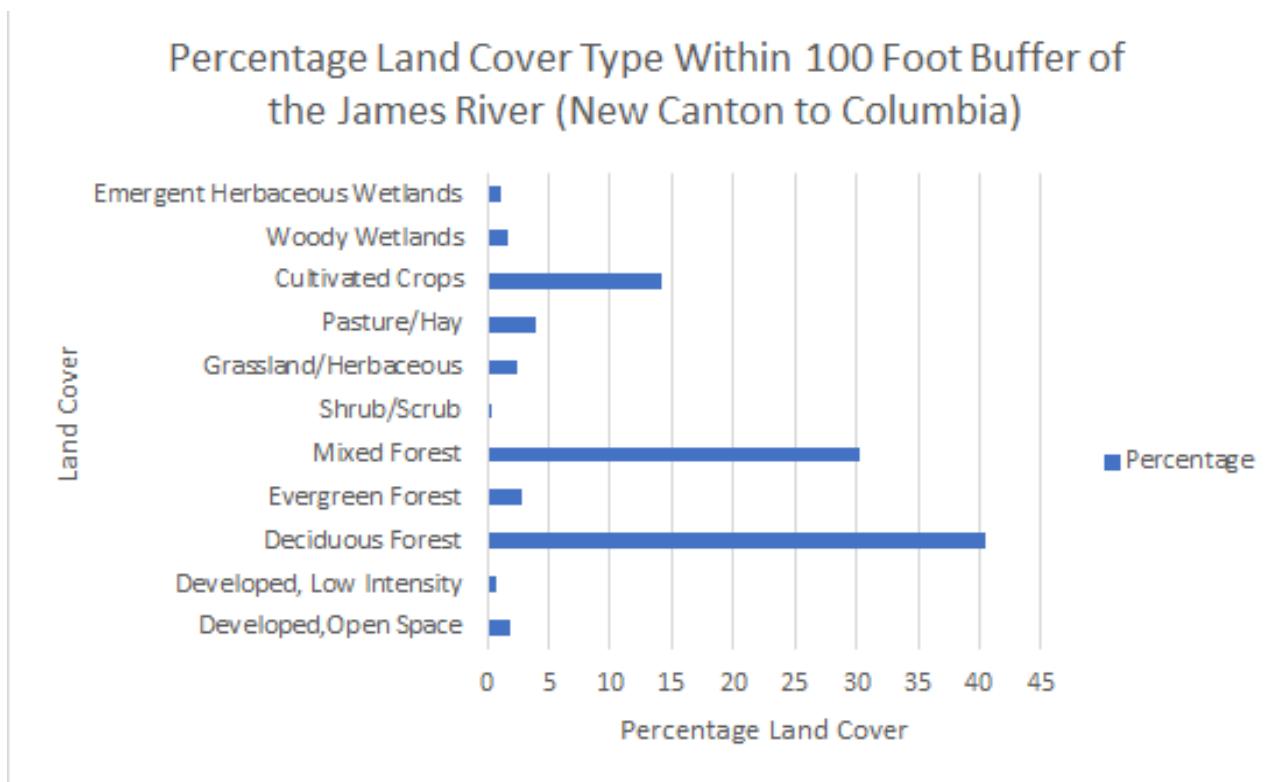


Figure 5. The graph shows the different types of vegetation (or lack thereof) along the north and south banks of the river (riparian zones), within 100-foot buffer.

The following figures (6.1-6.5) capture the entire route from New Canton to Columbia. All highlighted sections represent disturbance (or river crossings) of the 100-foot vegetated buffer.



Figure 6.1: Western most section of the New Canton near Bremo Power Station



Figure 6.2: East, Past Bremo



Figure 6.3: Northeast to Spicer Island



Figure 6.4: Spicer and Boatwrights Islands to Columbia Rapids



Figure 6.5: Easternmost Portion, Columbia Rapids to Columbia Road Bridge

2. Riverbed and/or River Flow Modifications

There are no major riverbed or river flow modifications along this section of the river.

The reason for this criterion is to understand whether a river has been significantly channelized by an unnatural impoundment(s). There are only a few minor rock formations, which also do not impede the flow nor make it inaccessible to boaters. Naturally formed islands provide a place to rest on the meandering river. A section of the river on the right side is impounded by a metal fence due to the construction of a [water compressor station](#) which is being developed by the James River Water Authority just before the Columbia Road Bridge (Figure 7)



Figure 7: A metal fence has been erected by the James River Water Authority along river right in Cumberland Co.

3. Human Development of Visual Corridor

Urban and rural development are evaluated separately in this section. Urban development is evaluated as city and town related commercial and industrial structures. Houses, cabins, barns, industrial buildings or clusters are listed as rural development. On this portion of the James River, there was a significant amount of urban development present: power lines, a construction site (Figure 9), Brevo Power Station (Figure 8), and a bridge. Although residential development is not

as apparent for many miles on the segment, a few homes and benches could be seen from the river such as the one in Figure 10. There were four human made structures on the 11 mile focal section including Bremo Power Plant and the [water compressor station that was being constructed by the James River Water Authority \(JRWA\)](#), as of the Fall of 2020. Two other structures were houses that were within the riparian zone. So, there were 0.36 human built structures per one mile. Because none of these structures were clustered together in a group, this did not negatively affect the overall score too much. However, the development by the JRWA, shown in Figure 9, does adversely affect the scenic score for this segment. For these reasons, this criterion got low to moderate rating.



Figure 8: This map shows Bremo Bluff Powerplant which is located just after the boat ramp that in New Canton, Va.



Figure 9: The construction site for the James River Water Authority's water compressor station



Figure 10: A house sits along the bank of the James River in Cumberland County, Va.

4. Historic Features

The New Canton to Columbia segment of the James River is located in central Virginia between what is now Charlottesville and Richmond. Notable historical significance of the river segment includes the Monacan settlement and capital, Rassawek, which is located at the confluence of the James and Rivanna rivers. The Native American capital has gained recognition as being one of the nation's cultural treasures in being an integral part of this land's history, this past year. The National Trust for Historic Preservation named Rassawek one of their [11 Most Endangered Historic Places](#). A recent proposal for a [water compression station](#) by the James River Water Authority is set to be constructed on top of Monacan ancestral burial mounds. The mounds signify generations of Monacan peoples who have been laid to rest in this ceremonial ritual which serves as a testament to the long line of ancestors who have a shared sense of place for the sacred land (Taylor et.al., 2020).

As Europeans began to move west in the 1600s to the 1700s, some of the Monacan people retreated to Bear Mountain just west of Rassawek in present-day Amherst County, Virginia where they reside today (Monacan Indian Nation, 2015). Despite the numerous attempts to erase the Monacan peoples' culture and identities, even up to as recent as the 20th century, the Monacan Indian Nation has still shown a resilience that has been able to preserve the culture and customs of their ancestors. Today, they continue to ensure that future generations of Monacan people are able to honor the lifeways that have been cultivated before them by having an annual Powwow, visiting sacred burial mounds, and becoming federally recognized as a Native American tribe in 2018 (after an almost two-decade long struggle). Being federally recognized does not ensure that treaty rights will be upheld, however, it does give the Nation greater representation and qualifies them for financial assistance, if need be. In the colonial era, the town of Point of Fork was established in the same location, and eventually became the town of

Columbia. The town has seen fluctuations in its population (currently 78) over the past few centuries due to major flooding events resulting in property damage. The largest recorded population decrease occurred after the floods in 1870 and 1877, when 23% of the town's 311 residents were forced to leave their homes behind (McKenzie).

Another location that has historical significance in the area is Old Buckingham Church. It was built in 1758 by order of the King of England to be an Episcopal Church. After the Disestablishment of the Anglican Church, it was reorganized by the Buckingham Baptist Congregation in 1771 and served as the place of worship until 1949 (Swain, 2010).

5. Landscape

The New Canton to Columbia section lies on the border of Virginia's northern and southern Piedmont regions with landscape characterized by rolling hills, moderate slopes and rugged terrain. The section of the James is located in the sub-watershed of Bear Garden Creek, containing nearly 824 acres of non-tidal wetlands and is a predominantly flat stretch of river with little fast water.

Views along this section offer a wide variety of landscapes, including forested hills, open fields and banks covered in vegetation. Majority of the landscape included gentle rolling hills and riparian buffer forests which made for a limited to medium sized viewshed (Figures 12 & 13). Meaning, there was two distance zones in the viewshed; the riparian forest, and the forested hills at the edge of the landscape. As you near closer to Columbia, the views become more limited with only the foreground in view, especially when floating through both Spicer and Boatwright Islands.

Riparian forests play a crucial role in both aquatic and terrestrial ecosystems. They are essential for streambank stabilization, erosion control, and filtering pollution out of our rivers and streams.



Figure 11: There is only one distance zone (foreground) in this viewshed, giving the landscape a “limited variety”.



Figure 12: You can see two distance zones in this viewshed (foreground and middle-ground) which gives it a “moderate landscape variety”.

6. Quality of Fishery

According to the Department of Wildlife Resources (DWR), the New Canton to Columbia segment is “a predominantly flat stretch with little fast water” and very popular amongst floating fish. DWR conducted a *Middle of the James River Report* in 2019 in which they took samples of fish along the ~130 mile stretch categorized as the “middle James River”, from Lynchburg to just above the fall line at Richmond. Samples of two catfish species (Channel and Flathead), four species of sunfish (Bluegill, Redbreast, Rock Bass, and Redear), and Smallmouth Bass were taken and recorded along this stretch in the Fall of 2019. Bluegill Sunfish, Smallmouth Bass, and Channel Catfish show to have the highest populations of the total 922 fish that were collected (Hatcher, 2019).

The majority of the Smallmouth Bass caught were juveniles, showing that there may be a productive future ahead for the species in the Middle James. As for the sunfish populations, the

Bluegill species made up the largest majority (75%) of the catch in 2019. On the other hand, Redbreast showed a significant decline in populations compared to previous years, representing only a fifth of all the sunfish caught. The Rock Bass and Redear populations showed to be least abundant, making up a minor percentage of the total sunfish caught. As for catfish, both Channel and Flathead populations are both stable with juvenile and adult populations at healthy numbers. Channel catfish show to make up about three quarters of all the catfish sampled, however, the Flathead populations that were collected had a greater range in size, and thus age. So, both species of catfish should have relatively high catch rates (Hatcher, 2019).

7. Special Natural Flora and Fauna

New Canton to Columbia section offers adequate habitat for native avian and game species, particularly deer and turkeys. Annual bird observations are available for Buckingham, Cumberland, Fluvanna, and Goochland counties via the Cornell Ornithology Lab bird observations database.

Along the riparian buffer which extends 1,000 feet of the river's edge, there are also three vascular plants which are considered critical natural resources (Lynn Crump. Virginia Department of Conservation and Recreation. pers. com.)

- Small-flowered Dwarf Bulrush (*Lipocarpha micrantha*)

This native plant is also sometimes referred to as Small-flower Halfchaff Sedge. It is a type of sedge that grows well in riparian and coastal habitats. The North Carolina Heritage Program has deemed it a species of Special Concern.



- Stalkless yellowcress (*Rorippa sessiliflora*)

This flowering plant that is native to the southern and midwestern United States grows well on the banks of streams, ponds, lakes, and wetlands.

They also grow in areas that are subject to disturbance like roadsides. It can be distinguished from other yellow-cresses (*Rorippa*) due to the lack of petals on its flowers.



- Harsh vervain (*Verbena scabra*)

This aquatic perennial herb belongs to the same order as mint. It is also sometimes referred to as Sandpaper Vervain due to its short, rough-feeling hairs that cover all of its foliage.



Species with Conservation Status

Four freshwater mussel species appear within the Virginia National Heritage Database as rare or endangered in the counties of Buckingham, Goochland, Cumberland, and Fluvanna. They are at risk of extirpation due to restricted range, population decline, and severe threats affecting water quality.

- James Spiny mussel (*Parvula pectinaria collina*)

State Classification: S1 or critically imperiled

Federal Status: Endangered

Description: Depending on age, color of shell ranges from shiny yellow to dark brown with prominent growth rings. One to three short spines may or may not be present



on each valve. Does not exceed 3 inches in length. Tolerant to a variety of flow regimes. They're not in great condition, and are even considered historic due to pollution levels in the past forty years, however, the Virginia Department of Wildlife Resources are propagating them in hopes of releasing them on the New Canton and Columbia segment (Brian Watson, Va. DWR pers. com.).

- Atlantic Pigtoe (*Fusconaia masoni*)

State Classification: S2 or imperiled

Federal Status: Threatened

Description: Native to the Atlantic Slope drainage in Virginia, North Carolina, South Carolina, and Georgia and considered historic. Rounded square shell with distinct posterior ridge, rarely exceeds 2 inches in length. Color of outer shell ranges from



tan to dark brown ("parchment-like) and inner layer is iridescent blue to pink/white/orange. Prefer coarse sand and gravel substrate, sensitive to silt and detritus accumulation. They are not in particularly good conditions (Watson, Va. DWR pers. com.).

- Green Floater (*Lasmigona subviridis*)

State Classification: S2 or imperiled

Federal Status: Under review

Description: Thin shell with trapezoidal/subovate shape, around 2-2.5 inches in length. Color ranges from green to dull yellow with dark green rays visible. Likely to inhabit areas less prone to flooding or drying, at least one to four feet in depth. Prefer gravel or sand substrate and intolerant of strong currents. In the past 10-15 years, it has been found at multiple sites along the river, so it is currently seen as being extant (Watson, Va. DWR pers. com.).



- Yellow Lance (*Elliptio lanceolata*)

State Classification: S2 or imperiled

Federal Status: Threatened

Description: Bright yellow, elongated shell with an iridescent blue (occasionally white/salmon) inner layer that features two interlocking hinge teeth. Reaches just over 3 inches in length. Native to the



Patuxent, Rappahannock, York, James, Chowan, Potomac (though not sighted in recent years), Tar, and Neuse River basins in Maryland, Virginia, and North Carolina. Requires a stream environment with moderate flow and high dissolved oxygen. Although it is extant in John's Creek, which is to

the southwest in Craig County, Va., there are a few selections of data at the Ohio State Museum that could suggest that the Yellow Lance is in this section of the James River (Watson, Va. DWR pers. com.).

There are 37 fish species which have been confirmed to be swimming in this segment on the James River. Of the 37, there are two of which that are listed as species of special concern; American Eel (*Anguilla rostrata*) which is prioritized by DWR as Tier 3a, and Emerald Shiner (*Notropis atherinoides*) which is prioritized as “State Threatened” or Tier 4a (Dan McGarvey, VCU Center of Environmental Studies pers. com.).



American Eel (*Anguilla rostrata*)



Emerald Shiner (*Notropis atherinoides*)

According to eBird.org, there have been 84 different bird species observed at the [New Canton Boat ramp](#), and 96 species seen at the [Columbia Boat Ramp](#) dating as far back as 2016. Of the species that have been spotted at the two places, there are a handful that have been designated as being a [threatened or endangered by DWR](#). Their state classification is based off of the ranking put forward by the [Virginia Wildlife Action Plan](#) which assigns species’ that are of conservation need a tiered ranking going from *Moderate (IV)* to *Critical Conservation (I)* need. Along with the tiers, there is a *Conservation Opportunity Rating* which helps to better prioritize conservation actions by outlining realistic, “on the ground” management strategies for the species (a.), feasible strategies that have been identified for the species that

just need resources to get them going (*b.*), and actions that have been done for a particular species which had shown to fail (*c.*).

- **Yellow-billed Cuckoo** (*Coccyzus americanus*)

State Classification: Tier 3a in Virginia's Wildlife Action Plan (WAP) or High Conservation Need

Federal Classification: Threatened

Description: These birds uses its long, downcurved bill to feed on caterpillars and other insects. Their habitats include dense forests and deciduous riparian woodland. In the western portion of America, there has been a sharp decline in the populations of this bird due to the fragmentation of riparian lands by human development. The Yellow-billed Cuckoo has a good chance of being listed as federally endangered in the next few years if conservation efforts do not begin to double down.



- **Kentucky Warbler** (*Geothlypis formosa*)

State Classification: Tier 3a in WAP or High Conservation Need.

Federal Classification: Not listed

Description: These birds tend to live in deciduous forests and wetlands throughout the southeast. Males have a deep black crown,



whereas females have a more olive-toned coloring with that same distinctive yellow belly and chest. When in song, they perch high and let out 4-8 full trills. There have been 2 recorded observations of this bird on [eBird.org](#) at the Columbia Boat ramp

- Belted Kingfisher (*Megaceryle alcyon*)

State Classification: Tier 3b in WAP or High Conservation Need

Federal Classification: Not listed

Description: Lives along aquatic environments and could largely benefit from conservation efforts along riparian corridors.



Females have a copper colored belt along the chest, while males lack the coloring. Their calls can be described as a high, or sometimes low pitched screeching. It has been observed at the Columbia Boat Ramp in early 2021 and this picture to the right shows the bird after successfully catching a meal, was taken in Fairfax, Virginia.

- Bald Eagle (*Haliaeetus leucocephalus*)

State Classification: Not listed

Federal Classification: Not listed

Description: Although the Bald eagle has been delisted from the Endangered Act, I think that it is worth mentioning that there have been dozens of sightings at both New Canton and Columbia, including one from March 17, 2021 [pictured to the](#)



right. (Hofacker, 2021) It will continue to be covered federally under the [Migratory Bird Treaty Act](#) the [Bald and Golden Eagle Act](#) which ensures the peace and safety of eagles, as well as their nests and eggs.

8. Water Quality

This section is determined by looking at the visible turbidity and the amount of trash in and around the vicinity of the river corridor. The water quality on this section of the James River is generally good but has high bacteria and sedimentation levels and low Dissolved Oxygen and pH. The evaluation basis specifies that the river is graded on its visible pollution levels, not any chemical makeup or unnoticeable contaminant. New Canton to Columbia had moderate turbidity (amount of suspended organic and inorganic material) and high sedimentation (amount of eroded sediment that has entered the waterway). This coincides with low levels of litter and the lack of parallel roads observed on this section. Sedimentation is a major factor in the segment's low water visibility.

9. Parallel Roads

River road and train tracks, which are owned by Buckingham Branch and CSX Transportation, run parallel to this section of the New Canton River. Within a 1,000-foot buffer zone there is approximately 0.74 miles of road and 1.48 miles of train tracks however no parallel roads observed from the in-river view during the field study.

10. Crossings

Roads, railroads, bridges, pipelines, and power lines all qualify as crossings over the river that create a visual impact on the river corridor. Crossings may not be as intrusive as other forms of human development such as parallel roads, industrial developments, and sections of

housing. This river segment had a total of 4 crossings (Figures 13-16) that were recorded resulting in an average of 0.36 crossings per one-mile stretch.



Figure 13: Dominion Energy Company's Bremo Bluff natural gas power station.



Figure 14: Electrical transmission lines cross the James at about mile number 5 out of 11 near Cumberland, Va.



Figure 15: Electrical transmission lines near Columbia, Va.



Figure 16: Columbia Road Bridge

11. Special Features Affecting River Aesthetic

Throughout the segment, views are very diverse as sporadic islands provide navigational interest for paddlers. Views are accompanied by unique rock formations and bluffs seen throughout this section of the James. Paddling down the river past vegetated banks and occasional mountainous views help provide the waterway with a unique sense of remoteness and isolation. There were no special features on this segment, relative to other mid-Atlantic rivers.



Figures 17 & 18: Small waves, rock features and lush vegetation seen along this James River section.

12. Public Recreational Access

The two main access points for this segment of the river are located in the town of New Canton and the town of Columbia, respectively. According to the James River Association, they are both concrete ramps accessible for small boats, canoes, and kayaks, but the Columbia put-in is also fit for fishing activities. Neither put-in is ideal for swimming, so all water recreational activities without the use of a watercraft is not recommended. Both of the access points are free for public use and have gravel car parking lots. Fishing from the put-in or from a boat is a popular activity, with this segment being listed by the DWR as a good spot for catfish and

smallmouth bass. The segment is primarily flatwater and fit for beginner paddlers (James River Association).

13. Land Conservation

There are two conservation easements in the designated section of New Canton to Columbia (Figure 19). In both 2008 and in 2006, two private conservation easements were permanently preserved. Approximately 13% of the focal segment's land along the river's edge is within a conservation easement, however, both conservation easements in Figure 19 are closed for public access.

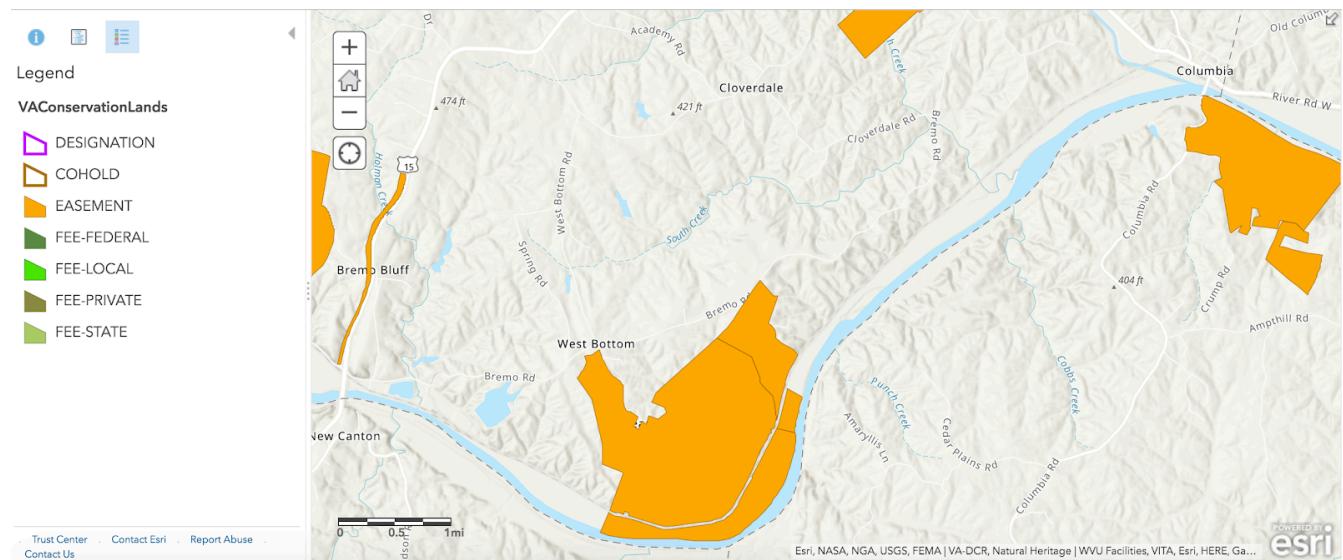


Figure 19: Land conservation easements along the 22 miles of river-edge evaluated for this 11 mile section of the James River.

14. Land Use and Ownership

Lands in the observed corridor are primarily in private ownership but an estimated 26%

of the section is in a conservation easement, which limits land use for conservation purposes (Fig. 19). Land use within the corridor is mostly agricultural, interrupted by occasional homes and industry. The only concentrated development is at the Bremo Bluff power plant, but the impact is large. Land use overall is visible for short spurts of time in the segment. Referring back to Figure 5, which shows the land cover within 100' of the river corridor in a graphical format, a little bit less than 15% of the riparian zone is designated for the cultivation of crops. That was evident towards the beginning and the middle of the segment when large fields of corn could be seen on river left (Figure 4).

Under the Code of Virginia [§15.2-2223](#), localities must put forth a local comprehensive plan which is used to meet the infrastructure needs and recommendations of an area. Both [Fluvanna](#) and [Cumberland](#) counties have expressed the importance of preserving and effectively managing natural resources in their implementation plans. Fluvanna county plans to “protect existing open, forested, and agricultural areas by clustering growth into defined areas”, as well as employ conservation and open-space easements in order to hold the land in perpetuity.

IV. CONCLUSIONS AND RECOMMENDATIONS

Our purpose of this study was to provide a meaningful recommendation for the ~11 mile James River segment from New Canton to Columbia, as well as to explore different possible ways in which data can be collected for scenic evaluations in the field and virtually. We utilized the Survey 123 app for field observations, as well as [Terrain 360](#) for virtual observations. Although the analyses proved that the focal segment was no more or less scenic than other random segments of the Piedmont James, it proved to be a great tool for observing the riparian buffer, parallel roads, development, and impoundments in the river corridor. Keep in mind that

this is the first time a “desktop analysis” like this has been done, to my knowledge, so further exploration is needed in order to properly discredit it as being a viable tool for assessing the scenic value of a river.

This segment of river had a 100’ riparian buffer that we found to be 22% fragmented mostly by pastures, cropland and development. Given that only 26% of the land adjacent to this section is set aside for conservation purpose, it is not surprising that the designated use for much of this privately-owned land involves designated agricultural land. The multiple islands that we passed as floating down the river make great habitats for migratory and fish-eating birds, small mammals, and any other suitable inhabitants looking for a home. Moreover, this section has the potential to harbor numerous species of mussels, birds and fish that are of conservation need. (Virginia National Heritage Database).

Smallmouth bass and sunfish are a couple of the fish caught by anglers in this portion of the James River. Because of the flat and slow nature of the river, it is a great spot for beginner kayakers according to the James River Association. The historical significance of this section is rich being that it was once under the care and management of the Monacan tribe (now referred to as the [Monacan Indian Nation](#)) for thousands of years prior to colonization. Still today, the area that was once the capital Rassawek (now called Point of Fork) is of utmost historical significance given the fact that there are burial mounds and archaeological remains which have remained undiscovered for possibly hundreds of years. Additionally, there are many historic sites along the section that have yet to be studied for registration with the Department of Historic Resources.

The New Canton to Columbia Scenic River study has resulted in the following recommendations relative to scenic river designation, protection, administration, and

management:

- The ~11-mile segment from New Canton to Columbia of the James River should be designated as a component of the Virginia State Scenic Rivers Program.
- The Department of Conservation and Recreation should be designated as the administering agency.
- It is recommended that an advisory committee be organized and appointed by the Director of the Virginia Department of Conservation and Recreation (§10.1-401.4). The committee will consider interests and issues of the scenic river section as well as assist and advise the Director and local government with the protection and management of the scenic river section (§10.1- 406.1). The duties of the committee will be to advise the administering agency on any federal, state, or local government plan to approve, license, or construct facilities that would alter the natural, scenic, or historical values which qualify this segment for designation.

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Figure 20: Freshwater Friday students snap a quick socially distanced picture with landscape architect Lynn Crump from DCR (middle), after a long day on the Middle James.

VI. CITATIONS

Cornell Lab of Ornithology. (n.d.). *Bird Observations*. Retrieved from

<https://ebird.org/barchart?byr=2020&eyr=2020&bmo=1&emo=12&r=US-VA-029,US-V-A-049,US-VA-065,US-VA-075>

Cultural Heritage Partners. (n.d.). *National Trust for Historic Preservation Names Rassawek One of America's 11 Most Endangered Historic Places*. Save Rassawek. Retrieved from

<http://www.culturalheritagepartners.com/saverassawek/>

Brown, M. (n.d.) *Lasmigona subviridis (green floater)*. United States Geological Survey.

Retrieved from <https://nas.er.usgs.gov/queries/FactSheet.aspx?speciesID=146>

Barth, S. (2018). *Adult Yellow-billed Cuckoo (Coccuzus americanus*. The Cornell Lab of Ornithology Macaulay Library. Retrieved from <https://ebird.org/species/yebcuc/L5148856>

Hatcher, H. (2019). *Middle James River Report 2019*. Retrieved from

<https://dwr.virginia.gov/wp-content/uploads/media/Middle-James-River-2019-Popular-Report.pdf>

Higgins, H. (2017). *Belted Kingfisher Megaveryle alcyon*. The Cornell Lab of Ornithology Macaulay Library. Retrieved from <https://macaulaylibrary.org/asset/64970881>

Hofacker, W. (2021) *Bald Eagle Haliaeetus leucocephalus*. The Cornell Lab of Ornithology Macaulay Library. Retrieved from <https://macaulaylibrary.org/asset/317499571>

Imhoff, B. (2020). *Adult male Kentucky Warbler Geothlypis formosa*. The Cornell Lab of Ornithology Macaulay Library. Retrieved from

<https://macaulaylibrary.org/asset/229562501>

James River Association (2019). *James River trail and guide maps*. Retrieved from

<https://thejamesriver.org/explore-the-james/james-river-maps/>

James River Association. (n.d.). *State of the James River 2011* [Powerpoint Slides]. Retrieved

from <https://thejamesriver.org/wp-content/uploads/2016/04/state-of-the-james-11.pdf>

McKenzie, B. (2016). *Resigned to reversion: Columbia set to no longer be Fluvanna County's only incorporated town*. The Daily Progress. Retrieved from

https://dailyprogress.com/news/local/resigned-to-reversion-columbia-set-to-no-longer-be-fluvanna-county-s-only-incorporated-town/article_669a51bb-d37e-52e8-b176-4f09e98c7c87.html

Monacan Indian Nation. (n.d.). *Our History*. Monacan Indian Nation. Retrieved from

<https://www.monacannation.com/our-history.html>

Nature Serve Explorer. (n.d.). *Lasmigona subviridis*. Retrieved from

https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.107377/Lasmigona_subviridis

Nature Serve Explorer. (n.d.). *Fusconaia masoni*. Retrieved from

https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.1066291/Fusconaia_masoni

Swain, C. (2010). *Buckingham Baptist Church*. The Historical Marker Database. Retrieved

from <https://www.hmdb.org/m.asp?m=28527>

Taylor, J., Reeves, A., Poets, D., Elliot, R., et.al. (2020) *The Land Speaks*. Virginia Tech

University Libraries. Retrieved from <https://exhibits.lib.vt.edu/the-land-speaks/>

Terrain 360 and the James River Association. (n.d.). [streetview map of the New Canton to

Columbia segment of the James River]. Retrieved from
https://www.terrain360.com/trails/new-canton-to-columbia?v=0&h=0&b=90.9&lat=37.7_4970&lon=-78.16268#496

Virginia Department of Wildlife Resources. (n.d.) *James River - upper and middle*. Retrieved from <https://dwr.virginia.gov/waterbody/james-river-upper-middle/>

Virginia Outdoors Foundation Conservation Land. (n.d.). [map of VOF special project areas, easements, and reserves in Virginia]. Retrieved from
<https://vof.maps.arcgis.com/apps/webappviewer/index.html?id=fe49b0d5623c4e34bcfdc9a20669547b>

Virginia Department of Conservation and Recreation Virginia Natural Heritage Database Search. (n.d). Retrieved from <https://vanhde.org/species-search>

Virginia Department of Conservation and Recreation. (n.d). *Virginia natural heritage data explorer* [map]. Retrieved from <https://vanhde.org/content/map>

Virginia Department of Game and Inland Fisheries. (2015). *Virginia's 2015 Wildlife Action Plan*. Be Wild, Virginia. Retrieved from <http://bewildvirginia.org/wildlife-action-plan/>

Virginia Department of Wildlife Resources. (n.d.). James River WMA. Retrieved from
<https://dwr.virginia.gov/wma/james-river/>

United States Fish and Wildlife Service. (n.d). *Southeastern Mussels*. Retrieved from
<https://www.fws.gov/southeast/wildlife/mussels/>

United States Fish and Wildlife Service. (2006) *James spinymussel (Pleurobema collina) found during stream survey in Virginia*. Retrieved from
<https://www.flickr.com/photos/usfwsnortheast/8002764522/in/photostream/>

United States Geologic Survey. (2016). "National Land Cover Database." Retrieved from
https://www.usgs.gov/centers/eros/science/national-land-cover-database?qt-science_center_objects=0#qt-science_center_objects