



Riparian Forest Buffer Action Plan

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Executive Summary

The Virginia Department of Forestry (DOF) is committed to improving water quality and quantity across the Commonwealth. The Riparian Forest Buffer Action Plan is one part of that larger initiative. Through the implementation of this plan, DOF will focus on achieving the goals of the Chesapeake Bay Watershed Implementation Plan III (WIP III) while simultaneously creating a road map to bring these practices into every Virginia watershed.

This plan focuses on riparian forest buffers (RFB), one of the most effective and cost-efficient techniques available to ensure a safe and sustainable water supply for Virginia's communities. Planting trees by waterways creates diverse benefits, including reducing erosion and flooding, creating wildlife habitat, and beautifying the landscape, among many others.

Through the adoption and implementation of this plan, DOF will remove many of the historic obstacles that impede further buffer establishment. This work will allow DOF to increase overall buffer coverage across the state and improve our natural resources for the benefit of all Virginians.

Special Thanks

Thank you to all DOF staff who provided insight and guidance in this effort. This would not have been possible without your assistance.

Overview of Identified Barriers and Potential Solutions

Agency Capacity

Barriers

- ◆ Training.
 - Increase DOF staff knowledge and ability to plan/plant/perform maintenance on buffers (“buffer IQ” learning curve).
 - Takes staff time to learn and promote new programs.
 - Difficult to stay up to date with all the different cost-share programs and resources.
 - Widespread confusion over buffer reporting procedures
- ◆ Competing field staff priorities.
 - To implement buffer projects.
 - To search for new buffer projects.
 - To reach out to new landowners.
 - To build and maintain relationships with partners.
 - Small projects take as much time as big projects.
- ◆ Riparian buffer specialist turnover.
- ◆ Contractor availability.
 - Small tracts are not a priority.
 - Limited pool of available contractors.
 - Need for additional companies who can do the work.
- ◆ Limited invasive species management funding.
- ◆ Limited maintenance funding.
- ◆ Hardwood buffers and tubes are expensive.
- ◆ Small acreage projects are less cost-effective.
- ◆ Challenges sourcing a diversity of tree species.

Watershed Team Actions	Agency Capacity	
Task	Timeline	Status
Meet with district foresters and field staff to identify districts that will prioritize RFB establishment.	Phase 1	Completed
Conduct statewide partner inventory.	Phase 1	Completed
Share quarterly updates with partners from statewide inventory to increase communication and generate new planting opportunities.	Phase 2 & beyond	In Progress
Assess and address internal buffer training needs. <ul style="list-style-type: none"> ◆ Offer Chesapeake Bay Landscape Professional (CBLP) buffer training course to field staff annually. 	Phase 1 & Phase 2	Ongoing
James River Association (JRA) Internship. <ul style="list-style-type: none"> ◆ Support JRA pilot program to inspect Farm Service Agency Conservation Reserve Enhancement Program (CREP) sites prior to re-enrollment and fund needed maintenance. ◆ Continue to support JRA internship as it continues and expands in 2023. 	Phase 1 & Phase 2	Ongoing
FSA CREP Grant. <ul style="list-style-type: none"> ◆ Continue to fund the existing three riparian buffer specialists. ◆ Request additional funding to add an additional riparian buffer specialist and fund the James River Buffer Program's assistant position. 	Phase 1 & Phase 2	Ongoing

Other Possible Solutions

- ◆ James River Buffer Program (JRBP).
 - Conduct a strengths, weaknesses, opportunities, and threats (SWOT) analysis of the program to identify areas for possible improvement.
 - Seek continued funding.
- ◆ Develop more initiatives like the JRBP with dedicated staff to take on difficult projects in other priority watersheds.
- ◆ Permanently fund riparian buffer specialist positions and expand scope beyond CREP.
- ◆ Explore opportunities outlined in the agency's organizational design project to alleviate field staff workload issues.
- ◆ Bundle small-acreage planting and maintenance projects into regional contracts to entice contractors.
- ◆ Investigate strategies to increase seedling availability.
- ◆ Appalachian Conservation Corps, AmeriCorps or a similar program could provide extra hands for buffer maintenance and installation. They could also assist with other agency needs (e.g., fire).
- ◆ Utilize Forest Management Incentive for management and needed maintenance on CREP projects.
- ◆ Develop partnerships to address funding and implementation.
 - Treating invasive species.
 - Maintenance of existing riparian buffers.

Buffer Retention, Growth and Recognition

Barriers

- ◆ Need to improve reporting around projects that are not part of a formal cost-share program (e.g., old buffers, landowner-funded, unprompted natural regeneration).
- ◆ Riparian Buffer Tax Credit.
 - Requires Stewardship Plan.
 - Minimum acreage requirement.

Watershed Team Actions	Buffer Retention, Growth and Recognition	
Task	Timeline	Status
Develop a DOF Watershed Prioritization Tool. <ul style="list-style-type: none"> ◆ Share the existing JRB Prioritization Tool with the field and collect feedback. ◆ Use feedback to determine if DOF should create an entirely new tool, if improvements can be made to an existing tool, or if this isn't a current need. 	Phase 2	In Progress
Develop the "maturity measurements" concept.	Phase 3	Pending

Other Possible Solutions

- ◆ Use new aerial photography to conduct larger land use analysis.
 - May provide the technology to calculate buffer establishment and conservation at a statewide level.
 - Identify how much land could still be buffered.
 - Identify land ideal for buffer plantings. (In tidal areas, there may be areas that are too wet to be used for anything else.)
- ◆ Incentivize natural regeneration.

External Funding

Barriers

- ◆ Eligibility and restrictions.
 - Federal programs only apply to agriculture land.
 - Income requirements may exclude landowners.
 - Limited flexibility and eligibility requirements from funders (e.g., CREP's restrictions).
 - Landowners are accustomed to annual rental payments for buffers. Free installation alone may not be an effective incentive.
 - Lack of funding options and competitive disadvantage for projects outside of the Chesapeake Bay watershed.
 - Limited cost-share opportunities for projects on public land.

- In tidal portions of the Eastern Region, many partners fund living shorelines rather than buffers.
- ◆ Conflicting priorities.
 - Federal programs allow grass buffers instead of only trees.
 - State and federal agencies promote non-RFB options (e.g., grass buffers, just fencing).
- ◆ Bureaucracy.
 - Burdensome paperwork makes it difficult for landowners to enroll.
 - DOF doesn't hold the purse strings – must pass projects off to other agencies.
 - Confusion over who to talk to. Landowners are passed around to different organizations or partners.
 - Lack of coordination among agencies.
 - Unstable funding (e.g., DOF hired staff to promote CREP just as CREP funding went away temporarily).
 - Confusion over multiple programs with conflicting requirements and benefits.

Watershed Team Actions	External Funding	
Task	Timeline	Status
Complete and distribute the digital buffer cost-share cheat sheet portal.	Phase 1	Completed
Guide the creation of a statewide buffer action plan.	Phase 2	In Progress
Prepare the buffer cost-share flow chart for external distribution.	Phase 2	In Progress
Provide leadership and oversight to flexible funding programs moving forward (e.g., FSA CREP grant, Joint Chiefs grants, etc.).	Phase 1 & beyond	In Progress
Investigate possible 319 funding from the Department of Environmental Quality (DEQ) for projects outside the Bay.	Phase 2	In Progress
Conduct a SWOT analysis of existing cost-share programs and develop strategies to overcome gaps.	Phase 2	Pending

Other Possible Solutions

- ◆ Continue to fund and develop flexible programs like the JRBP and Virginia Trees for Clean Water program.
- ◆ Infrastructure Investment and Jobs Act (IIJA) funding will support invasive species plant management.
- ◆ Look towards other priority watersheds (e.g., Albemarle-Pamlico, Upper Tennessee, etc.) for funding and partnership opportunities.
- ◆ Continue to partner with nonprofits to leverage their strengths and funding opportunities.
- ◆ Explore other incentives DOF could provide (e.g., tax credits).
- ◆ In tidal regions, explore buffer partnerships with nonprofits currently focused on living shorelines, flood abatement and wetland migration.
- ◆ Strengthen working relationships between state and federal agency leaders.

Landowner Concerns

Barriers

- ◆ Landowner/tenant varying priorities.
- ◆ How can we reach folks who aren't currently involved with DOF?
- ◆ How can we support non-agriculture landowners?
- ◆ Lack of options for multi-functional buffers (e.g., forest farming).
- ◆ Ongoing involvement after establishment. DOF is heavily involved in the establishment phase but much less contact 2 years and beyond.
- ◆ Re-enrollment.
 - Land ownership change.
 - Cost.
 - Bureaucracy (hassle to complete paperwork).
 - Long-term projects aren't eligible, need work done quickly to qualify.
- ◆ Selling buffers.
 - Landowner perception problem (e.g., buffers aren't aesthetically pleasing, want to mow, know of failed buffers, etc.).
 - Low landowner interest in natural regeneration.
 - Buffer restoration is an easier sell than establishment.
 - Lack of knowledge of what a buffer is and its benefits.

Watershed Team Actions	Landowner Concerns	
Task	Timeline	Status
Develop consistent methodology for buffer evaluation as part of JRA's intern project.	Phase 1	Completed
Support Virginia Tech's master's student research project to analyze past plantings and make recommendations on what has worked or failed, and why.	Intern will start in Fall 2023	Pending
In coordination with Natural Resources Conservation Service (NRCS), develop a standard operating procedure for CREP re-enrollment inspections.	Phase 2	In Progress
Create a landowner outreach survey. <ul style="list-style-type: none"> ◆ Field staff will complete the survey when a landowner opts not to install a buffer. ◆ Watershed Team will review data and find ways to better incentivize buffer establishment. 	Phase 2	In Progress (Survey completed.) (Reviewing data throughout 2023.)
Conduct targeted landowner outreach in each region.	Phase 2	Pending
Work with partners to improve outreach and education efforts. <ul style="list-style-type: none"> ◆ Plug into existing partner education efforts (e.g., buffer talks, bus tours, etc.). ◆ Build new relationships with previously unengaged partners. 	Phase 2 & beyond	In Progress

Other Possible Solutions

- ◆ Develop new strategies to serve non-agriculture landowners.
- ◆ Implement insights from Green Infrastructure Center (GIC) buffer outreach study.
- ◆ Prioritize continued relationships with buffer-holding landowners.

Missing Information

Barriers

- ◆ Why have projects failed or been successful?
- ◆ How does success vary by techniques, programs, species, etc.?
- ◆ Is an invasive buffer still valuable from a water quality perspective? Cost-effective?
- ◆ Is it better to have an invasive buffer or no buffer at all?
- ◆ How do we measure the success of our outreach efforts?
- ◆ How much should a buffer project cost per acre?

Watershed Team Actions	Missing Information	
Task	Timeline	Status
Develop a consistent methodology for buffer evaluation as part of JRA's intern project.	Phase 1	Completed
Support Virginia Tech's master's student research project to analyze past plantings and make recommendations on what has worked or failed, and why.	Intern will start in Fall 2023	Pending
Develop standard operating procedure for CREP buffer re-enrollment inspections, have this approved by NRCS and shared with the field.	Phase 2	In Progress
Assist the James River Consortium to create a statewide riparian plants guide.	Phase 2	In Progress

Reporting

Barriers

- ◆ IFRIS.
 - No information on buffer width in IFRIS.
 - Are we reporting the true size of buffers?
 - Are we reporting all the projects we assist with?
- ◆ Best management practice (BMP) warehouse.
 - DOF needs to report to BMP warehouse accurately and consistently.
 - Need to clarify what other agencies are or are not reporting.

Watershed Team Actions		Reporting	
Task		Timeline	Status
Watershed program manager will coordinate BMP warehouse reporting.		Phase 1 and beyond	Ongoing
Provide training and support for the field on reporting questions and protocols.		Phase 1 & beyond	Ongoing
Watershed program manager will coordinate with partner agencies to clarify who reports which projects.		Phase 1 & Phase 2	In Progress
Create a Buffer Reporting 101 Guide.		Phase 1	Completed
Create a Comprehensive Buffer Reporting Guide.		Phase 2	In Progress

Other Possible Solutions

- ◆ Aerial imagery may more accurately identify buffered areas for reporting.
- ◆ Agency's organizational design project and internal training could address value of buffer reporting accomplishments.

Urban

Barriers

- ◆ Urban projects often cannot meet federal funding specifications (e.g., not 35 ft. wide).
- ◆ Lots of competing project needs and buffers are hard to sell (e.g., desire to maintain viewsheds).
- ◆ Lack of public understanding of what a buffer is and its function.
- ◆ It is inefficient for DOF to provide technical assistance on small, privately-owned parcels. There is also limited funding for management on these properties.
- ◆ Buffers are poorly integrated within stormwater BMPs.
- ◆ Confusion over the process, permits and who can authorize plantings (e.g., HOA, city land, etc.).
- ◆ Difficulty securing long-term maintenance agreements.
- ◆ In tidal areas of the state, non-profit groups and funding opportunities are often focused on living shorelines.
- ◆ Aerial photography may be less useful in urban areas as sports fields appear as potential buffer areas. Recent high-resolution imagery (one meter or less) is required to properly evaluate urbanized areas.
- ◆ Difficulty persuading public entities to install and maintain urban buffers.
- ◆ Urban buffer projects present unique challenges (i.e., multiple stakeholders, community engagement, highly visible properties, etc.) that can be especially time-consuming and complicated.

Watershed Team Actions		Urban	
Task	Timeline	Status	
Maintain close communication with urban and community forestry (U&CF) staff and support program as needed.	Phase 1 & beyond	In Progress	
Share U&CF funding opportunities and programmatic updates with internal and external audiences.	Phase 1 & beyond	In Progress	
Define rural vs. urban buffer definitions and reporting protocols.	Phase 2	In Progress	

Other Possible Solutions

- ◆ Educate government employees (e.g., planners, stormwater engineers, etc.) on RFB function and utility.
- ◆ Effective stream protection requires strong local ordinances.
 - Draft example ordinances for localities to adopt.
 - Expand Virginia Tree Ordinance database.
- ◆ Prioritize areas for planting based on insights from urban heat island data.
- ◆ Fund additional urban and community foresters to facilitate urban projects.
- ◆ Partner with non-profit organizations to leverage new funding opportunities and expand capacity.
- ◆ Promote existing homeowner education and outreach tools (e.g., Bay Star, River Star and Pearl).
- ◆ Promote the importance of maintenance in publicly accessible buffers. Invasive insects (e.g., emerald ash borer) have led to tree mortality in urban areas along public buffers that pose a safety risk.
- ◆ Promote use of the “My Tree Counts” application.

State Lands

Barriers

- ◆ Limited funding for projects on public lands, especially outside of the Chesapeake Bay watershed.
- ◆ State lands are primarily managed to generate income.
- ◆ Purchasing requirements make it difficult to implement projects.
- ◆ Confusion within other agencies about implementation goals and accomplishments.

Watershed Team Actions		State Lands	
Task	Timeline	Status	
Watershed program manager will continue actively participating on Virginia Bay Interagency Team and State Lands Watershed Implementation Plan (WIP) Team.	Phase 1 and beyond	In Progress	
WIP Team will identify points of contact for each state agency and make connections.	Phase 1	Completed	

Other Possible Solutions

- ◆ Partner with other state agencies to find and fund projects on state lands (e.g., Department of Corrections, Department of Transportation, etc.).
- ◆ Leverage state lands funds.
- ◆ Additional funding for work on state lands within the Bay is available from the Environmental Protection Agency, state budget and IJA.

Next Steps for Buffer Action Plan

Phase 2 – January 1, 2023 – December 31, 2023

Phase 2 Watershed Team Actions

Agency Capacity

- ◆ Support DOF field staff in reaching their buffer establishment goals by finding new projects, working with partners, offering training, creating resources, and providing other assistance as needed.
- ◆ Continue to address internal DOF buffer training needs, including funding registration to the Chesapeake Bay Landscape Professional Buffer Training course.
- ◆ Continue to support the JRA internship inspecting CREP sites before they are eligible for re-enrollment and funding needed maintenance. This internship will expand in 2023 to include three additional counties within the Central Region (Albemarle, Nelson and Fluvanna counties).
- ◆ Share quarterly updates with partners from statewide partner inventory to increase communication and generate new planting opportunities.
- ◆ Set realistic acreage goals for buffer establishment in performance year 2024.

Buffer Retention, Growth and Recognition

- ◆ DOF Watershed Prioritization Tool – Determine if improvements can be made to an existing tool, if DOF needs to create a new version, or if this is not a current need.

External Funding

- ◆ Guide the creation of an updated statewide Riparian Forest Buffer Action Plan.
- ◆ Conduct a SWOT analysis of existing cost-share programs and develop strategies to overcome identified gaps.
- ◆ Explore and administer additional flexible funding sources, including the FSA CREP grant, the Joint Chiefs Lower Cowpasture and North Shenandoah Mountain grants, and DEQ's 319 funding.
- ◆ Prepare buffer cost-share flow chart for external audiences.

Landowner Concerns

- ◆ Develop and conduct targeted landowner outreach in each region.
- ◆ Utilize partner inventory created in phase 1, share quarterly updates with partners to increase communication and generate new planting opportunities.

- ◆ In coordination with NRCS, develop a standard operating procedure for CREP re-enrollment inspections.

Missing Information

- ◆ Support Virginia Tech's master's student research project to analyze past plantings and make recommendations on best buffer practices.
- ◆ Assist the James River Consortium with the creation of a statewide riparian plants guide.

Reporting

- ◆ Provide quarterly updates to regions, districts, and the Executive Team on buffer, afforestation and landowner outreach survey progress.
- ◆ Clarify internal reporting procedures.
- ◆ Oversee Bay reporting to DEQ's BMP warehouse – ensure all applicable practices receive proper credit in the Bay model.
- ◆ Expand the Buffer Reporting 101 Guide to create a Comprehensive Buffer Reporting Guide.

State Lands

- ◆ Continue actively participating on Virginia Bay Interagency Team and State Lands WIP meetings; share updates and opportunities with DOF State Lands program as they arise.

Urban

- ◆ Share U&CF funding opportunities and programmatic updates with internal and external audiences.
- ◆ Maintain close communication with U&CF staff and support program as needed.
- ◆ Define rural vs. urban buffer definitions and reporting protocols.

Phase 1 – June 2022 – December 31, 2022

Phase 1 Watershed Team Actions

Agency Capacity

- ◆ Set realistic acreage goals for buffer establishment in performance year 2023.
- ◆ Meet with district foresters and field staff to identify districts that will prioritize RFB establishment.
- ◆ Assess and address internal DOF buffer training needs.
- ◆ Collaborate with JRA to pilot internship project to inspect CREP sites before they're eligible for re-enrollment and fund needed maintenance.

Buffer Retention, Growth and Recognition

- ◆ Improve DOF's Watershed Prioritization Tool.

External Funding

- ◆ Provide leadership and oversight to flexible funding programs moving forward.
- ◆ Oversee creation and distribution of a GIC project cost-share information sheet.

Landowner Concerns

- ◆ Conduct partner inventory with district foresters to see where existing partners are and where there is opportunity.

Missing Information

- ◆ Conduct study on past plantings and make recommendations on what has worked or failed, and why.
- ◆ Collaborate with JRA to pilot internship project to inspect CREP sites before they're eligible for re-enrollment and fund needed maintenance.

Reporting

- ◆ Assess and improve internal reporting.
- ◆ Coordinate with partner agencies to clarify who reports which projects.
- ◆ Review and update information sheet to answer forester questions and improve internal reporting.

State Lands

- ◆ Continue actively participating on Virginia Bay Interagency Team and State Lands WIP Team.
- ◆ Identify points of contact for each state agency and make connections.

Urban

- ◆ Conduct outreach to urban partners, including delivering presentations to the Virginia Soil and Water Conservation District Board, Friends of the Rappahannock's Roundtable, James River Consortium Summit, and the Planning District Commissions.

Appendix

Buffer Goals

Location	Performance Year 2023 Goal
Western Region	130 acres
Central Region	125 acres
Eastern Region	85 acres
Statewide Total	340 acres

*These regional goals are further divided into district and locality goals.