

Business of Buffers Roundtable

Final Report

***Prepared for the Upper and Middle James
Riparian Buffer Consortium***

November 2023

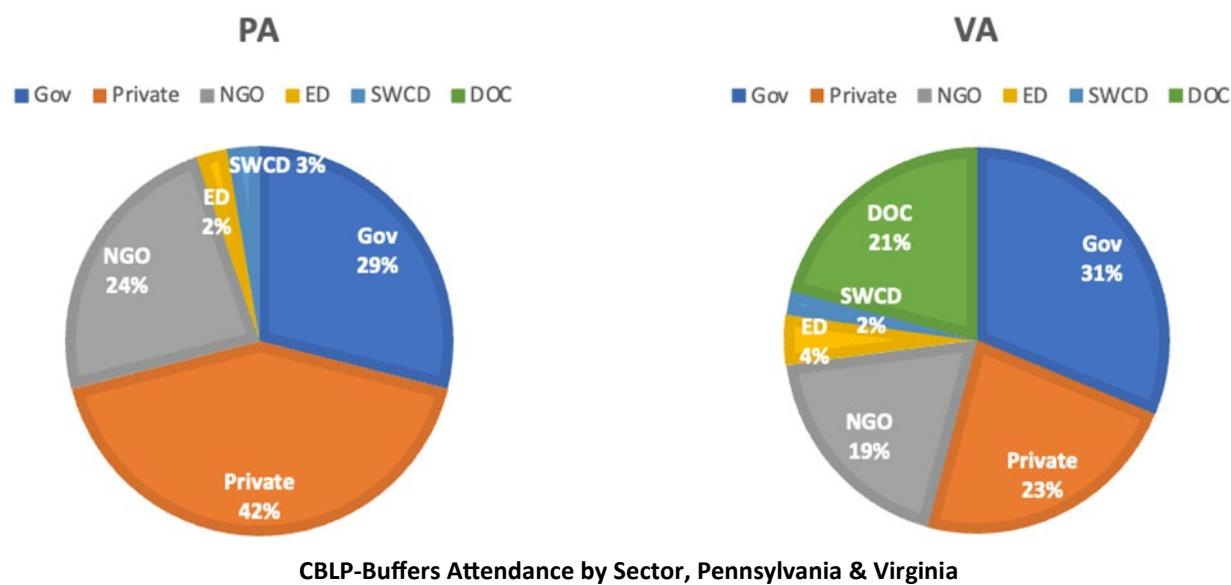


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INTRODUCTION AND OVERVIEW

Since 2018, the Chesapeake Bay Landscape Professional (CBLP) program has been working to expand the network of trained professionals available to meet the growing demand for riparian buffer services. This effort has included professional development and recruitment workshops, lunch and learns, roundtables, one-on-one interviews with certified CBLPs and business owners, and Pennsylvania and Virginia partner-funded studies. In 2020, we piloted the CBLP-Buffers certificate course, a comprehensive series on riparian buffers. We have held the CBLP-Buffers training series three times, concurrently in Virginia and Pennsylvania, and offered it twice with Virginia Cooperative Extension and the James River Association (JRA) through the Virginia Department of Corrections (DOC) at the State Farm facility. A total of 86 individuals have earned CBLP-Buffers credentials including 32 in PA, 8 in MD, 43 in VA, and 1 in WV.



Previous cohorts included approximately 20-40% private sector participation in CBLP-Buffer trainings with approximately 15-20 participants. The remaining participants include non-governmental organization (NGO) staff, educators, and local government and state agency staff. In Virginia, there are 10 women who are expected to re-enter the workforce who have earned the CBLP-Buffers certificate through the DOC partnership. At the current rate of recruitment and training of small business owners or potential new employees entering the buffer workforce, CBLP-Buffers training alone will not result in enough new businesses or new people entering the workforce to meet the demand for buffer services or workforce. Many large-scale buffer projects are planned by those funding the work (NGOs, state agencies like the Virginia Department of Forestry (DOF), and conservation districts), but are implemented and managed by private companies.

Within the James River Watershed, existing riparian buffer contractors are seeing an increase in the demand for their services but are struggling to recruit and train the workforce needed to fulfill existing contracts, limiting their capacity to take on more work. In addition, the cost of doing business has risen (materials, fuel, equipment, labor rates), profits have decreased, there aren't always enough seedlings to meet demand, and there have been disruptions in the supply chain for tree tubes.

With the current National Fish and Wildlife Foundation grant, CBLP and JRA organized a Business of Buffers roundtable to inform the following:

1. Small Business Engagement with Buffer Projects
2. Ongoing Outreach Activities for the Riparian Consortium
3. Contractor Capacity Building
4. Planning and Delivery of Training and Professional Development Workshops



2022 BUSINESS OF BUFFERS ROUNDTABLE DISCUSSION

CBLP, as an Upper & Middle James Riparian Consortium (Consortium) partner and Knowledge Network coordinator, planned and hosted a Business of Buffers Roundtable in June 2022, seeking a better understanding of existing buffer businesses. We invited twenty business owners and managers to join this discussion in Scottsville, VA. The stated goals of the roundtable were to:

- Bring together experienced riparian buffer contractors with others who are new to or interested in working on buffers in Virginia, to help build relationships and collaborations.
- Learn from experienced contractors about their approach and best practices to riparian buffer implementation and management.
- Understand barriers to entry in this field and challenges for contractors doing buffer work.
- Generate topics to inform development of a Business of Buffers Workshop, to be held in central Virginia in 2023.

The invitees included certified CBLPs, professionals with CBLP-Buffer certificates, local contractors, and contractors who voiced an interest in doing riparian buffer work for JRA. Of the contractors invited, 8 responded that they would attend, but only 4 attended. Additional contractors were interviewed after the June 2022 Roundtable meeting and findings from interviews, follow-up conversations, and previous buffer contractor interviews are included in this evaluation.

Concurrent to the Business of Buffers Roundtable, the Green Infrastructure Center (GIC) surveyed riparian buffer businesses. A representative from GIC participated in the Roundtable and used their Roundtable meeting notes and survey results to inform a memo prepared for the DOF. CBLP assisted GIC in the development of the survey and the memo and survey results were shared with us. All but one of the survey respondents also participated in the Business Roundtable. The memo is provided in Appendix B.

UNDERSTAND BARRIERS
TO ENTRY IN THIS FIELD
AND CHALLENGES FOR
CONTRACTORS DOING
BUFFER WORK

The Roundtable attendees represented a mix of contractors engaged in different scales and types of buffer planning, implementation, management, and materials supply. These included:

- A large scale, multi-state buffer business that provides a suite of buffer services including planting, site preparation and maintenance (typically mowing and invasive species management), planning or plan review, and wholesale materials distributor/supplier. Planting services are provided seasonally for 9 months of the year in many states, using traveling crews of H2B visa workers and in-house staff supervisors. To stay cost competitive, maintenance and invasive species management services are typically not



located too far from business headquarters and are performed by permanent staff (approximately 18). Their ability to quickly scale up for large installation projects and the number of permanent staff provide them with an edge compared to other similar businesses. Planting jobs range from 6 to 600,000 trees per project. Clients include conservation districts, local governments, non-governmental agencies (NGOs), and state agencies. They don't typically work on non-agricultural residential properties. They are busy all year. They are also a wholesale supplier of seedlings and other planting supplies for several other small businesses at the roundtable. Examples of businesses that work in Virginia within the James River Watershed that fall into the Large-Scale Buffer/Natural Resource Restoration Services business category include Conservation Services, Inc., Shenandoah Habitat Services, Williams Forestry, Eastern Forest Consultants, Virginia Forestry and Wildlife Group, LLC, and Horizon Forestry, LLC.

- A mid-sized company that provides a “turnkey operation for Farmers and the CREP Program from Bristol to the Coast”. In addition to predominantly mechanical site preparation and tree planting, they install cattle exclusion fencing, stream crossings, well drilling and water systems. This business doesn’t do much maintenance work and any invasive species management is subcontracted. The company is busy all the time with the family farm and tree and fence installation.
- A certified small, woman and minority owned (SWaM) business working in central Virginia, in and around the Charlottesville area. Buffer-related services include planning, smaller-scale installation jobs, invasive species management and mowing. They also offer a full suite of ecologically based services with expertise in Virginia native plants, restoration ecology and landscaping, stormwater infrastructure, land-use management, wetland and stream ecology, invertebrate taxonomy, and GIS. The business, with 3 full-time staff, can address previous poor maintenance and invasive species management. Clients include local government, private property owners, and mitigation banks on urban, suburban and some residential properties. All staff are certified as CBLP Level 1 and/or Level 2.
- A CBLP-Buffers certificate holder, currently an educator who previously worked for a native plant supplier and is involved in developing a native plant guide for the Shenandoah area.

Before and after the roundtable meeting CBLP staff interviewed:

- two large scale multi-state natural resource restoration businesses
- a newly established small residential/commercial, Richmond-based business with CBLP-Buffers certificate training, and
- a newly established, Northern Virginia-based, woman-owned, CBLP Level 2 Design/Install certified, sustainable landscape and green infrastructure business.

Attendees (and, later, interviewees) were asked a series of questions designed to help the CBLP team better understand the different types of riparian buffer business models, clientele, scale of



buffer operations, capacity building needs, gaps in the buffer services market and business opportunities associated with those gaps, and barriers to success for existing and potential businesses. The questions are provided in Appendix A.



SUMMARY OF FINDINGS FROM ROUNDTABLE AND INTERVIEWS

Business Engagement

The types of businesses engaged in buffer work vary and the capacity of these businesses to take on additional buffer related work will depend on the business model for delivery of buffer services and the market in which the company operates. By holding a roundtable discussion and subsequent interviews with several other types of businesses engaged in buffer work, we can begin to narrow down which businesses in each watershed might be interested in expanding their services and better understand how to engage and interest those businesses and others in training and buffer related opportunities.

Ongoing Outreach Activities

Once we better understand the types of buffer business models, including their operations, equipment and machinery, labor recruitment, retention, training needs and strategies, clientele, buffer implementation, and management best practices, we can look for other businesses that have these same characteristics which might easily add buffer services if provided with appropriate training. We can also look for non-competitive opportunities for existing buffer businesses to partner or subcontract with incoming small businesses to address the labor capacity issues. Future efforts will also query stakeholders to better understand the demand for buffer workshops and training materials in Spanish.

Note: Existing businesses do not want to train their future competitors, but some are interested in and do collaborate in a mutually beneficial way with other specialized contractors.

Contractor Capacity Building

The amount of capacity building support needed to enable new and existing contractors to meet current and growing demands for riparian buffer services may vary by company; however, in general, there is a common concern about the domestic labor shortage within the green industry. We have learned that this is true whether the business focus is buffer/natural resource conservation or landscaping and grounds management.

Numerous differences exist regarding the market, funding, plant materials, and business models depending on the funding program and/or clientele with which a buffer business is affiliated. There are many buffer businesses that originated and continue to provide conservation services for agriculture and forestry landowner assistance programs run by federal and state agencies like United States Department of Agriculture (USDA), the Natural Resources Conservation Service (NRCS), DOF, Virginia Department of Conservation and Recreation (DCR), and Soil and Water Conservation Districts (SWCDs). These businesses may compete with other similar businesses

as the lowest bidder for large-scale planting contracts and may focus mainly on regional work, across many different states, or provide statewide services. Other services provided may include invasive species management and other site preparation and maintenance activities. Some may be wholesale distributors for plants, tubes, stakes, bird nets, and/or mats. Some may provide consultation for planting plan refinement and serve as an intermediary for property owners with cost-share program managers.

As the demand for riparian buffer implementation and management has increased, the clientele and types of properties buffer businesses work on now include nonprofits, large property owners and state agencies engaged in mitigation banks, habitat restoration, stream restoration and buffer restoration projects to meet Chesapeake Bay water quality goals on public and private lands. When buffer contractors are scaled up to work on large projects, they are less likely to work with non-agricultural residential property owners or small properties (less than 3 acres). Many of the large-scale buffer planting operations rely on H2B visa workers from Spanish-speaking countries who have their own bilingual crew leaders. While planting operations are scaled up using seasonal H2B visa crews that return each year, the maintenance operations are typically more local (within a 200-mile radius). Otherwise, operating expenses are too high to be cost effective.

Some highly experienced buffer project managers and crews are aging out and companies are having a hard time recruiting a new younger workforce. Many young workers entering the workforce are not interested in the outdoor, physically demanding, and seasonal nature of the work and long stretches of time on the road during the planting season. The workforce needs vary by company; however, most of the large-scale contractors may need to hire anywhere from two project manager level staff and upwards of 4-10 new domestic crew members. Smaller companies may need one project manager level staff and two to four field staff.

Smaller companies engaged in buffer work may use subcontractors to scale up to fulfill contract obligations, to be competitive, and/or to provide specialty services. The two Level 2 CBLP-certified, women-owned small businesses we heard from provide a range of sustainable landscape, buffer, and stormwater best management practice (BMP) services. Both work with the Virginia Conservation Assistance Program (VCAP) cost-share program to implement buffers and other stormwater practices. Both provide sustainable design services; one specializes in difficult invasive species management projects including site preparation and management; and the other provides installation and occasionally, maintenance. Both use subcontractors they trust to scale up their operations when needed. Clients include local government, small and large lot residential property owners, and HOAs. Neither have earned a CBLP-Buffers certificate. Another small business is relatively new, recently completed the CBLP-Buffers certificate program, and is currently providing natural landscaping and invasive species management services to urban residential and commercial clients. This company is planning to add buffer restoration services to

THERE IS A COMMON
CONCERN ABOUT THE
DOMESTIC LABOR
SHORTAGE WITHIN THE
GREEN INDUSTRY

their business model. One small business is a one-stop shop for farmers implementing cost-share practices, installs buffers with a tree planting machine and subcontracts certain services.

Many larger-scale operations provide in-house training and are looking for people with some basic skills and credentials for entry-level crews and some business and management skills for project managers. The following desired employee qualities, skills or credentials were mentioned:

- Invasive species management, registered tech (pesticide applicator),
- Business skills (accounting, HR, records management, useful apps),
- Soft skills (wraparound skills),
- Ability to navigate using maps and GPS,
- Outdoor skills with an ability to read the landscape and topography and understanding of hydrology,
- Plant knowledge,
- A work hard/work smart ethic (mental and physical tenacity, adaptability, pride),
- A value for the profession and the environmental accomplishments achieved.

Smaller-scale, natural resource management and sustainable landscape companies are more likely to also look for new employees with CBLP training and certifications as well as soft skills (work ethic) and interest in outdoor physical labor.

LARGE-SCALE CONTRACTORS
MAY NEED TO HIRE TWO
PROJECT MANAGER LEVEL
STAFF AND 4 - 10 NEW
DOMESTIC CREW MEMBERS

One business manager suggested developing a description of the careers in riparian buffer restoration work that includes a salary range and sense of pride in the value of a career in environmental conservation and restoration work, then developing a marketing campaign around these descriptions to recruit more young people to these careers. This individual suggested that we reword what the industry is by promoting accomplishments of the industry like acres planted per year, amount of money spent each year on buffers, and that this is not just day labor, it is a long-term career. A small business consultant that we interviewed also suggested that an appeal to pride and earning potential or business growth might attract Latinx businesses; however, we should not consider Latinx businesses as a means to find “cheap labor”.

Planning/Design Private Sector Business Opportunities/Issues

- The Business of Buffer Planning - for many of the buffer cost-share programs, large-scale buffer program managers typically meet with property owners, evaluate the site and develop riparian buffer plans (general layout, width, and number and type of woody plants per acre) and buffer companies bid on those plans. Private companies may provide buffer planning services as the first point of contact with the property owner, then develop a plan

to meet the funding program requirements and negotiate plan approval with the appropriate funder. Buffer companies may also consult as technical advisors and suggest modifications to the plan to meet the property owner's goals, use, and aesthetics, then facilitate approval of plan modifications. Some private companies engaged in buffer planning might take a natural regeneration approach, or if working with mitigation banks, may plant densely without tree tubes and manage for natural regeneration that will offset plant loss but result in the required plant survival rate.

- The Business of Buffer Design - urban/suburban buffers, particularly for residential or commercial properties seeking a landscaped look are more likely to be designed by a landscape designer/architect or design/build contractor. These buffers often use larger plant stock, include herbaceous as well as woody plantings, and are designed to meet the property owner's aesthetics and other landscaping goals. Most cost-share programs do not provide funding for the design work, primarily funding the installed project, and may include funding for 2-3 years of maintenance. Riparian buffers on residential properties in urban, suburban, and non-agricultural rural areas as well as homeowner associations and commercial properties are a potential market for buffer restoration projects that can be funded through cost-share programs. Time and materials costs for these projects may be higher per acre and small businesses may find that the amount of cost-share is not a sufficient incentive or sales pitch for buffer projects. Localities may also require property owners to install and maintain buffers for mitigation purposes, which typically isn't funded by cost-share programs.
 - Because many cost-share programs do not fund design work, a landscape designer or architect working on buffers should either have a relationship with landscape installation/maintenance subcontractors or be part of a design/build firm.
 - The designed buffer approach tends to integrate more sustainable landscaping principles, encourage and manage for natural regeneration, cover the ground layer with an herbaceous native plant matrix, and plant trees and shrubs regardless of size without protective fencing or tubes.

All businesses, regardless of size, noted that the current NRCS requirement of species diversity, particularly the number of slower growing species like oaks, should be reconsidered. It may be contributing to supply chain issues with desirable seedling stock and complicates actual planting operations. Whereas, including a higher percentage of early successional, fast-growing trees in the initial plan may speed canopy closure

URBAN/SUBURBAN BUFFERS
ARE MORE LIKELY TO BE
DESIGNED BY A LANDSCAPE
DESIGNER/ARCHITECT OR
DESIGN/BUILD CONTRACTOR

and decrease the buffer establishment maintenance period and costs, and improve conditions for natural regeneration of understory trees and shrubs sooner in the buffer establishment.

Site Preparation

The work of site preparation typically requires invasive species management services prior to planting. This might include using machinery like a forestry mulcher, bushhog, scalper, and chain saws; mowing; installation of cattle exclusion fencing and watering stations; as well as herbicide applications and hand removal of plants. The time spent on site preparation may vary from one or two site visits to 1 to 2 years, depending on the methods used and the time allowed by the funding program and program managers, the client's schedule, the complexity, and the type of invasive species present.

- Buffer contractors all suggested, if possible, allowing more time for site preparation, particularly invasive species management, before planting. This may result in less pressure from invasives in new riparian buffer plantings, reduced need to manage invasives, lower maintenance costs, and overall, more successful buffers.
- Businesses need staff with invasive species management skills, aquatic pesticide applicator licenses or registered technicians, and field skills with machinery operation and hand tools. Staff need plant knowledge: native and invasive plant id, plant health, and proper management protocol.
 - Crew managers may need to be bilingual (Spanish/English mostly)
 - Equipment might include forestry mulchers, bushhogs, scalpers, mowers, chain saws, hand-tools, herbicide applicators.

Note: Tree planting machines prepare site and plant seedlings in furrows created by the machine. In evaluating cross-over opportunities, businesses that already own and operate some of the heavy equipment might be good candidates for engaging and training. In addition, there is an opportunity for subcontract work with existing buffer businesses for specialists in invasive species management.

Planting

As noted previously, planting expertise, capacity and services vary depending on the scale of the sites and planting operations, the clientele, and the associated buffer programs.

- Large-scale planting operations are typically associated with efforts:

- to meet the buffer standards established by the NRCS and SWCD cost-share programs for agricultural property owners (DCR regulated),
 - to meet the DOF best management practices and standards associated with forested land management and use,
 - to meet Chesapeake Bay Watershed Implementation Plan goals for major watersheds, state lands, and localities (CBP specified standards),
 - related to nutrient mitigation banking,
 - that are measured in millions of trees or hundreds to thousands of acres planted,
 - in which planting is done by hand with larger crews (10-12 people per crew) and include tubes, stakes, bird nets, and sometimes mats or gravel mulch. Mechanical planting is also an option with two to four people working on an installation.
 - to plant a specific number of woody seedlings per acre, with a specified plant diversity and survival rate as per conservation cost-share program requirements. Some companies may just plant pines.
 - to compete with other similar businesses where low bids get the contracts. Successful planting operations need to be efficient (done as quickly as possible), effective (have a high plant survival rate), experienced (may need to adapt/respond to field conditions) and timely (tied to the seasons, varies by state). Project managers and crew travel throughout a 9-month period of planting. Many crews are comprised of H2B visa workers.
- The planting operations of the smaller businesses differ from the large-scale plantings in terms of clientele and types of properties, and the use of sustainable landscape designs and principles. Most of these businesses are natural resource and sustainable landscape contractors and use landscape crews (size varies) to install riparian buffers. Plant stock can vary from container grown plants and plugs that include an herbaceous layer as well as trees and shrubs to seedlings and seeds. Landscape companies typically guarantee replacement if plants do not survive within the first year of planting. When planting seedlings, to avoid the use of tree tubes and the added maintenance associated with them, one business plants at a higher density than required and manages for natural regeneration, anticipating that the surviving and regenerative seedlings will meet the total number of trees per acre required by the cost-share programs. One business engaged in large mitigation bank buffer plantings also used this methodology of buffer planting and establishment.

Note: Regarding gravel mulch, most of the large-scale planting operations do not have the trucks and other machinery needed to transport and install gravel mulch efficiently and cost-effectively. This may be a niche market for local landscape contractors who have the correct equipment and staff to provide this service on a relatively local basis.

Maintenance

For some buffer businesses, as maintenance has begun to be required by many cost-share programs, it has become a more lucrative service, with 3- to 7-year contracts. However, the work (and the staff) needs to be more local to the shop because operating expenses go up with distance (associated with travel, staff time, transportation, fuel) and it is harder to compete with local companies that don't have those added costs. In particular,

- Companies need machinery and equipment including herbicide applicator equipment and hand tools, plus zero radius mowers, bushhogs and string cutters.
- Employees need invasive species management skills (state credentials), ability to perform physical labor, and plant knowledge (invasive and native plant id, plant health, proper management protocol).
- Managers may need to be bilingual and have job costing and crew management experience.
- Buffer businesses suggested that there may be an opportunity to build a business around tree tube/stake recycling. One large planting operation collected and donated tree tubes for reuse by some clients.

BUSINESSES THAT ALREADY OWN AND OPERATE SOME OF THE HEAVY EQUIPMENT MAY BE GOOD CANDIDATES FOR ENGAGING AND TRAINING

Plant/Materials Production and Distribution

Several of the large businesses are plant and materials wholesalers and service providers for other smaller businesses that do buffer work. This has resulted in a regional, friendly-competitive, mutually supportive relationship among buffer businesses who attended the roundtable. This supplier/service provider relationship may be a potential model for aligning buffer service providers to fill workforce and service gaps.

There may be sufficient demand and a need to grow the nursery and production side of the field. One business manager whose company is both a buffer service provider and grower has found that the grower/producer has expanded operations and sales to external clients, and they can no longer count on their own grower to have the seedlings when they need them. Another business leader suggested that small farms and nurseries might start as a subcontractor to DOF and grow seedlings of species that are in demand, but harder to propagate on a large scale.

A Business Perspective

From a business perspective our participants had the following to add:



- Time is money, labor is limited, costs of supplies and materials are going up, and plant (seedling) availability can be an issue. Buffer plans and funders should keep this in mind and allow for adequate time for implementation. In addition, while cost-share programs are designed to incentivize and maximize buffer restoration, businesses are in business to make a profit. Buffer cost-share programs should evaluate and increase the amount of cost-share funding available for each buffer project to reflect inflation and to ensure the funding is sufficient to cover contractor expenses and allow them to make a profit. Business costs are up 15% – 20%: for example, hourly pay has increased from \$20 to \$25 per hour (to attract workers) and shelters are up 20%.
- Efficient and effective site preparation and planting plus regular establishment maintenance during the growing season will result in successful buffers.
- Timing of work is critical and having the ability to ramp up crews for more labor-intensive planting activities is also important.

STRATEGIES and ACTION STEPS

The following conclusions and next steps are based on findings from the Business of Buffers Roundtable and subsequent conversations.

Business Engagement & Outreach Strategies. Although we intend to continue recruiting CBLP-certified professionals and other landscape contractors to provide riparian buffer services, many certified professionals are working at capacity and/or their capabilities may not be well-suited for rural, large-scale buffer services. We need to reach beyond our current network and further explore opportunities to engage businesses that may have the capacity for and interest in providing riparian buffer services. We intend to consider the Consortium's Diversity, Equity, Inclusion, and Environmental Justice (DEIJ) priorities as we engage businesses, including whether there is a need for Spanish language translation and programming.

Suggested Outreach Strategy: Build relationships and conduct additional outreach to organizations and agencies that represent and have relationships with landscape contracting businesses in Virginia, particularly the small women and minority owned (SWaM certified) businesses. Dedicate time to meeting with some agencies and organizations we have so far been introduced to, including:

- Diana Patterson, President and CEO of DSP Marketing and Consulting
- Virginia Department of Small Business & Supplier Diversity, Director of Business Development and Outreach Services and a regional Business Services Manager
- Virginia Hispanic Chamber of Commerce Executive Director
- Regional Virginia Small Business Development Center directors

Action Item: With these representatives, discuss the needs of their clients to help us better understand the potential demand for CBLP-Buffers training events in Spanish. In addition, we will explore the time and travel constraints for Spanish speaking participants and funding options.

Action Item: Identify 6-10 landscape contractors working in key areas of Virginia and conduct targeted outreach and interviews to gauge interest and share information about riparian buffer work.

WE NEED TO REACH BEYOND OUR CURRENT NETWORK
TO ENGAGE BUSINESSES THAT MAY HAVE INTEREST IN
PROVIDING RIPARIAN BUFFER SERVICES

Contractor Capacity Building and Outreach Strategies. Regardless of the size of operations, many contractors struggle with engaging and recruiting a young workforce. Supply chain challenges and increasing costs also impact the capacity of businesses to complete the work they have and take on more riparian buffer work.

Capacity Building Strategy: Identify, engage, and train the Riparian Buffer Workforce of the Future.

Outreach Strategy: Develop a description of the careers in riparian buffer restoration work. Once developed, this could be used in a marketing campaign to recruit young people to these careers, targeting high school, community college and university career centers, workforce development and internship programs. Conduct outreach and partner with organizations and institutions that offer training and education, such as:

- Appalachian Conservation Corp - Explore ways to partner with the Appalachian Conservation Corp to integrate a CBLP-Buffers certificate training into their standard training and work program.
- Local community colleges in rural areas particularly with Agriculture Sciences programs
- High school student programs like Agriculture Sciences, 4H Clubs, & Envirothon clubs
- Local/regional workforce development programs like Network2work or Groundwork RVA and introduce employers to these program managers/directors.

CAPACITY BUILDING STRATEGY:
IDENTIFY, ENGAGE, AND TRAIN
THE RIPARIAN BUFFER
WORKFORCE OF THE FUTURE

Capacity Building and Outreach Strategy: Recruit and cross-train local landscape installation and grounds management businesses to fill the buffer maintenance service gap for large scale and smaller properties (3 acres or less). Work with existing buffer businesses to facilitate relationship-building to explore the use of these new landscape businesses as subcontractors. Consider outreach to farm managers, who may have the skills and crews to implement and maintain buffer projects. Look for new businesses already equipped to provide gravel mulch installation and tree tube recycling services.

Action Item: *Work with the Virginia Nursery and Landscape Association (VNLA) to explore local nurseries' interest in offering riparian buffer services, particularly for smaller scale projects. These businesses often grow/sell native trees and shrubs and offer design, installation, and maintenance services. These nursery businesses may also know of landscape businesses interested in offering riparian buffer installation and maintenance services. Also reach out to VDACS to identify and connect with certified pesticide applicators who may be providing similar services and can easily add riparian buffer site preparation and maintenance services.*

Training/Professional Development Workshops. The original intent of the Business of Buffers Roundtable was to inform development of a Business of Buffers Workshop, as well as flesh out any other training needs. Given the uncertainties uncovered in the Roundtable discussion, we recommend postponing the Business of Buffers workshop to a future time, possibly mid-2023, when we have more contractors interested in buffer work. Meanwhile, there are some additional steps we may wish to consider to help build interest.

Suggested Action: *Partner with Angela Barber with the SBSD to develop and run a Riparian Buffer/Business webinar to engage Virginia SWaM businesses. Use this webinar to build a better understanding of the business development needs and barriers for small minority owned businesses.*

Suggested Action: *Partner with Appalachian Conservation Corp to run a CBLP-Buffers certificate training integrated into their Conservation Corp training.*

Suggested Action: *Reach out to VACS and consider partnering with VACS to run a CBLP-Buffers certificate training because invasive species management is such a critical skill and the pesticide applicator technician/license such a critical credential.*

APPENDIX A

Business of Buffers Roundtable

June 21, 2022

The assumption among state agencies, local government, NGOs, SWCDs, and others implementing riparian buffers in Virginia (and beyond) is that the current workforce (private contractors/businesses willing or able to do buffer work) and available plant stock are insufficient to meet the buffer implementation goals in Virginia. The Consortium, in partnership with CBLP, is seeking a better understanding of existing buffer businesses, successful business models and best practices, barriers to success or entry of new businesses into buffer services, and how to better support and increase capacity of existing businesses and increase service providers to implement and manage riparian buffers.

Part 1: Introductions Covering these Topics

What buffer services do you provide? Planning/Design/Restoration, Site Prep & Planting, Maintenance/Management, invasive species management

- Do you provide sustainable herbicide free maintenance and site prep services?
- Do you use subcontractors and if so for what purpose?

What is the seasonal flow of your business, services, and staff?

- When are you busy and what buffer services are you delivering at that time?
- When are you slow and what other services or tasks do you do to pay the bills during that time?

What types of sites do you work on and who are your clients? Urban/Suburban Residential, Commercial, Parks, Stream Restoration, Agriforestry, Habitat or Ecological Restoration?

What is the biggest buffer-related business issue you deal with as a business owner?

Part 2: Questions for Group Discussions

What do you feel is a successful business model for your buffer-related services?

- Is the current available funding (amount others have set aside to pay you) in line with market rates for similar landscape or restoration services and does it allow you to make a profit and/or cover your costs?
- If not, what is a reasonable estimate of service fees for different services that would allow you to make a profit?
- If yes, how do you manage your costs of doing business to ensure that you'll make a profit with available funding rates.
- Are there any buffer services (or a niche market) that you don't provide because you can't make a profit delivering those services? Is there a business model that you can recommend or words of wisdom for businesses who are interested in providing those services to fill that niche market?

What skills and tools do you need to run a successful buffer business?

- Do you feel that a Business of Buffers Workshop would be useful to you and other businesses?

What skills, knowledge, credentials and/or tools do your employees need to work on riparian buffers?

- What skills/knowledge gaps do you see in the workforce, and do you feel that training workshops like CBLP-Buffers would help bridge those gaps?
- Are there any advanced riparian buffer topics that you'd like to see in a professional development workshop?

Do you have any advice for other businesses that want to include or specialize in riparian buffer services?

What help or support (from other buffer funders or practitioners) would increase your capacity to do buffer work profitably and successfully?

Based on your experience or opinion, is there anything that you would do differently or innovations you'd like to see in buffer design/planning, site prep/installation, or management/maintenance to improve long term buffer success and increase your capacity and interest in doing buffer work?



APPENDIX B



Final project summary to the Virginia Department of Forestry on options to expand treed forest buffers in Virginia's Chesapeake Bay Drainage

Prepared by the Green Infrastructure Center Inc.

July 30, 2022

The project was proposed to evaluate opportunities to meet Virginia's forested stream buffer target established to restore the Chesapeake Bay. This memo updates recently reported work and also summarizes findings provided, along with final recommendations to the Virginia Department of Forestry. Outreach was conducted through a variety of methods, including individual interviews with agencies and organizations involved in tracking and planting buffers, attendance at James River Consortium meetings, a survey of major planting providers, a roundtable discussion hosted by GIC, and a Business of Buffers (BoB) roundtable hosted by Wetlands Watch. Following are summaries of the work and recommendations for VADOF and the State of Virginia to consider. Four prior memoranda were created during this project and those should also be consulted for additional insights (too lengthy to include herein). There are also relevant recommendations in the Chesapeake Bay Program's Riparian Forest Buffer Outreach Report, which identifies the need for separate maintenance crews, among other recommendations.¹

Most reports of buffer goal attainment show all states falling short of reaching their 2025 goals.² EPA's assessment notes that Virginia 2020-2021 Milestones Not Achieved include not meeting implementation targets for Forest Buffers, Urban Forest Buffers, Urban Tree Planting, and Urban Forest Planting.³ The report also noted that Virginia needs to increase urban tree planting by 4000% over past levels to meet its own goal.

¹ https://www.chesapeakebay.net/documents/22043/2018-2019_forest_buffer_management_strategy.pdf

² <https://www.chesapeakeprogress.com/abundant-life/forest-buffers>

³ https://www.epa.gov/system/files/documents/2022-06/Virginia_2020_2021_2022_2023_evaluation_DRAFT_MS_6.27.2022.pdf

1) Planting Labor Capacities: We contacted six companies identified as primary commercial players for buffer planting in Virginia. Despite phoning and calling each company three times, we only had responses from three of the six. Attached are the updated raw data (company names remain masked because of our promise to maintain the confidentiality of internal business plans). Respondents included Conservation Services, Inc., Eastern Forest Consultants and Wild Ginger Field Services. Businesses that were nonresponsive were Aqua Terra Hydroseeding and Erosion Control, Horizon Forestry LLC, and Total Vegetation Services LLC.

Additional comments were derived from the Business of Buffers (BoB) Roundtable. At that meeting and in other conversations with the James River Association and other non-profit planting groups, such as Friends of the Rappahannock, labor shortages were identified as the biggest challenge. Nonprofit and local providers noted that they were already at capacity, so referring more clients to them or better advertising their services would not accelerate the rate or amount of tree plantings in riparian buffers and could harm reputations of the groups themselves.

Of the survey respondents, two of three companies did want to/were expanding their work, while one did not want extra planting jobs beyond what they are now conducting. For the company that is not planning to expand buffer planting work, one reason was "Lack of manpower; resources devoted to more profitable services." Another company that is expanding noted a labor challenge in that, "Job pay is too low for work required/expected." But that same company noted that there was a "lack of trained labor" available to hire.

At the BoB workshop, one respondent noted that they were starting to use immigrant or internationally sourced labor, but training people to be managers (for site analysis, materials purchasing and work scheduling) took up to two years. The rate of pay for installers was also identified as an issue. Anecdotally, many outdoor oriented hiring agencies, such as park and recreation departments, have difficulty filling seasonal field staff positions because there is better pay to be found doing less physically strenuous work.

In short, the biggest gap in meeting buffer goals is a lack of enough providers, a shortage of labor, lack of training and comparatively low wages, as well as the challenge of coverage consistency across the Chesapeake Bay drainage basin. To meet some of these gaps, GIC had suggested that the state might consider creating its own labor force or fostering business development opportunities to help more entrepreneurs start their own businesses to meet demand. State sponsorship for planting labor is a viable and necessary option. For example, a youth conservation corps such as Virginia's state parks are using is one option. State parks use the corps for summer labor and a similar model could work (with supervision needed). Here are two examples: <https://appalachiancc.org/partner> and <https://www.dcr.virginia.gov/state-parks/ameri-corps>.

Maryland makes corps members available to organizations who request them and Virginia could fund a similar program. This could build capacity at existing NGOs. Another alternative would be to offer direct grants to providers for more buffer organizers and crew leaders. Man- and woman-power remains the biggest sticking point to getting more trees in the ground.

Finally, even if capacity on the ground was expanded, Virginia would still need a major social and traditional media campaign to interest people in buffer plantings. Many of the easy spots and easily convinced landowners have already established a buffer. New methods are needed to reach a wider public with messages that resonate locally (not necessarily tied to “Save the Bay,” which can seem remote and unimportant to some).

Recommendation 1: Virginia will need to actively invest time and resources in growing the labor pool for buffer plantings.

2) Ease of Buffer Installation: A secondary issue identified by buffer providers were the requirements for the buffers themselves. Site preparation and maintenance, such as the removal of invasive species or replacing dead trees mean lengthier time working on-site, while the seasonality of the labor force makes it more difficult to do preparatory on-site work and then perform on-site maintenance during the colder months. One provider noted that, “Planters are now doing three times the work, but the pay hasn’t risen accordingly” – primarily because of the time spent on maintenance.

Several planters attributed their difficulties to another problem: the increased time required to obtain a wide variety of species, and suggested that limiting the number of different species to be sourced could reduce the difficulties in obtaining and maintaining them. Requests for extra species’ variety appears to originate either with the landowners (requesting specific tree species) or with a nonprofit provider providing landowners with a long list of options. The state’s guidance manual for riparian buffer establishment lists potential species, but does not prescribe a minimum number of tree types,⁴ nor does the Department of Forestry’s tax credit program for installation of buffers. The state’s buffer manual also should be updated, as it currently contains species that are no longer recommended, such as ash trees, which are being devastated by the emerald ash borer.

Site preparation to remove invasive species or to stabilize streambanks to avoid large scale sloughing of land where trees are planted are additional issues that are difficult to fully evaluate when signing up landowners for projects. One site could cost several times more than another because of the amount of site preparation needed. This is especially true for those urban and suburban sites where more disturbance has occurred. Those sites are also more difficult to work on because they often consist of multiple smaller parcel owners, all of whom need to agree to a project in order to access a long enough reach of stream to plant.

Recommendation 2: Develop recommendations for initial buffers to have 5-6 tree species and work with nonprofit providers to restrict their lists to those species that are easiest to obtain (and which have high survivability).

⁴ Buffers Modification & Mitigation Guidance Manual Virginia Department Of Conservation And Recreation Chesapeake Bay Local Assistance September 2003 - Reprinted 2006

3) Decision Tools for Buffer Referrals: Based on earlier findings of the project, the DOF asked GIC to create a “decision tree” to match up buffer planting needs with available services. GIC determined that the main issue of local capacity is a larger problem than the need for better referrals. However, the DOF determined an internal agency need for information that its foresters could carry into the field to advise clients on which buffer program would be suitable for them.

GIC began with a “decision tree,” but determined that an app with a dropdown menu would be more useful and easier, since it would let the user plug in each unique need. With high variability in available services across the Bay Region (e.g. ample support in the Middle James, but almost none in the York River) a static fact sheet would not be practical, since there would be too many versions. Instead, GIC created an app that works on a desktop computer or on a mobile phone. Buffer providers and funders can be entered into a mobile phone during a field visit. The user can also look up data in the field, or if access to cell service is limited, DOF staff can preprint results ahead of time or email them after a visit. GIC utilized provider data collected earlier in the project and then updated the Excel spreadsheet data with additional sources. It was then stored in GoogleSheets that can be updated easily by designated DOF staff, who can then repopulate or update the on-line app. Note that as this request was made to GIC late in the project, additional field testing will be needed to find errors. GIC has QA/QC’d the data as fully as possible in the time remaining in the grant.

Link to App for all users (anyone on web that has this link can view)

<https://datastudio.google.com/reporting/c3929196-a9c2-4fec-a8a7-014c8760fe3a>

This also has the app link (hidden link): Link The app can be updated through the Gmail account associated with it which has 15 GB of storage available. It has been established using Google Sheets so that DOF staff can update the data as programs change.

Gmail: GICforDOFVA@gmail.com

PW: GICDOFVA

Recommendation 3: Deploy the buffer app to Department of Forestry staff to use in advising landowners in the field and as quick checks for referrals. Update the app with new programs quarterly.

BasinGroup	ProviderT...	Provider (Hollink Err...	Provider Link	Program (Hotlink Error)	Program Link
29.	Potomac	State	Virginia Department of Conservation Service (NRCS)	http://www.dcr.virginia.gov/soil-and-water/contshare	http://www.dcr.virginia.gov/soil-and-water/contshare
30.	Potomac	State	Virginia Department of Conservation (DCR)	http://www.dcr.virginia.gov/soil-and-water/contshare	http://www.dcr.virginia.gov/soil-and-water/contshare
31.	Potomac	NGO	Alliance for the Chesapeake Bay (ACB)	http://www.allianceforthchesapeakebay.org/	http://www.allianceforthchesapeakebay.org/

4) Research and define parameters for a buffer referral portal.

Since the portal arrangement (suggested layout) was initially requested, the DOF later asked for a tool that could be used in the field and GIC developed the above-referenced app. Should the DOF decide to later develop a buffer referral portal, rather than just the app, it would likely be helpful to have this done spatially with an online map. It could use the same data as the app, but have an added map component. It could also add potential funding sources, even though it is less likely people would use the portal to search for funders. If this is a desired feature, then these funding sources should be broken down further according to any restrictions that might apply, such as “Only NGOs and local governments can apply” or “Not available to individuals.” A spatial query would simply allow users to click on the county or city and the providers would pop up. This is essentially what the Streamside Program Report tool does, but it may be too expensive to replicate Bay-wide – and had currently only been completed for the Upper and Middle James River watersheds. View it at <https://jamesstreamsideprograms.com/>.

This would require buffer reporting by river reach lat/long (upstream to downstream locations). The Upper and Middle James River Riparian Consortium has a spatial tool to look for project sites needing restoration. However, the tool’s site data are out of date by several years. The site should list the date the data were obtained (2013) and the frequency planned for updates (this has been shared with the site’s managers). Updates so far entail adding planting projects supplied by JRA but the land cover source data are very outdated. Note that current plans to update the 2013 source data are to use data from 2017.⁵ GIC staff believe the proposed data source is still too old and that 2021 NAIP data should be used to create updated riparian buffer maps. Another step beyond this project’s current scope would be to map the places where buffers have been installed. Seeing where projects have been done (not just where they are needed) could be inspirational for users of JRA’s tool.

The Bay goals are requested by miles of riparian buffers, while the VA Department of Environmental Quality collects data by acres treated (See Memo #1 from GIC). Adding river length treated to reporting is easy to do.

In summary, the simplest fix noted by GIC in earlier memos is to require reporting buffer projects by river miles treated using start and end points. As these data take less than five minutes to find and record on a smart phone, there is no reason not to report this.

Since wooded buffer data haven’t usually been reported as river miles treated (just by address and acres treated) it would take some effort to add this information to a database and put into a map. The other challenge is that data for NRCS-funded buffers is not maintained after 15 years. The buffer may still be in place, but is dropped once the mandatory emplacement window has been met. This problem can be solved using new aerial imagery (NAIP imagery for Virginia is available for 2021), combined with reported buffer data.

⁵ Communication with data developers from Chesapeake Conservancy as of 07/22.

Note that other land cover data Virginia contracted for several years ago (available from VGIN) does a poor job at picking up individual trees and wooded wetlands. GIC conducted several comparisons between VGIN land cover and land cover created by GIC using NAIP and the free Land Image Analyst Tool. See images below for the difference in accuracy. Wooded wetlands are missing as are individual trees in this image from Cape Charles, VA.

VGIN sourced land cover at 1 meter misses trees and wooded wetlands.



GIC data using NAIP imagery and Land Image Analyst



Finally, the Virginia Department of Forestry could institute its own system of tracking landowner referrals. DOF staff could be (they possibly are already, but this is unclear) required to ask about buffer options when visiting sites that have streams, even if the landowner did not specifically ask about this. Many landowners do not know about buffer programs or why streams should be forested. The number of successful referrals (landowners who agreed to, and did, plant a buffer) could be targeted to a forester's annual benchmark, as part of personnel reviews to better incentivize this activity. Foresters could also be equipped with 3-5 key points to make in talking to landowners about buffer benefits. The consortium in which the DOF participates has an excellent fact sheet for landowners at:

https://jamesriverconsortium.org/wp-content/uploads/2022/03/Buffer_FAQ.pdf.

Recommendation 4: Develop a buffer installation data layer from buffer data reported to the DEQ. Have the DEQ add a stream length and location field to its buffer reporting form and coordinate with other providers to share data in this way. Engage other buffer planters in reporting to DEQ. Otherwise, Virginia will have difficulty reporting miles planted for achievement of its riparian planting goal.

To comment on or respond to this report please contact firehock@gicinc.org