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1. Contact Information

Primary Contact Person Information

Cara Mattlin, Nursery Sales Manager
 Nursery Address
 5650 Patterson Road
 Baldwin, MD 21013
cmattlin@ecotoneinc.com
 410.420.2600 x167 (office)
 717.542.1685 (mobile)
<https://www.ecotoneinc.com/native-nursery/>

Company Information

Ecotone, LLC (Headquarters)
 129 Industry Lane
 Forest Hill, Maryland 21050
 410.420.2600
Marketing@ecotoneinc.com
www.ecotoneinc.com
 Federal Tax ID# 86-3806675

2. Company's Mission and Profile

Ecotone is an ecological restoration services firm serving the Mid-Atlantic region—one of the largest domestic, vertically integrated providers in this space—designing and building sustainable ecosystems. For nearly 25 years, our company has provided stream restoration, wetland creation, stormwater management, reforestation, mitigation banking, permitting, and consulting.

This year, Ecotone made its first strategic move to increase the company's geographic presence as a leading provider of restoration services by acquiring Wilkinson Ecological Design (WED)—a provider of vegetation (including invasive species) management and ecological restoration (in particular shoreline and tidal ecosystem) solutions in New England and the surrounding areas. Since 1999, WED has assisted hundreds of land owners restore and manage/maintain native plant communities in Massachusetts—from our office, equipment yard, and nursery in Orleans on Cape Cod.

Sharing the same values for high quality restoration work, integration of Ecotone and WED will create one of the premier, ecological restoration services providers in the United States—with a **unified mission to restore the**

integrity and biodiversity of the unique natural ecosystems and talent to offer vertically integrated vegetation (including invasive species) management and design/build stream, wetland, forest, and shoreline-based restoration services in the Mid-Atlantic and Northeast markets.

Geographic Service Area	California, Connecticut, Delaware, Maryland, Massachusetts, New Jersey, New York, Virginia
Number of Employees	110
Number of Clients	≈325 active public and private clients (does not include WED)
Years in Business	25
Annual Budget	\$16 million average over last 5 years (does not include WED)
Average Yearly Number of Tree Planting Projects	25 (2022)
Average Yearly Number of Urban Tree Planting Projects	Of that 25, 4 took place in the urban environment. We look forward to increasing that number.

Ecotone's Nursery

Ecotone owns and operates a native plant nursery, to not only supplement materials needed for our ecological restoration projects but also to provide sustainable plants and trees wholesale and retail clients. We focus on propagating fast-growing, resilient plants grown in rich media and mycorrhizal inoculants to promote healthy growth long after our plants leave the nursery. Our seeds, plant material, and potting media are sourced from local materials, with the goal of growing plants that are suitably adapted to Mid-Atlantic ecotypes—enhancing natural regeneration and ensuring low maintenance requirements. We employ sustainable production practices, such as pest control methods, which encourage native predator-prey relationships and use organic chemical applications only when necessary. Ecotone takes great care to prepare sites for successful planting through invasive plant control, soil amendments, and time of year planting schedules. Our nursery staff contribute their specialized knowledge when developing or adjusting planting plans with designers and construction crews. Construction crews are cross-trained and skilled in plant installation to ensure maximum survivability during planting oversight. When planting, staff carefully develop and implement plans consisting of diverse, native species for wetland creation and enhancement, riparian buffers with grasses, shrubs, and trees, and large-scale reforestation projects.

3. Type of Services and Fee Structure

Our completed Appendix 1 Table 1 follows and was submitted as a separate attachment.

Appendix 1

Please complete Table 1 and Table 2 below as part of your submission information.

Table 1 - Services Provided

Complete the third and fourth columns of this table. You can add any additional comments in the fifth column. If you provide additional services you feel are relevant to the audience described in the RFQ, please use the “other” line(s) below and identify your service(s) in the Summary column. Contractors providing native trees to grantees are strongly encouraged to source stock that has been grown in the State of Maryland. Trees sourced out of state, moved to MD for a short period of time, and then re-sold may not likely survive. Therefore, in the Comments column in row 3 below, please indicate your source(s) of trees (either specific nurseries/growers or general source state/region).

Service	Summary	Does contractor provide the service? (Yes or No)	Fee structure for service	Service-provider Comments
1) Tree planting site identification	Identifying the best planting sites available in a community or in a particular location (i.e., church or school grounds); identifying the type of planting: street lawn, tree pit, cluster planting that is possible at the site	YES	Time and materials with labor and mileage	
2) Species selection	Identifying the most appropriate species for the site	YES	Time and materials with labor and mileage	

3) Tree purchasing	Obtaining trees from nurseries/growers	YES	Time and materials with labor and mileage	Ecotone's native nursery, Baldwin, MD. Other MD nurseries when necessary
4) Utilities and other restrictions	Identifying utilities, other infrastructure and/or ordinance restrictions to take into consideration when selecting a tree-planting site	YES	Time and materials with labor and mileage	
5) Impervious removal	Creating tree planting pits/tree cells within sidewalks and other impervious areas; fully removing sidewalks or other impervious areas	YES	Time and materials with labor and mileage	
6) Site preparation	Cleaning up the site (i.e., trash or invasive plant removal); preparing the soil, applying soil conditioner/amendment, and ensuring that the right soil volume is available for root growth; Installing root barriers	YES	Time and materials with labor and mileage	
7) Planting	Planting the tree(s); providing appropriate tree root preparation and care at time of planting; staking the tree(s); installing tree shelters or fencing for lawn mower or deer protection; installing tree grates for tree protection as needed; applying mulch	YES	Time and materials with labor and mileage	
8) Maintenance	Watering, mulching, pruning, checking for disease or damage during the first two years after planting	YES	Time and materials with labor and mileage	
9) Warranty – 1 year	Re-planting if a tree dies within 1 year	YES	Only if plants are bought from Ecotone nursery and we install	
10) Warranty – 2 years	Re-planting if a tree dies within 2 years	YES	Only if plants are bought	

			from Ecotone nursery and we install and provide maintenance	
11) Other	Stormwater management BMP design, install, maintenance	YES	Time and materials with labor and mileage	
12) Other	Stream and wetland design, install, maintenance	YES	Time and materials with labor and mileage	
13) Other	Native Nursery/contract growing	YES	Time and materials	
14) Other				

We have included our standard rates sheet on pages 7-8.

**ECOTONE TIME AND MATERIALS RATE SCHEDULE
JANUARY 2022**

Professional Services Billing Rates	
Classification	Hourly Rate Range
EXPERT TESTIMONY	2 Times Normal Rate
PRINCIPAL/SENIOR ADVISOR	\$225.00-\$300.00
DIRECTOR	\$210.00-\$245.00
SENIOR PROJECT MANAGER	\$125.00-\$150.00
PROJECT MANAGER	\$110.00-\$125.00
PROJECT COORDINATOR	\$70.00-\$85.00
SENIOR WATER RESOURCES ENGINEER	\$175.00-\$225.00
DESIGN ENGINEER	\$140.00-\$165.00
PROJECT ENGINEER	\$120.00-\$145.00
ENGINEER	\$100.00-\$130.00
ECOLOGICAL PLANNER	\$125.00-\$140.00
SENIOR ECOLOGIST	\$130-\$155.00
ENVIRONMENTAL SCIENTIST	\$110.00-\$135.00
ECOLOGIST	\$90.00-\$110.00
TECHNICIAN (ENVIRONMENTAL)	\$60.00-\$80.00
CADD Operator	\$105.00-\$125.00
CADD MANAGER	\$115.00-\$135.00
WRITER/EDITOR	\$70.00-\$85.00
CLERICAL/ADMIN	\$65.00-\$80.00

Reimbursables		
Item	Cost	Units
Mileage	Current IRS rate	Mile
Four Wheel Drive Vehicle	\$0.65	Mile
USAS (Drone) Rental*	\$75.00	Hour
Indirect Expenses	5%	Labor Budget
Subconsultants	10%	Subconsultant Fee
Direct Expenses	15%	Expense Cost
*Rates/Insurances may vary for High Hazards & Locations		

1. Rates to be escalated first of the year at 4% per year.
2. Rates may be modified for specific Work Orders and will be identified within Work Order proposals, if appropriate.
3. Field expenses and fees billed at cost.

**ECOTONE TIME AND MATERIALS RATE SCHEDULE
JANUARY 2022**

Construction Services Billing Rates	
Classification	Hourly Rate Range
Estimator	\$40.00 - \$50.00
Superintendent	\$60.00 - \$70.00
Project Manager	\$60.00 - \$75.00
Foreman	\$45.00 - \$55.00
Operator	\$40.00 - \$55.00
Layout	\$30.00 - \$40.00
Restoration Tech	\$25.00 - \$35.00
Truck Driver	\$40.00 - \$50.00

Equipment Billing Rates				
Classification	Hourly Rate	Daily Rate	Weekly Rate	Monthly Rate
Mini-Excavator	\$14.99	\$119.92	\$600.00	\$2,599.00
Excavator	\$25.00	\$200.00	\$1,000.00	\$4,333.00
Track Truck	\$37.50	\$300.00	\$1,500.00	\$6,500.00
Track Loader	\$14.50	\$115.00	\$575.00	\$2,492.00
Skid Loader	\$8.75	\$70.00	\$350.00	\$1,517.00
Bulldozer	\$12.50	\$100.00	\$500.00	\$2,167.00
Tandem Axle Dump Truck	\$78.00			
Water Pump 4"	\$30.00			
Water Pump 6"	\$25.94			
Timber Deck Mats (4'x16'x8")	\$850.00 each			
Wetland Access Mats (8'x12'x6", 3 ply)	\$420.00 each			

1. Rates to be escalated first of the year at 4% per year.
2. Rates may be modified for specific Work Orders and will be identified within Work Order proposals, if appropriate.
3. Field expenses and fees billed at cost.
4. Equipment Billing Rates will be provided for equipment not noted on fee schedules on a Work Order basis.
5. Equipment costs do not include fuel or operator costs.

4. Service Area

Our completed Appendix 1 Table 2 is shown below, and was submitted as a separate attachment.

Table 2 – Company’s Service Area

Please indicate the Maryland jurisdictions where the company provides services by writing “Yes” or “No” in the **Service column** below. Feel free to add any additional relevant information under the **Comments column**.

Jurisdiction	Service Area (Yes or No)	Comments
Allegany County	YES	
Anne Arundel County	YES	
Baltimore City	YES	
Baltimore County	YES	
Calvert County	YES	
Caroline County	YES	
Carroll County	YES	
Cecil County	YES	
Charles County	YES	
Dorchester County	YES	
Frederick County	YES	
Garrett County	YES	
Harford County	YES	
Howard County	YES	
Kent County	YES	
Montgomery County	YES	
Prince George's County	YES	
Queen Anne's County	YES	
Somerset County	YES	
St. Mary's County	YES	
Talbot County	YES	
Washington County	YES	
Wicomico County	YES	
Worcester County	YES	

5. Key Staff

Ecotone’s proposed team for this services contract consists of staff members qualified and experienced to provide all 13 services listed in Appendix 1 Table 1:



Cara Mattlin | Nursery Sales Manager: Cara has more than five years of professional experience in nursery management and operations as well as developing planting plans for reforestation, stream, and wetland restoration projects, small-scale landscape design, surveying vegetation and wildlife, and performing wetland and forest stand delineations. She manages Ecotone’s nursery wholesale and retail sales in addition to daily operations of our \$1M+ inventory of native trees, shrubs, and herbaceous materials. Her responsibilities include but are not limited to developing propagation schedules for plants produced from seed, soft- and hard-wood cuttings, and bare root, as well as schedules for fertilization, invasive species management, and pest control. Cara directs and oversees Ecotone’s nursery staff and labor crew and routinely consults with Ecotone project managers and clients to develop appropriate planting plans for a variety of projects.



Bryan Seipp, LPF | Director of Forest Management and Upland Restoration: Bryan is a licensed professional forester in the State of Maryland with nearly 23 years' experience forest management, forest mitigation development, stormwater management, TMDLs, watershed planning, forest management, and stream assessments. He has managed a variety of projects including forest mitigation banks, upland stormwater green infrastructure (bioretention, bioswales, permeable pavement, green roofs, stormwater wetlands, etc.), stream restoration, wetland restoration, development of complex watershed restoration plans, and monitoring pollutant removal performance of stormwater BMPs. He is an expert at identifying suitable plant species, managing invasive species, developing forest management plans, implementing ecological silviculture, and assisting landowners with stewardship activities.



Ray Kimball | Reforestation Specialist: Ray has been at Ecotone for more than five years and has nearly three years of experience in working in Ecotone's nursery. As a member of the planting team, he installs trees, shrubs, and herbaceous plugs on stream and wetland projects. Ray passed his pesticide applicator test in fall of 2022 (license number is 98430). He also participates in live stake harvesting and installation. Ray assists with site layouts and preparation and performs maintenance activities such as mowing, invasive identification and removal, deer fence install and maintenance, and recounts. His nursery tasks include potting and propagation, watering, scouting for pests, and integrated pest management.



Mike Arbaugh | Forestry Coordinator: Mike has served in the forestry industry for more than five years. He is responsible for plant and tree species identification, site preparation, invasive plant management, planting, monitoring, and maintenance. Most projects include clearing and felling invasive plants and trees as well as scheduled mowing using brush hogs on skid loaders, in order to control large areas of invasives. While monitoring Ecotone's planted sites, he collects data regarding size, stocking densities, and survivability. Many projects also require installation and regular maintenance of tubes/shelters for which he monitors and documents herbivory conditions and manages with either deer repellent or deer fence installation. Additionally, he performs recounts and replants as necessary, to maintain desired stem density. As part of the monitoring process, Mike is responsible for maintaining reports and other necessary documentation.

Resumes for our key staff members can be found beginning on page 11.



Cara Mattlin

NURSERY SALES MANAGER

YEARS OF EXPERIENCE

- 5+

EDUCATION & COURSEWORK

- BA, Creative Writing, Eckerd College, 2003
- Landscape Design, Longwood Gardens, 2022
- Botany, York College of Pennsylvania, 2018
- Wetland Studies, York College of Pennsylvania, 2018
- Evolution, Ecology, and Diversity, York College of Pennsylvania, 2017
- Biostatistics, York College of Pennsylvania, 2018

TRAINING

- Professional Wetland Delineation Course, The Environmental Concern, 2018
- Chesapeake Bay Landscape Professional Level 1, 2022
- Chesapeake Bay Landscape Professional Level 2-Design, 2022
- Certified Professional Horticulturalist, MNLGA, anticipated Feb. 2023

PROFILE

Ms. Mattlin has more than five years of professional experience in nursery management and operations; development of planting plans for stream and wetland restoration and reforestation projects; small-scale landscape design; surveying vegetation and wildlife; and assisting in performing wetland and forest stand delineations. She has managed the daily sales and operations of a \$1M+ inventory of native trees, shrubs, and herbaceous materials. This includes but is not limited to developing propagation schedules for plants produced from seed, soft- and hard-wood cuttings, and bare root, as well as fertilization and pest control schedules, and directing a labor crew. She consulted with customers and project managers to develop appropriate planting plans. She also leads wholesale and retail sales and provides customer service.

Ms. Mattlin has assisted with tree stand and wetland delineations as well as post-construction stream monitoring, vegetation surveys and endangered species surveys. She participated in two seasons of bog turtle surveys with the Maryland Department of Natural Resources (2018-2019) and a season of submerged aquatic vegetation surveys with the Havre de Grace Maritime Museum in conjunction with the Maryland Department of Natural Resources (2017). In addition, Ms. Mattlin has produced permitting applications including monitoring reports and impact plates.

WORK EXPERIENCE

Contract grow for the Chesapeake Bay Foundation 10 Million Trees Partnership, 2020-2022: Ms. Mattlin was responsible for planning, growing, and implementing a contract for the production and delivery of more than 200,000 trees and shrubs. The goal of the partnership was to utilize local businesses and conservation organizations to put trees in the hands of community members who planted and cared for the trees, thereby improving the ecology of the community. Ms. Mattlin directed nursery infrastructure expansion, logistics, propagation, and delivery of the contracted plants while maintaining communication with the Chesapeake Bay Foundation.



Bryan Seipp

DIRECTOR OF FOREST MANAGEMENT AND UPLAND RESTORATION

PROFILE

Mr. Seipp is a licensed professional forester in the State of Maryland with nearly 23 years' experience forest management, forest mitigation development, stormwater management, TMDLs, watershed planning, forest management, and stream assessments. He has managed a variety of projects including forest mitigation banks, upland stormwater green infrastructure (bioretention, bioswales, permeable pavement, green roofs, stormwater wetlands, etc.), stream restoration, wetland restoration, development of complex watershed restoration plans, and monitoring pollutant removal performance of stormwater BMPs. He is an expert at identifying suitable plant species, managing invasive species, developing forest management plans, implementing ecological silviculture, and assisting landowners with stewardship activities. He is responsible for the implementation of reforestation and forest buffer projects—from initial identification and site preparation through planting, monitoring, and active maintenance. He coordinates with clients, agencies, in-house staff, and other contractors and interested parties to ensure all pertinent permitting and deadlines are successfully met and projects are completed on budget and in line with environmental intent.

WORK EXPERIENCE

Dulaney Valley Forest Mitigation Bank, Baltimore County, MD:

Bryan manages all aspects of the 28-acre Dulaney Valley Forest Mitigation Bank located in Phoenix, Maryland. In this role he developed the county approved planting plans completed Baltimore County permitting and bank approval, coordinated forest conservation easement documentation, directed site-prep, installation, and maintenance activities. Bryan manages forest bank sales and transactions as well as inspections and corrective actions.

Nakazawa Forest Buffer Mitigation Bank, Baltimore County, MD:

Bryan manages all aspects of the 4-acre Nakazawa Forest Buffer Mitigation Bank located in Stevenson, Maryland. In this role he developed the invasive plant control plan, the county approved planting plan, and completed the Baltimore County permitting and bank approval, coordinated forest conservation easement documentation, directed site-prep, installation, and maintenance activities. Bryan manages all forest bank sales and transactions as well as inspections and corrective actions.

Keller Forest Stewardship Program - 716 Stablersville Road, Baltimore County, MD:

Bryan developed a forest stewardship plan for this 85- acre property in Parkton Maryland. Bryan managed the entire forest stewardship plan process included delineating forest

YEARS OF EXPERIENCE

- 22+

EDUCATION & COURSEWORK

- BS, Forestry, Virginia Polytechnic Institute and State University, 2000

LICENSES & CERTIFICATIONS

- Licensed Forester (MD #670)

stands, conducting fix plot inventory sampling, resource mapping, developing stand descriptions and silvicultural recommendations, and communication with the landowner. The plan addressed a wide range of objectives including wildlife habitat, forest health, and carbon sequestration.

JMT Forest Stewardship Program, Forge Road Site, Baltimore County, MD: Bryan developed a forest stewardship plan for this JMT lead 0.6- acre off-site forest mitigation project on Maryland Park Service Land for a sewer rehabilitation project. Bryan integrated and expanded on the JMT developed planting plan to develop a long-term forest stewardship plan for the Maryland Department of Natural Resource as a form of long-term protection. The plan addressed a wide range of objectives including long-term maintenance, forest health concerns, carbon sequestration, and integration with the adjacent network of state-owned lands.

Timber Run Development Forestry Consulting Services, Baltimore County, MD: Bryan provided forestry consulting services related to mapping and surveying with high accuracy (+/- 1-foot) GPS areas identified as required reforestation areas in an approved County Forest Conservation Plan and that are not forested, or do not meet the definition of forest, as it related to the approved Forest Conservation Plan. The project included preparing a memo identifying necessary corrective actions and a reinforcement planting plan.

Elbow Brook Reforestation, Harford County, MD: Bryan manages all aspects of this Elbow Brook Mitigation Planting location located in Fallston, Maryland. In this role Bryan works directly with permittees needing off-site reforestation credit to provide the location, develop the Forest Conservation Planting Plan, coordinate the plat and easement documentation, and implement the installation and annual maintenance.

Planting Trees for Water Quality in Clarke County, VA: Bryan worked with Clarke County to increase tree canopy in Clarke County, the county, demonstrate best practices for forest restoration on suburban and rural sites as part of a watershed implementation plan strategy, and target forest restoration to sites with greater water quality benefit. The project outputs include a map of priority sites for reforestation in Clarke County, VA; implementation of reforestation projects on public and/or private land; and guidance for targeting priority lands and implementing planting projects on suburban and rural sites that can be applied in other communities.

Fair Hill Natural Resource Management Area Forest Stewardship Plan, Elkton, MD: Bryan developed a Forest Stewardship Plan for a 15.45-acre forest stand is located within the much larger 5,656-acre Fair Hill Natural Resources Management Area (Fair Hill) owned by the Maryland Department of Natural Resources (DNR) Park Service. The forest is classified as a Forest of Recognized Importance (FORI) and part of a Targeted Ecological Areas. This plan was developed are part the required Forest Conservation Plan for Fair Hill NRMA improvement project. As the lead forester Bryan managed the entire forest stewardship plan process included delineating forest stands, conducting fix plot inventory sampling, resource mapping, developing stand descriptions and silvicultural recommendations, and communication with the landowner. The plan addressed a wide range of objectives including wildlife habitat, forest health, and carbon sequestration.

Audubon Naturalist Society Woodend Sanctuary Forest Conservation Plan, Chevy Chase, MD: Bryan worked with the Audubon Naturalist Society Woodend Sanctuary to develop a Forest Conservation Plan for a stream restoration project. The project included the completing a Natural Resource Inventory, Forest Stand Delineation, and Forest Conservation Plan for a stream restoration project on the historic Woodend Sanctuary property in Montgomery County. Due to the historic nature of the property and the amount of trees in the project area the project required a detailed inventory of all trees greater than 1" diameter within 100 feet of the project limits and both a tree protection plan and a tree planting plan.

Nash Run Forest Stand Delineation, Washington DC: Bryan worked with JMT to provide a forest stand delineation report for an urban stream restoration project in North East Washington D.C. where some existing tree removal is anticipated. Bryan was responsible for identifying, measuring, tagging, and coordinating with a survey crew to map all canopy trees located within the project limit of disturbance.



Ray Kimball

REFORESTATION SPECIALIST

YEARS OF EXPERIENCE

- 4+

EDUCATION & COURSEWORK

- BS, Environmental Studies – Minor in Land Use Planning, Salisbury University, 2018

LICENSES & CERTIFICATIONS

- Pesticide spray license, Core and Right of Way, 2022
- Pesticide spray license, Forestry, expected 2023

PROFILE

Mr. Kimball has nearly three years of experience as a reforestation specialist at Ecotone. As a member of the planting team, he installs trees, shrubs, and herbaceous plugs on stream and wetland projects, including grass seed spreading, live stake installation as well as harvesting. Ray assists with site layouts and preparation, installation of signage, and performs maintenance activities including mowing, invasive identification and removal, tree tube and deer and goose fence installation, and maintenance. He also assists with recounts and installation of beaver flow devices. His nursery tasks include potting and propagation, watering, scouting for pests, and integrated pest management.

WORK EXPERIENCE

- Little Antietam Creek, Mayo/Bumpers Property Stream Restoration, Washington County, MD
- Nakazawa Forest Mitigation Bank, Baltimore County, MD
- Longwoods Farm Nontidal Wetland Restoration, Talbot County, MD
- Brighton Mill II Reforestation, Howard County, MD:
- Planting at BGE SWM Pond - County Pond 301, Baltimore County, MD



Mike Arbaugh

FORESTRY COORDINATOR

YEARS OF EXPERIENCE

- 5+

EDUCATION & COURSEWORK

- BS, Wildlife and Wildlands Science and Management, Frostburg University, 2015

PROFILE

Mr. Arbaugh has served in the forestry industry for more than five years. His experience includes identification, clearing, logging, and tree felling as well as operating forest harvest machines including feller-bunchers, skidders, horizontal grinders, and log processors such as the Timberjack. At Ecotone, Mike has developed his experience and is responsible for identifying plant species, site preparation, invasive plant management, planting, monitoring, and maintenance.

Projects include clearing and felling invasive plants and trees as well as scheduled mowing using brush hogs on skid loaders, in order to control large areas of invasives. During monitoring of Ecotone's reforestation sites, he collects data regarding size, stocking densities, and survivability. Many projects also require installation and regular maintenance of tubes/shelters. Mike monitors and documents herbivory conditions and manages with either deer repellent or deer fence installation. Additionally, he performs recounts and replants as necessary, to maintain desired stem density.

WORK EXPERIENCE

- Little Antietam Creek, Mayo/Bumpers Property Stream Restoration, Washington County, MD
- Keller Forest Stewardship Program - 716 Stablersville Road, Baltimore County, MD
- Carroll Branch Stream Restoration, Baltimore County, MD
- Abingdon Business Park Planting, Harford County, MD
- Nakazawa Forest Mitigation Bank, Baltimore County, MD
- Dulaney Valley Forest Mitigation Bank, Baltimore County, MD
- Villages at Meades Crossing Reforestation Monitoring, Carroll County, MD
- Edgewater Station Off-Site Reforestation, Harford County, MD

6. Experience

Throughout our history, Ecotone has worked to establish vibrant, diverse plant and tree communities that provide valuable habitat and contribute to the sustainability of each project. As a key component of most of our ecological restoration projects, Ecotone has completed more than 1,900 projects encompassing thousands of acres of land management needs evaluations, 665+ acres of reforestation, 200+ acres of riparian buffer planting in addition to 32+ miles (169,000+ LF) of stream restoration and 600+ acres of wetlands. Additionally, Ecotone has established nearly 200 acres of reforestation banks which includes preparation, establishment, monitoring, and maintenance. These sites are often some of the most challenging—in addition to wildlife and wind, floodwaters consistently transport invasive plant seeds from significant distances to project sites—making control efforts difficult and perpetual. Additionally, herbivory management techniques may be limited and potentially impacted by floods and high water events; as a result, Ecotone is experienced utilizing adaptive management modification and/or adjustment strategies to overcome site-specific challenges.

We collaborate with non-profit organizations to design and implement these projects—many located within underserved communities in urban, suburban, and rural areas. We pursue projects based on our partnerships and Maryland’s priorities to provide ecological restoration, including planting, in urban, underserved areas—knowing our restoration projects will benefit not just the environment but also the health and well-being of community members.

SITE PREPARATION: Site preparation is critical to ensuring the success of native plant establishment efforts. Ecotone initially focuses on invasives species, specifically prevention, early detection, prioritization, treatment, and monitoring. Prevention efforts include ensuring materials and equipment used in project areas are clean and free of seeds and plant residue, to reduce the introduction and spread of undesirable plant species. Some invasive species have far more detrimental impacts than others, based on their impact to the environment and the relative level of effort required to control. Ecotone prioritizes accordingly, balancing the need for control and the potential impact to desirable resources on-site. When control is necessary, Ecotone utilizes a variety of approaches to manage invasive plant populations, including manual removal, mechanical control, controlled burn, chemical applications, and the use of livestock, particularly goats. Ecotone tailors the pesticide application technique based on the particular plant communities, site characteristics and time of year to achieve the best results with the least off target impact possible. We often utilize foliar applications for post mechanical chemical treatments, control of low growing understory species and ground layer plants. We utilize hack and squirt techniques, primarily for pole sized trees, cut stump treatments when the tree must be removed before initial treatment can occur, and basal bark treatments for smaller trees and shrubs. Site preparation may also include establishing desirable ground cover conditions for tree establishment, which can include conducting soil tests to identify any soil nutrient or lime deficiencies, applications of lime, and fertilizer, scarification of the soil and broadcast spreading seeds, or using a no-till drill to install the desired ground cover or cover crop.

PLANT SELECTION: The success of our restoration projects hinges on the successful establishment of native plant communities. This process begins with the selection of appropriate plant species and planting stock. Matching individual plant communities to specific growing conditions in the field and incorporating stakeholder objectives is a vital first step in developing the landscape plan. To develop successful and sustainable landscape plans Ecotone leverages staff expertise on how plant communities become established, adapt to growing conditions, and provide value to wildlife and society. Determining the appropriate size and planting density for the site can be influenced by several factors including, regulatory requirements, aesthetic objectives, budget, and growth habit of individual plant species. Sourcing native plant material from locally adapted sources (such as developed in Ecotone’s Native Plant Nursery) helps ensure that the project supports genetic diversity and variation which contributes to rapid establishment and project success. Species are selected appropriate for the geologic context, water regime, soil types, potential predators, and ultimate habitat goals. Ecotone nursery stock is selected with species known to be successful in the riparian buffer settings in the Mid-Atlantic region.

PLANTING (PREPARATION/INSTALLATION): Ecotone installs plants and trees using a variety of techniques and planting stock including seedling, tubeling, bare root, containerized, and ball and burlap. Our crews utilize planting techniques, depending on the size of the planting stock and overall site characteristics,

which can vary from dibble bars, hoedads and shovels to auger, backhoes and mini-excavators. Ecotone is experienced in both directly installing buffers with in-house crews and labor as well as coordinating, overseeing, and inspecting tree planting sub-contractors. Ecotone field crews are cross-trained and skilled in plant installation to ensure maximum survivability during the planting phase. Our team is capable of laying out and installing a variety of tree stock types in a variety of locations utilizing basic hand tools or with the mechanical support of augers, back-hoes, or mini-excavators. Layout includes marking the planting locations that identify the appropriate locations and density for plant install. Plants can be broken into groups based on the plan and/or their preferred conditions (e.g., wet, dry, sunny, shady, etc.) to facilitate the distribution and appropriate installation of each species. Additionally, our team has long standing relationships with tree planting crews for large scale jobs, and we are able to ensure that planting occurs in the designated window which is generally limited to a few months in the spring and fall. Our field team leads are trained in quality control techniques and monitor planting density/spacing, plant material, inspections of install quality by randomly removing trees and evaluating planted trees (e.g., root pruning, J-rooted, etc.), re-installing the tree and addressing quality issues with the team or sub-contractor if needed. Our experience with a variety of reforestation and our cross-training efforts has given our team the ability to install and inspect a variety of deer and weed control measures including tree shelters, deer fence, weed mats, and spot herbicide applications.

MAINTENANCE: Managing more than 800 acres of reforestation and riparian buffer has enabled Ecotone to efficiently develop and follow afforestation, reforestation and landscape plans and conduct post-implementation monitoring to ensure herbaceous groundcover, canopy cover, diversity and tree survivability targets are being met. This work includes on-site transect averaging, plot samples, and/or individual planted tree surveys. If targets are not being met, adaptive vegetation management plans are developed. Ecotone staff conduct vegetative surveys to also determine the percent vegetative cover and presence of invasive species, and then work with our land management team to address concerns, if any, through integrated pest management, replanting or modified herbivory management. Currently, our team holds several contracts to support client's maintenance needs for their inventory of reforestation, restored streams, water quality best management practices, drainage/flood management facilities, and other ecological improvements. We currently have several crews 100% dedicated to these contracts. Location and site-wide averages are analyzed for year-to-year comparison and to prepare invasive species control/management plans to target and reduce on-site invasive species. All field work is prepared, collected and processed using ESRI GIS applications and software combined with Sub-Foot accurate survey grade GNSS/GPS receivers. Wildlife feeding on living plants is an important ecological process that should be considered as part of the both the long-term habitat objectives for a project as well as the short-term management of projects during the establishment period. During the vegetative establishment period excessive browsing from ungulates and rodents can have an adverse impact on project success. In some cases, wildlife like beaver can add value to individual projects and the larger ecosystem but their impact on desirable resources like mature trees may need to be managed and mitigated to balance impacts and benefits. Ecotone utilizes a variety of techniques to manage herbivory species on its projects including installation of deer fencing, individual tree protection (e.g., shelters, cages), repellants, flow management devices, visual deterrents, physical barrier such as wire and netting and cultural techniques like vegetation management and encouragement of predatory species. Each management technique requires specific maintenance procedures such as removing bird nets, adjusting stakes, reapplying replants, repairing breaks in fencing, removing debris and mud from intake areas, etc. In some cases, Ecotone uses a variety of approaches to achieve the desired effect on herbivory through the establishment period.

A sampling of relevant projects with references begins on the following page.

Maryland Portable Concrete

Maryland Portable Concrete is a concrete supplier based along an urban corridor in Aberdeen, Maryland. The owner hired Ecotone to provide consultation, plant material, and the installation of native trees and shrubs to two business properties equaling about half an acre. The goals were to reforest an open lot, provide tree screens from neighboring properties, and to provide solutions for wet pockets due to runoff from the driveway and parking lots. Ecotone helped the owner determine appropriate species based on soil type, sunlight needs, and wet areas on the properties. About 300 native trees and shrubs were installed and mulched. About one-quarter were also protected with wire fencing. The majority of the plant material was supplied by Ecotone's native plant nursery. All of the layout, site preparation, delivery, installation, mulching, fencing, and clean up were done in less than two days by Ecotone's planting crew. Special attention was paid to providing services on site of an active industrial workplace. Please see additional pictures on page 19.

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The Village at Meade's Crossing Reforestation Services for BP 1 & 2, Carroll County, MD

Ecotone recently provided turn-key reforestation services for 2.422 acres including site preparation, planting (including plant material), inspection, and three years of maintenance. Ecotone prepared the site for tree planting by mowing the site with a forestry mower removing undesirable woody vegetation up to 2" in diameter and mowing herbaceous ground cover. We sprayed invasive and noxious weeds in and immediately adjacent to the tree planting site with the appropriate herbicide, surveyed and staked out the extents of the proposed planting, and installed the appropriate signage per the plan and specifications.

The project included supply and installation of 848 3-6-foot native woody plants in addition to tree protection in the form of Tubex-type tree shelters with wood stakes. All plant material and tree protection was per the specifications detailed in the planting plan. Services also included a year-one survival repass and minimum 85% survival guarantee. Ecotone will conduct annual maintenance to help ensure the trees have a suitable environment to grow and the site passes standard inspections. Annual maintenance includes two mowings per year, herbicide treatments as needed to control invasive plants and noxious weeds and reduce competition from herbaceous plants, and adjusting and removing tree shelters and reforestation signs as needed. Ecotone will inspect the tree planting site annually to identify if any necessary corrective actions are necessary and will coordinate with county agency staff for the necessary initial install, 18-month, and final site inspections.

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Pearlstone Retreat Center, Reisterstown, MD

The Pearlstone campus features an organic farm, retreat center, events space, and a substantial area dedicated solely to natural habitat. Due to past generations' land management practices, the stream had become degraded and needed restoration to achieve sustained health and abundance for future generations. Ecotone was hired to incorporate a natural channel design that re-aligned the stream to reduce stream velocities and shear stresses on channel banks by allowing the water to exit the channel efficiently and spread out on the floodplain.

As part of the restoration project, the hill leading down to the 1,300-foot stretch of stream was re-graded and re-planted to reduce runoff and improve ecological function. Ecotone developed a robust Forest Buffer Protection Plan (FBPP) that included bioengineering with live stakes that consisted of harvesting, transporting, installing, and maintaining live staking materials. All planting was performed in accordance with the current edition of the Landscape Contractors Association "Landscape Specification Guidelines." Riparian planting encompassed 2.83 acres/1470 planting units, 4,519 LF of live stakes were planted, and 565 LF of live branch layering was installed.

Ecotone staff inspected all planted areas three months after planting. Monitoring for success will continue several times during the growing season (four times each year after the initial three-month inspection for three years).





At the end of the six-month and one-year inspection, Ecotone is responsible for replanting, if needed, to have a live and vigorous stocking level of at least 75% of the original amount. At the end of the three-year maintenance period, we will request a County inspection by DEPS to ensure that 75% of the original stocking level is live and vigorous. In order for a plant to be considered live and viable stock at any stage of security release by DEPS, the plant shall be free of invasive plants and significant deer or vole damage.

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7. Past Failure

Managing herbivory pressure and damage can be very challenging at times. Ecotone has implemented a variety of strategies to limit the impacts of deer browse. In the past Ecotone has utilized strategies that included over planting (i.e., planting a larger number of stems per acre than is necessary), planting larger stock, tree shelters and deer fencing. While tree shelters are most used strategy for protecting young trees the number of plastic shelters that persist on this site over the long term can be a detriment to both the environment and the tree it has been Ecotone's experience that each of these strategies has its pro and cons. Notably however Ecotone has learned that overplanting without sufficient deer protection is not effective and can make managing undesirable vegetation more difficult. Ecotone has experimented with various fencing designs and products to increase the

effectiveness of this approach and has developed modified specifications for the fence that appear to improve effectiveness. We have also learned that a consistent and effective vegetation management plan can reduce the spread of undesirable vegetation and increase tree growth. We have no unsuccessful experience to mention in highly urban areas, however we are aware of an understand there may be potential for failures associated with planting trees in urban areas, such as existing soil quality, difficult growing conditions, vandalism, insufficient resources for proper maintenance, development and impervious surfaces, lack of public understanding of benefits. In order to minimize and/or avoid such failures, we have a variety of tools we can utilize such as site evaluation worksheets, outreach and education materials, communication strategies, and adaptive management plans.

8. Key Specialties

As a vertically-integrated ecological restoration company, Ecotone offers the full range of services necessary to plan, design, construct, monitor, and maintain ecological improvement projects that focus on reforestation, riparian and upland planting, stream restoration and stabilization, wetland restoration and creation, habitat preservation and enhancement, and innovative and green stormwater technologies, among others. We offer the following services to our client:

- Alternative Project Financing Strategizing & Assistance
- Company-owned/-operated native plant species nursery
- Data Collection, Analysis, Reporting & Graphical Representation
- Ecological Restoration Conceptual Design & Engineering
- Ecological Restoration Construction & As-Built Drawings
- Land Use Analysis & Planning
- Monitoring, Maintenance & Adaptive Management
- Natural Resource Assessments, Inventories, Surveys, Studies & Delineations
- Permitting & Agency Coordination
- Stakeholder Education & Engagement
- Stormwater Compliance/Maintenance
- TMDL & MS4 Mitigation

9. Method of Evaluation

How do we currently evaluate the effectiveness of services provided?

Ecotone evaluation of tree planting and nursery services vary depending on the type of project and the specific client. For projects where Ecotone is responsible for maintenance, Ecotone staff tracks and monitors the progress of individual planting areas through detailed annual inspections. During these inspection Ecotone identifies which species are surviving or experiencing unacceptable levels of mortality, the location and spread of invasive and undesirable vegetation, evidence of herbivory damage, and/or localized failures to name a few. For these sites Ecotone develops an annual inspection report and, if necessary, a corrective action plan is developed with a corresponding map and planting schedule describing necessary reinforcement or management actions. These inspection reports can be compared year over year to determine the effectiveness of the planting and maintenance services. Second, for project where Ecotone is responsible for planning and/or planting services Ecotone uses client surveys and communication channels along with windshield surveys to evaluate the effectiveness of the planning or planting services. Depending on the project and client Ecotone can offer a warranty on plant survival and in this case the amount of tree mortality covered by the warranty can be an indicator of the effectiveness of the initial tree planting service.

How we plan to evaluate through this urban tree planting program?

Ecotone plans to evaluate urban tree planting services in a similar way. If Ecotone is also providing maintenance service Ecotone will track the effectiveness of our services through annual inspections and corrective action plans. For sites where Ecotone is providing plant materials, planting or other services not

inclusive of maintenance Ecotone will rely on customer service surveys and interviews along with internal rapid assessments or client provided photo logs of past projects to identify any potential adaptive management strategies to improve effectiveness of services.

10. DBE/MBE/SBE

Ecotone is committed to including certified Disadvantaged Business Enterprises (DBEs), Minority Business Enterprises (MBEs), and Small Business Enterprises (SBEs) in our projects, whenever practicable. We have developed many successful working relationships with Maryland-certified DBE/MBE/SBE firms and routinely strive to build additional partnerships based on client and project needs and goals. While we have not yet designated a specific DBE/MBE/SBE firm for this contract, we have discussed potential services under this contract that could be provided by such firms, such as watering.