

Maryland's New Approach To Increasing Urban Tree Canopy

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Abstract

The 2013 Forest Preservation Act requires Maryland to maintain the existing 40-percent forest canopy coverage statewide. The 2014 amended Chesapeake Bay Watershed Agreement establishes a goal to expand urban tree canopy in the Chesapeake Bay watershed by 2,400 ac (970 ha) by 2025, with Maryland's target being 540 ac (220 ha) (45 ac [18 ha] per year). To achieve these goals, Maryland created two new programs. Marylanders Plant Trees, a \$25 coupon reimbursement program, targets individuals wishing to plant a native tree; 33,324 coupons were reimbursed between fiscal year (FY) 2009 and FY 2015. The Lawn to Woodland program, a partnership with the Arbor Day Foundation, targets small-lot owners with 1 to 5 ac (0.4 to 2.0 ha) of plantable space. The Foundation conducts outreach and the Maryland Forest Service handles the tree planting at no cost to the lot owner. In the spring of 2014, the Maryland Forest Service conducted a pilot with 14 ac (5.7 ha) planted on 12 lots. In the spring of 2015, 100 ac (40 ha) on 84 lots were planted statewide and, during the spring of 2016, planting approximately 60 ac (24 ha) on approximately 56 lots statewide was proposed. This paper was presented at a joint meeting of the Northeast Forest and Conservation Nursery Association and Southern Forest Nursery Association (Kent Island, MD, July 20–23, 2015).

Introduction

The State of Maryland has numerous urban forestry laws as well as forest landowner assistance programs to protect and enhance the State's forests. In addition, these laws and programs assist in Maryland's efforts to restore and protect the Chesapeake Bay. During the past few years, new forestry laws were passed, such as No Net Loss of Forest Policy of 2009 and the For-

est Preservation Act of 2013, which require the Maryland Forest Service to maintain the statewide forest base. The 2014 Chesapeake Bay Watershed Agreement also created additional goals and outcomes. These new goals created the need for the Maryland Forest Service to evaluate the existing programs' ability and capacity to maintain and also expand the existing canopy coverage. It was determined that the existing programs could not achieve both. Therefore, two new programs were created: Marylanders Plant Trees and Lawn to Woodland.

Marylanders Plant Trees

In late 2008, then Governor Martin O'Malley tasked the Maryland Forest Service to develop a program that would engage the citizens of Maryland to plant trees and to remove barriers that the small, urban landowner may have in purchasing and planting a tree. The barriers were identified as tree cost and available planting space. The Maryland Forest Service looked at the State's counties and towns to see if one or more had already determined a means for addressing one or both of these barriers. Baltimore County was found to have addressed the cost barrier by creating a coupon reimbursement program for county residents. This concept was used as the framework for developing a statewide program. The statewide Marylanders Plant Trees coupon reimbursement program addresses both barriers: the cost factor by lowering the price through use of a coupon and the planting space factor by empowering citizens to plant just one native tree on their townhouse lot. This program was the first effort that engaged urban and suburban landowners to plant native trees to help Maryland achieve no-net-loss of forest statewide.

The Marylanders Plant Trees program enables people to use a \$25 coupon on any native tree purchase of

\$50 or more at one of the 85 participating nurseries statewide. The nursery then submits the coupon for a \$20 reimbursement from the Maryland Forest Service. Information about the program, including the coupon and list of participating nurseries, is online at <http://dnr2.maryland.gov/forests/Pages/MarylandersPlantTrees/Introduction.aspx>.

The initial funding for the Marylanders Plant Trees program came from the Office of the Attorney General (OAG), which, at the time, had received a partial settlement from a multistate lawsuit regarding air pollution. The OAG agreed to fund a program that would plant trees in urban areas, which would help clean the air. The Maryland Forest Service received two \$400,000 payments between 2009 and 2014. From fiscal year (FY) 2009 to FY 2015, 33,324 coupons were reimbursed (one coupon can be used on multiple trees purchased at one time). The program seems to have influenced the nursery businesses in an unexpected way. Local private nurseries are now carrying more native tree species, presumably in response to demand by customers wishing to use the coupon.

Lawn to Woodland Program

In early 2013, the Maryland Forest Service was tasked again with determining ways to engage the urban and suburban landowner to plant trees as a means for addressing an emerging issue of decreasing statewide urban forest canopy coverage. Three events occurred within a short time that spurred this need. The first event was the adoption of the 2010–2015 Maryland Forest Action Plan. This plan identifies numerous State strategies for addressing the three national priorities as identified by the U.S. Department of Agriculture, Forest Service, State and Private Forestry organization. The State strategies included two that addressed canopy cover: Goal I. A—Keep Forests as Forests, Strategy I.A.3 (Provide incentives to maintain forest cover) and Strategy I.A.5 (Pursue no-net-loss of forests) (Maryland Department of Natural Resources, Forest Service 2010). The second event was the adoption of Maryland's 2013 Forest Preservation Act. This piece of legislation makes Maryland the first State in the Nation to adopt a policy statement requiring the maintenance of 40 percent tree canopy coverage statewide (Section §5-101(i) and §5-102 (b)(1), HB 706 Natural Resources—Forest Preservation Act of 2013, adopted 2013). The third event was the adoption of the 2014

Chesapeake Bay Watershed Agreement that amends the previous agreement to include goals and outcomes to “advance restoration and protection of the Chesapeake Bay ecosystem and watershed” (Chesapeake Bay Program 2014: pg 3). The agreement requires the establishment of specific, measurable targets for each goal. One goal requires an expansion of urban tree canopy cover by 2,400 ac (970 ha) by 2025 (Chesapeake Bay Program 2014). Maryland has been given the targets of 45 ac (18 ha) per year or 540 ac (220 ha) by 2025 (Chesapeake Bay Program 2015).

Upon review of the Maryland Forest Service's existing landowner assistance programs, within both the Forest Management and Urban and Community Forestry programs, it was determined that the existing programs with traditional cooperators were capable of maintaining the required statewide 40-percent tree canopy coverage and acreage but may not have the capacity to increase the canopy coverage at the desired yearly rate. Around this time, the Maryland Department of Planning had determined that Maryland had more than 1 million ac (404,685 ha) of mowed turf (Chesapeake Stormwater Network 2010; Maryland Department of Natural Resources, Forest Service 2013), which spurred the decision to develop a program that targets the small-lot landowner (i.e., the owner of the mowed turf).

A new planting program always presents two hurdles to overcome. One is the funding source and the other is outreach to the targeted audience. Funding for the Lawn to Woodland program came from an unexpected source—the Maryland Reforestation Law. The Maryland Reforestation Law (NRA 5-103), adopted in 1988, requires that any highway construction work conducted by a highway construction agency utilizing State funds and disturbing at least 1 ac (0.4 ha) of forest must replant 1 ac (0.4 ha) of forest (a 1:1 ratio of disturbance to replanting). If replanting cannot occur, then the agency must pay fee-in-lieu of \$0.10 per ft² (\$1.08 per m²) of the required mitigation amount to the Maryland Forest Service, which then must accomplish the planting (Section §5-103, Natural Resources Article, Annotated Code of Maryland [2012 replacement volume as amended]). The Maryland Department of Transportation mitigated with roughly \$1 million in fee-in-lieu for highway construction work that disturbed approximately 266 forested acres (108 ha). Outreach was accomplished through a partnership with the Arbor Day Foundation.

The Lawn to Woodland program targets the small lot with 1 to 5 ac (0.4 to 2.0 ha) of plantable space. It is a partnership with the Arbor Day Foundation, which handles the outreach, and the Maryland Forest Service, which manages the tree planting at no cost to the lot owner. In the summer of 2013, the Maryland Forest Service initiated a pilot project within a targeted area just west of Baltimore County (figure 1). The Foundation mailed 1,000 flyers to its members within this area and received a 10-percent response rate. The Maryland Forest Service wrote the planting plan and handled the site preparation work, the planting contracts, the seedling orders, the shelters/stakes, and the post-planting mowing. In the spring of 2014, the pilot project was planted on a total of 14.3 ac (5.8 ha) on 12 sites using 4,300 seedlings purchased from John S. Ayton State Tree Nursery (table 1). It was determined that the seedlings needed 5-ft (1.5-m) shelters and stakes and also tree mats. The planting cost, including nursery purchase and planting contract, was approximately \$815.64 per ac (\$2,014.63 per ha).

Tubes, stakes, and tree mats were purchased in bulk for multiple planting sites that season and are not included in the cost per acre. Pilot area survival rate was determined to be 85 to 90 percent in the summer and fall of 2015 (figure 2).

Table 1. Spring 2014 seedling order for Maryland's Lawn to Woodland pilot project.

Species		Quantity
Common name	Scientific name	
Black oak	<i>Quercus velutina</i> Lam.	550
Chestnut oak	<i>Q. montana</i> Willd.	550
Northern red oak	<i>Q. rubra</i> L.	550
White oak	<i>Q. alba</i> L.	550
Common ninebark	<i>Physocarpus opulifolius</i> (L.) Maxim., orth. cons.	450
American hazelnut	<i>Corylus americana</i> Walter	550
Common persimmon	<i>Diospyros virginiana</i> L.	550
Eastern redbud	<i>Cercis canadensis</i> L.	550
Total		4,300

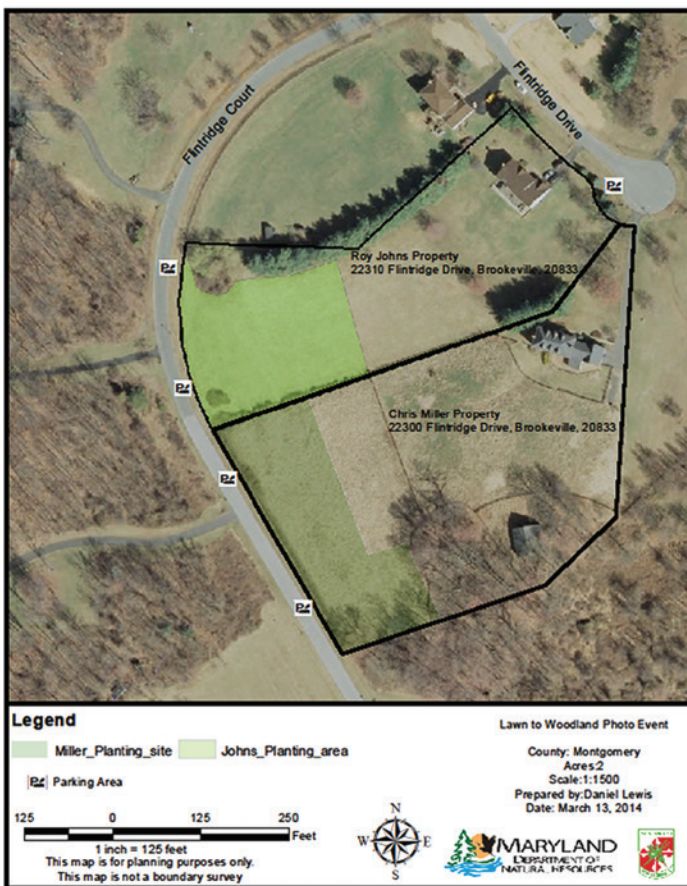


Figure 1. Aerial plan of two neighboring 2014 planting sites for Maryland's Lawn to Woodland pilot project.



Figure 2. Seedling survival was excellent during the 2014 pilot project for Maryland's Lawn to Woodland program. (Photo by Marian Honecny, 2014)

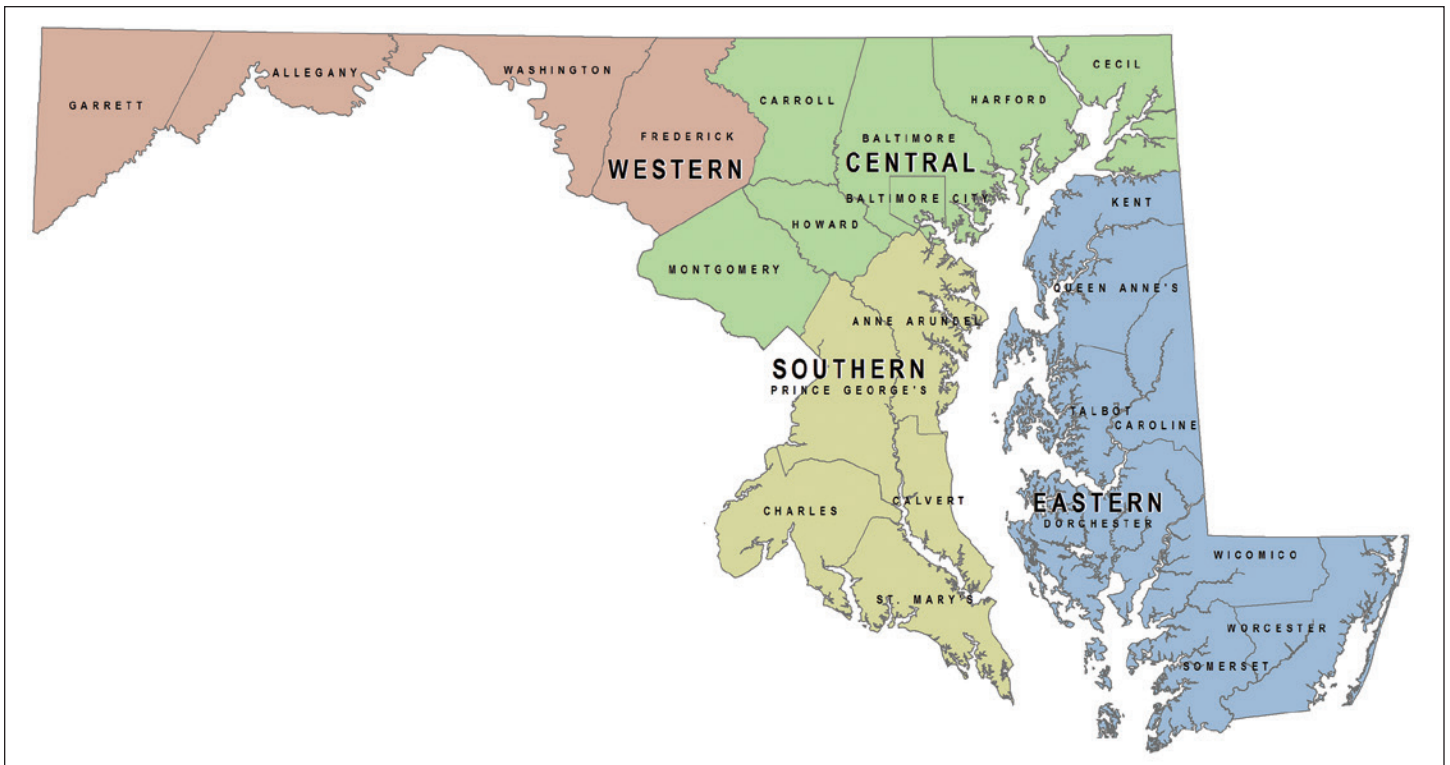


Figure 3. Maryland's Forest Service regions.

After a review of the pilot project, the Maryland Forest Service decided to roll out the program statewide. The Arbor Day Foundation again mailed approximately 100,000 brochures to both active and lapsed Maryland members statewide. The response was huge; at first glance, it seemed beyond the program's capacity to handle. Upon reviewing the responses, it was determined that most who responded did not meet the lot size criteria. Those lot owners who did not fall within the Lawn to Woodland program's available planting space criteria were directed to other more appropriate Maryland Forest Service landowner assistance or tree planting programs. In the spring of 2015, 100 ac (40.4 ha) were planted on 84 sites within all four Maryland Forest Service regions (figure 3) with 41,220 seedlings purchased from John S. Ayton State Tree Nursery (table 2). It was determined that some planting sites needed 4- to 5-ft-tall (1.2- to 1.5-m-tall) shelters and stakes, depending on location (figure 4). Tree mats were also purchased for most planting locations. The total planting cost was \$264,163.48, or \$2,622.49 per ac (\$6,477.55 per ha), including four planting contracts, seedling orders, shelters, staples, and tree mats. The statewide survival rates in the fall of 2015 were 85 to 90 percent.

Table 2. Spring 2015 seedling order by region for Maryland's Lawn to Woodland program.

Region	Number of seedlings	Number of acres	Number of lot owners
Central	10,500	35.0	32
Eastern	10,670	24.5	20
Southern	12,650	27.4	22
Western	4,200	13.8	10
Totals	41,220	100.7	84



Figure 4. During the 2015 planting season, it was determined that tall tree shelters were needed on some sites. (Photo by Chris Peters, Maryland Forest Service, 2015)

Table 3. Spring 2016 seedling order by region for Maryland's Lawn to Woodland program.

Region	Number of seedlings	Number of acres	Number of lot owners
Central	14,100	47	47
Eastern	3,375	7	3
Southern	1,350	3	3
Western	3,750	13	9
Total	22,575	70	62

Because some funding was still available and a number of landowners remained who had not been contacted during the 2015 outreach effort, the Maryland Forest Service decided to conduct the program again in 2016 (table 3). The plantings used the remaining tree tubes, stakes, and tree mats from the 2015 planting. The estimated costs for planting 70 ac (28 ha) on 62 sites include seedling orders and four planting contracts for an approximate total of \$131,711, or \$1,881 per ac (\$4,648 per ha).

Conclusion

To achieve two new statewide canopy goals, the Maryland Forest Service developed two new tree planting assistance programs targeting landowners within the urban and suburban areas of Maryland. Together, these programs help the Maryland Forest Service meet goals set forth in the Maryland Forest Action Plan. According to Donald VanHassent, Maryland State Forester, “These two programs have allowed the Maryland Forest Service to reach out to non-traditional cooperators to help achieve our urban tree canopy goals” (as quoted in Honecny 2016). As with all planting programs, funding determines the lifespan of the program. Both programs have limited funding and the Maryland Forest Service is examining various options to continue these programs.

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