



United States Department of Agriculture

Chesapeake Working Lands Conservation Strategy

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and the Natural Resources Conservation Service.**



Contents

Section 1

Introduction.....2

Section 2

Conserving Forests.....7

Section 3

Conserving Farms.....19

Section 4

Strengthening Conservation Partnerships.....30

References

.....40

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Section 1: Introduction

Where would we be without working lands?

Forest and farm lands constitute the underlying fabric of the Chesapeake Bay watershed landscape. Of this vast watershed covering 64,000 square miles, around 55 percent of the land is forested and 22 percent is agricultural. It can be easy to take for granted the scenic vistas of pasture and cropland we drive through, the woods we walk and recreate in, and the lovely rural character of so many communities we live in or visit.

In this Strategy, we refer to these lands broadly as “working lands” in recognition of the many people who have been stewards of the land over the centuries. Their work has provided the food, fiber, timber, and other resources by which the region has prospered. Working lands—and the farmers and forest landowners who care for them—are at the heart of the heritage and character of this region.

Working lands are the backbone of America’s rural economies. The agricultural sector in the Chesapeake Bay watershed contributes about \$10 billion a year to the region’s economy. The forest products industry provides \$6 billion in income to the region. Working lands sustain vital jobs in rural communities, while also supporting outdoor recreation opportunities that bolster local economies.

Working lands provide a variety of environmental benefits, including the capacity to help our Nation mitigate and [adapt to climate change](#). Forests, healthy soils, and cover crops capture carbon and help to more efficiently protect water resources. Working lands support the 3,600 species of animals and plants that call the watershed home. The network of forests, farms, and wetlands that occurs on rural lands, known as green infrastructure, is predominantly privately owned, and it is threatened.

Whether or not rural lands are currently in agricultural or forestry production, they hold the vital capacity to provide for society’s needs into the future. This capacity is permanently lost when they are paved over or fragmented by development to the extent that agricultural and forestry production is no longer viable. Development pressures facing landowners in many parts of the watershed are intense (figure 1). The current population of 18 million people will continue to grow, creating more roads, parking lots, and buildings that chip away at the capacity of our working lands to provide these benefits into the future. Even in areas where population growth is not intense, fragmentation through rural residential sprawl, energy development, and other types of land use change has an impact on the future of working lands.

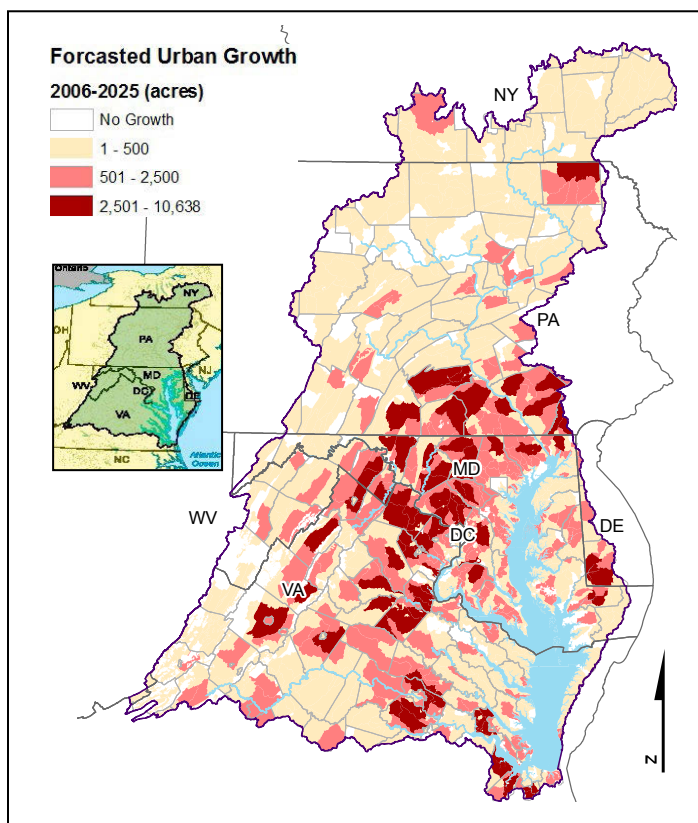


Figure 1. Acres of forecasted urban growth, 2006–2025, for watersheds (land-river segments) used in the Chesapeake Bay model. Source: USGS, Chesapeake Bay Program. Photos: Top, USDA NRCS; Middle, Chesapeake NEMO

The production of food and fiber for the future is dependent upon a sustainable land base, healthy natural resources, and sustainable rural communities. Recognizing the importance of providing options for farmers, ranchers, and foresters, a [recent report of the White House Rural Council](#) cites key growth areas to revitalize rural economies: new local and regional marketing opportunities for producers, more conservation and recreation activities, funding for bioenergy, and others. Above all, the report stresses the need to create more jobs to preserve the character of rural America, for all Americans.

Protection and stewardship of working lands are critical in order to meet the ambitious restoration goals set for the Chesapeake Bay watershed. In 2010, the [Chesapeake Total Maximum Daily Load](#) (TMDL) was issued with targets to reduce nitrogen loads by 25 percent, phosphorus by 24 percent, and sediment by 20 percent by 2025. The Chesapeake TMDL includes all six Bay states and the District of Columbia. It addresses reductions needed from all sources including wastewater, stormwater, agriculture, and forests. The Bay states developed Watershed Implementation Plans to meet these targets based on land use conditions in 2010. However, continued urban growth and development of farm and forest land will produce additional pollution to be managed, making already ambitious restoration goals harder to reach. As discussed later in this Strategy, policies and programs to keep working lands intact and sustainable are essential for the success of these water quality investments.

Conservation Progress Through a Network of Partners

The Chesapeake Bay partners have long recognized land conservation as a critical piece of the puzzle for protecting the lands and waters of this unique region. In 2000, the Chesapeake Executive Council adopted a comprehensive partnership agreement that included a conservation goal to permanently protect 20 percent of the land area of the watershed in the signatory jurisdictions (Maryland, Pennsylvania, Virginia, and the District of Columbia) by 2010. Through the combined efforts of state, local, nongovernmental, and federal partners, the goal was achieved by 2010, with 7.26 million acres (21.3 percent of the total land area in the watershed) permanently protected.¹ (See map, figure 2) Starting in the early 1900s, federal and state governments acquired a large proportion of the watershed's protected land to be conserved as public lands for wildlife, recreation, and natural resources. While public land acquisition of priority natural and cultural areas continues, the dominant trend in recent decades is for private landowners to voluntarily protect their land from development through conservation easements and purchase of development rights. These tools are vitally important to ensure that family farm and forest land is protected for future generations.

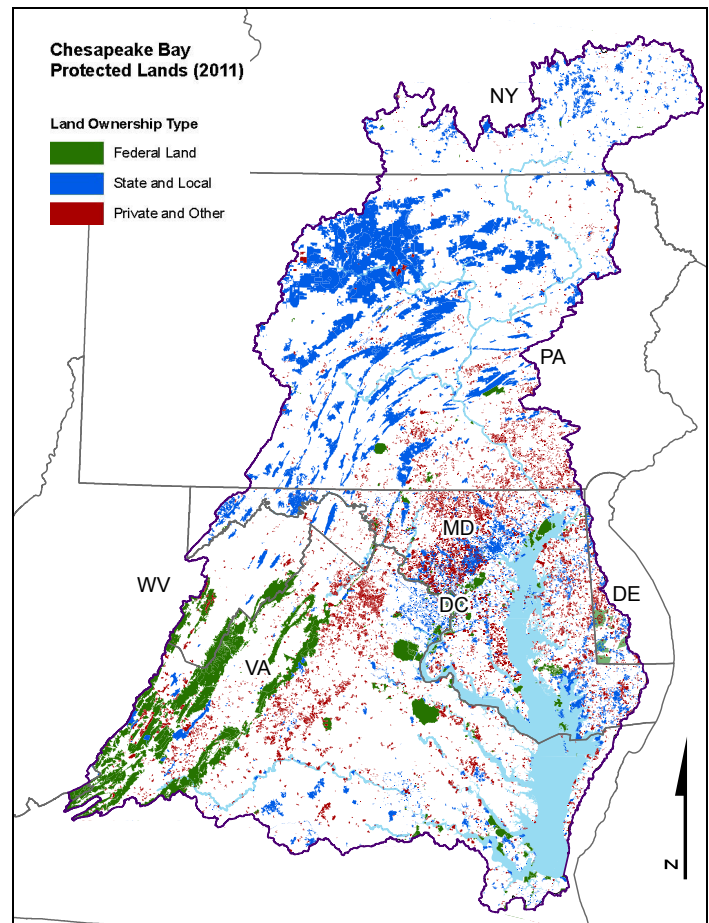


Figure 2. Lands permanently protected in the Chesapeake Bay watershed as of 2011, by land ownership type. Conservation easements are included in the Private category. Source: USGS, Chesapeake Bay Program

Land Conservation Funding in the Chesapeake

Chesapeake Bay Commission and Chesapeake Conservancy

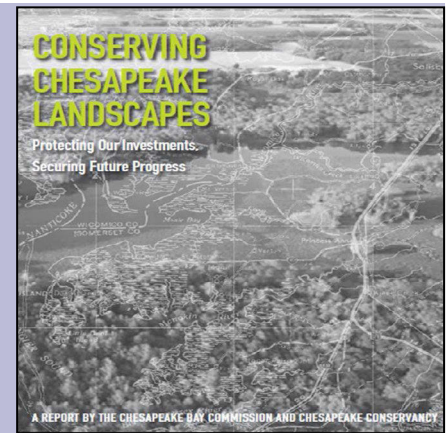
The 2010 [Conserving Chesapeake Landscapes](#) report includes an analysis of the funding used to conserve land in the Chesapeake Bay watershed, with the following findings:

State program funding is the key driver for land conservation accomplishments

- Funding from various state programs (Md., Va., Pa.) totaled over \$491 million in FY2009 and \$249 million in FY2010 (p. 10 of report)
- Major state funding comes from the Virginia Land Preservation Tax Credit, Pennsylvania Farmland Preservation Program, and Maryland’s mix of programs

Federal funding is a relatively small piece of the funding pie, recently around 10 percent of state levels

- Funding from various federal programs throughout the six Bay states averaged around \$41 million a year from FY2007–2009 (p. 11 of report)



There is a wide variety of state, local, and federal programs and land conservation organizations that support land protection. This report highlights some examples from across the Bay states that are particularly relevant for working lands. For a more detailed analysis of state land conservation programs and policies in the Bay watershed, the 2010 [Conserving Chesapeake Landscapes](#) report produced by the Chesapeake Bay Commission and Chesapeake Conservancy is an excellent resource.

State land conservation programs in the Bay watershed have been recognized as some of the most effective in the country. Maryland, Pennsylvania, and Virginia have been among the most generous states in the Nation when it comes to state spending on land conservation. Between 1998 and 2005, Maryland ranked 6th among all states with per-capita spending of \$75; Pennsylvania ranked 10th at \$36 per capita;² and Virginia ranked 13th at \$25 per capita.² Conservation programs in Delaware, West Virginia, and New York also play an important role in protecting the headwaters of the Chesapeake Bay watershed.

Ultimately, land protection starts and ends at the local level, with landowners committed to preserving the legacy of their working lands. Local land trusts and conservation professionals play a vital role in advising landowners, connecting them with options and programs to meet their goals. Local communities stand to benefit the most from preserving their rural community character; they also have the most to lose. For this reason, nationwide, roughly two-thirds of new funding for land protection comes from local sources. An analysis done by The Trust for Public Land in 2008 showed how Bay states could significantly expand local conservation funding by adopting a model used successfully in other states such as New Jersey and Massachusetts (figure 3).³ The model has two primary elements: 1) enabling authority for local governments to establish dedicated conservation funding via ballot measures as a portion of the property tax, and 2) states directing their conservation funding toward matching grants to local governments who raise funds.



Local Government Conservation Funding Potential With State Policy Enhancements		
State	Annual Funding Estimates	
	Current	Potential
Maryland	\$68 million	\$196 million
Pennsylvania	\$107 million	\$287 million
Virginia	\$54 million	\$200 million

Figure 3. Potential for increasing local conservation funding by adopting the state policy model featured in the 2008 analysis by The Trust for Public Land.

Forging New Strategies for the Future

In 2009, President Obama issued Executive Order 13508 declaring the Chesapeake Bay a “national treasure” and calling for expanded federal collaboration to protect and restore the watershed. In response, federal agencies worked with a variety of state and nongovernmental partners to develop the 2010 [Executive Order Strategy for Protecting and Restoring the Chesapeake Bay Watershed](#).⁴ The Executive Order Strategy includes a Land Conservation Outcome as one of 12 ecosystem goals:

By 2025, protect an additional **2 million acres** of lands throughout the watershed currently identified as high conservation priorities at the federal, state, or local level, including **695,000 acres of forest land** of highest value for maintaining water quality. (Strategy, p. 76)

The National Park Service coordinated with many groups to develop this land conservation outcome, based on consultations with state officials and nongovernmental partners in land conservation, past land protection trends, and formally identified state and federal land conservation priorities and goals. In June 2014, the Bay jurisdictions adopted this outcome as part of the 2014 [Chesapeake Bay Partnership Agreement](#).

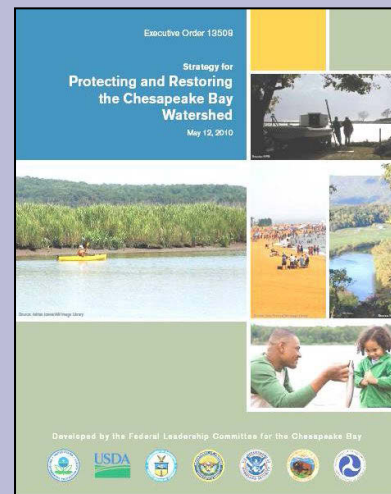
As one of the actions to support land conservation under the Executive Order, USDA committed to working with partners on this Chesapeake Working Lands Conservation Strategy to help reduce the loss of vital farm and forest land across the watershed.

Vision for the Chesapeake

From Executive Order Strategy, p.1

A Chesapeake watershed with

- Clean water that is swimmable and fishable in streams, rivers, and the Bay
- Sustainable, healthy populations of blue crabs, oysters, fish, and other wildlife
- A broad network of land and water habitats that support life and are resilient to the impacts of development and climate change
- Abundant forests and thriving farms that benefit both the economy and environment
- Extensive areas of conserved lands that protect nature and the region’s heritage
- Ample access to provide for public enjoyment
- Cities, towns, and neighborhoods where citizens are stewards of nature



Executive Order Strategy Land Conservation Actions:

- ✓ Launch Chesapeake Treasured Landscape Initiative (DOI)
- ✓ Coordinate and target federal land conservation funding (DOI, NOAA, DOT, DOD, USDA)
- ✓ Conserve landscapes through National Park Service partnership areas (NPS)
- ✓ Achieve mutual conservation goals through National Wildlife Refuge partnerships (FWS)
- ✓ Develop a Bay-wide strategy to reduce the loss of farms and forests (USDA)
- ✓ Support creation and expansion of protected coastal and marine areas (NOAA)
- ✓ Provide community assistance for landscape conservation (NPS)
- ✓ Identify culturally significant landscapes (NPS)
- ✓ Establish watershed-wide, GIS-based land conservation targeting system (USGS, NPS, FWS)
- ✓ Develop integrated transportation, land use, housing, and water infrastructure plans (DOT, EPA, HUD)

Focusing on Working Lands Partnerships

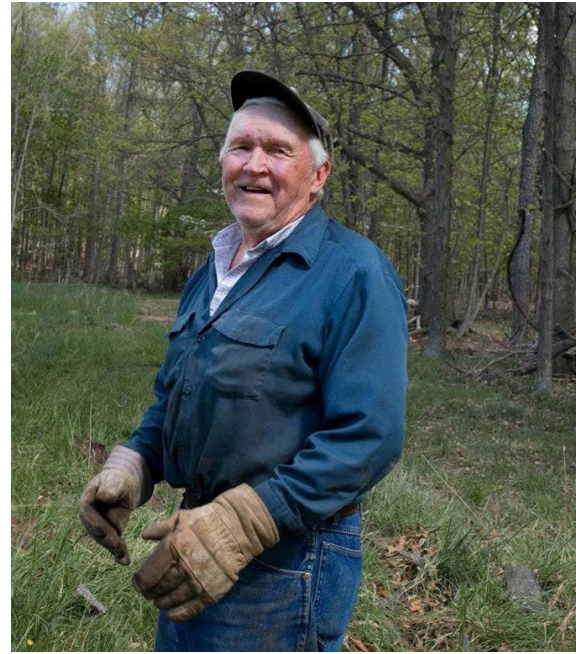
To support the Executive Order Land Conservation Outcome, this Strategy focuses primarily on programs and partnerships that use easements and related tools to permanently protect private farm and forest land. The Strategy highlights some of the federal easement programs that can be leveraged to get more acreage conserved on the ground, even though they have less funding compared to state programs. In addition to easements, the Strategy highlights complementary programs and initiatives to support the stewardship and viability of working lands.

During 2012–2013, the U.S. Forest Service and Natural Resources Conservation Service collaborated to develop this Strategy with valuable input from a wide array of partners (see list, p. 1). More than 80 working lands conservation organizations provided input on the Strategy in state-level meetings. Partners provided valuable ideas and examples of ways to work effectively across federal, state, and local programs; target priority lands; improve stewardship; and advance new tools, many of which are highlighted throughout this Strategy.

Overview of Strategy

- **Section 2: Conserving Forests**—Highlights trends, priorities, current programs, and new incentives for forest conservation and stewardship
- **Section 3: Conserving Farms**—Focuses on leveraging various agricultural conservation programs to maximize conservation benefits and other strategies to help keep farmers on the land
- **Section 4: Strengthening Conservation Partnerships**—Emphasizes integrated partnership approaches across farm and forest land to target priorities at various scales, from the Chesapeake Bay watershed scale to the local scale.

Each section ends with a set of partnership recommendations that builds on themes and ideas from state meetings held with conservation partners. The recommendations are intended for the entire network of federal, state, local, and nongovernmental partners, with the understanding that some ideas will be more relevant to particular organizations and places than others. This report informs readers about the broader land conservation strategies of the new Chesapeake Bay Agreement by highlighting specific issues and opportunities for working lands. To support ongoing collaboration on the Strategy recommendations, USDA will help coordinate working lands conservation efforts as part of the Chesapeake Large Landscape Conservation Partnership (see Section 4).



Photos: Top, Tom Cogill; Middle, Mike Land; Bottom, Gretchen Mais

Section 2: Conserving Forests

Forests are the central natural feature of the Chesapeake Bay watershed. When Captain John Smith explored the rivers of the Chesapeake in 1604, he found a vast wooded landscape covering 95 percent of the landscape. Today, the watershed is still mostly forested (55 percent), but increasing population and development pressures continue to erode the remaining forest blocks (figure 4).

Trees provide critical services including clean air and water, flood abatement, habitat, recreation, energy, and wood fiber. Forests are vitally important in [sequestering carbon](#) and mitigating the impacts of climate change. Many studies have shown that forest cover is the least polluting land cover for water quality. ⁵ Reducing forest area in a watershed by 10 percent leads to as much as a 40 percent increase in nitrogen loads to the water. ⁶ As shown in figure 5, a number of small watersheds in the region are forecasted to lose from 500 to 9,000 acres of forest to development between 2006 and 2025. Given this situation, the role of forest conservation becomes a key consideration for state and local governments working to meet local water quality and Chesapeake TMDL goals.

Forests are also important for rural economies. The forest products industry provides an estimated 140,000 jobs, \$6 billion in income, and a total industry output of \$22 billion to the Bay watershed economy each year.⁷ Timber and other forest products are renewable resources we all use every day. They require an adequate land base that is actively and sustainably managed as well as economic infrastructure (mills, etc.) to stay alive. As development increases in an area, land values and taxes rise while the viability of a local forestry economy declines.

Forest loss today is exacerbated in two primary ways. First, the forest loss in recent times is not only rapid at 100 acres per day, but also permanent. The forest cannot grow back if the land is being developed. Second, forest blocks are increasingly parcelized into smaller ownerships, leading to fragmentation of the forest's habitat and resources over time. Smaller forest blocks mean that owners are less likely to manage and derive income from their forest. In the Bay watershed, over three-quarters of the forest land is privately owned, and this ownership is dispersed among 900,000 landowners. Around 70 percent of family forest landowners owns less than 10 acres.⁸

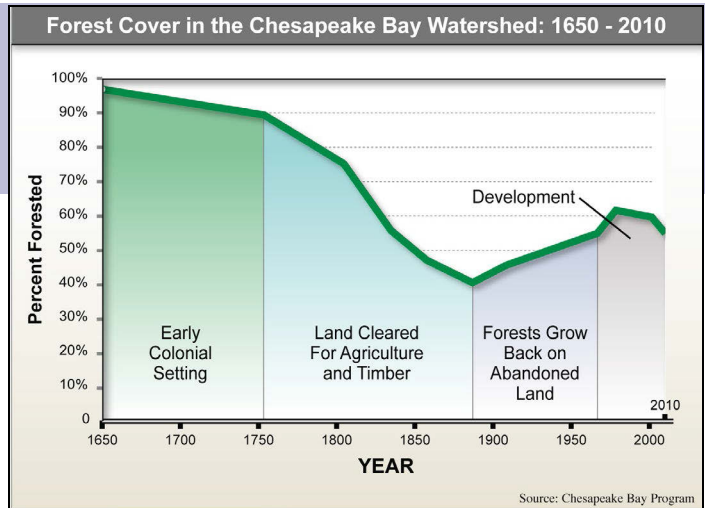


Figure 4: Forest Cover in the Chesapeake Bay Watershed, 1650-2010. Source: Chesapeake Bay Program.

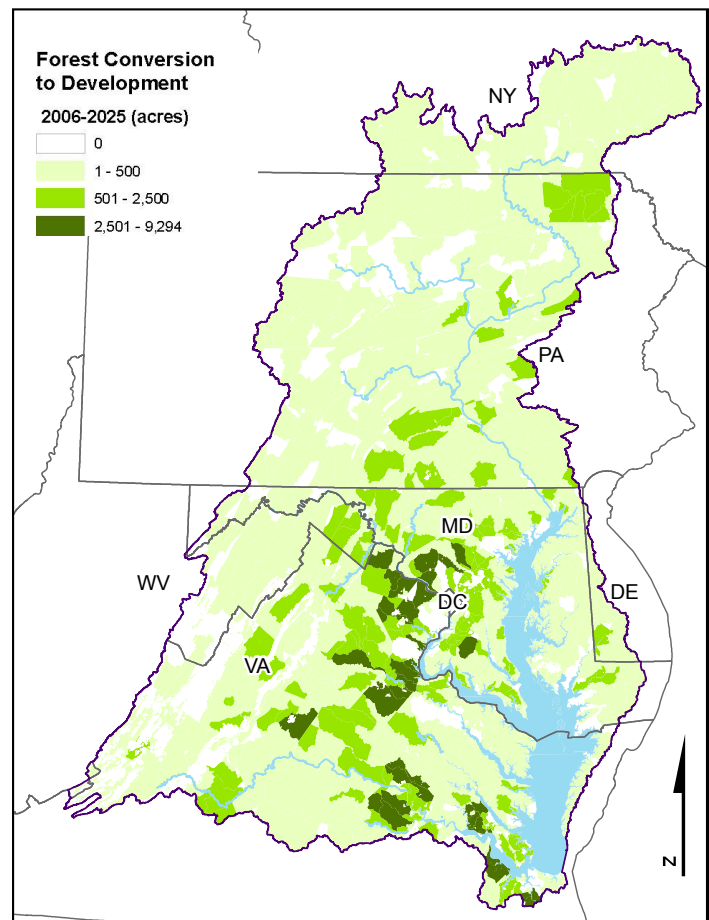
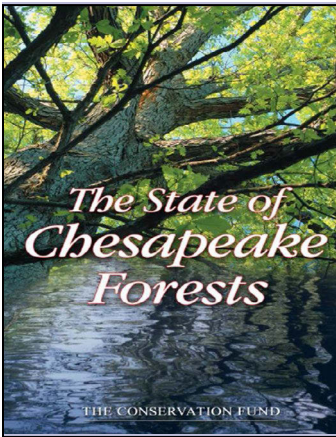


Figure 5. Acres of forecasted forest conversion to development, 2006–2025, for each Chesapeake land-river segment. Source: USGS, Chesapeake Bay Program



Quick Facts From the [State of Chesapeake Forests \(2006\)](#)

- 78 percent of Chesapeake forest land is privately owned, primarily as family owned woodlands
- Over 30 percent of the watershed's high-value forests are at high risk of development
- 60 percent of Chesapeake forests are fragmented by housing, subdivisions, farms, and other human uses
- 70 percent of family forest owners hold less than 10 acres
- Over 70 percent of family forest owners are 55 years or older

What is a working forest?

A working forest is one that is actively managed using a forest management plan as a guide. Forest management includes a broad suite of silvicultural activities that include thinning, regeneration harvests, timber stand improvement cuts, invasive species control, and planting. When carried out with the advice of a forester, these management practices are almost always beneficial to the long-term health and sustainability of the forest. Forests can be managed for specific ecosystem services (e.g., water quality, habitat, carbon sequestration) and for timber or other forest products. More importantly, income from these working forests helps the land support itself so that a landowner is less likely to sell the land for development.

In order for working forests to be viable for landowners, existing markets for forest products need to be supported. In some cases, landowners may need to learn more about economic options or learn of uncommon markets. Even traditional markets for timber and wood fluctuate over time according to demand. Forest landowners benefit from access to a diversity of sawmills and wood manufacturers that reflect the diverse forests in our region and are prepared for market fluctuations. Stability in the market gives confidence to the forest landowner. Partnerships with state forestry agencies are important to support the strategies for forestry markets that are being carried out through [State Forest Action Plans](#).



Photos: Mike Land

Building on Past Progress

Looking back over the last century, there has been a strong legacy of forest conservation in the region through public land acquisition. At the federal level, the George Washington, Jefferson, and Monongahela National Forests that were established in the early 1900s now protect 1.4 million acres of vital headwater forest in Virginia and West Virginia. State-owned lands are also significant. Pennsylvania has conserved over 1.8 million acres of State Forest land and manages these lands for public benefits such as wildlife habitat, water quality, recreational use, and timber. Together, public lands owned by federal, state, and local governments make up 90 percent of the forests that are permanently protected.⁹

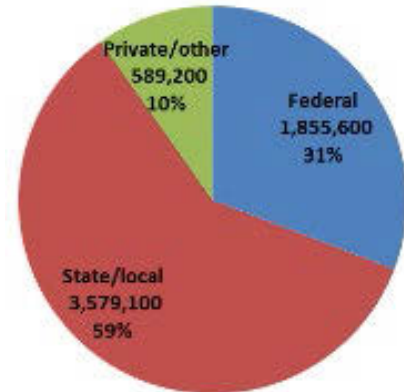
In 2007, the Chesapeake Executive Council recognized the critical importance of conserving our remaining forest for the health of the Bay by signing the [Chesapeake Forest Conservation Directive](#). The Directive recognizes the importance of forests and includes a commitment to permanently protect 695,000 acres of forest by 2020, targeting forests that are the most valuable for water quality. All six Bay states and the District of Columbia signed on to the Directive, which included specific acreage targets for most of the states. The goal was incorporated into the Land Conservation Outcome in the 2010 Executive Order Strategy. According to data reported by state forestry agencies, around 268,000 acres of forest have been permanently conserved from 2008–2012 (figure 6).¹⁰

Forest conservation easement options and funding sources in the Bay states are not as well developed as the agricultural preservation programs discussed in Section 3. The Conserving Chesapeake Landscapes report notes that over the past decade, states have conserved 2.9 acres of agricultural land for every 1 acre of forest land (Md., Pa., and Va. data only). Fortunately, most of these agricultural programs do allow for a portion of the easement to be on forest land, although these rules can be limiting in more forested parts of the watershed like West Virginia and New York. Still, conservation partners have noted that more robust programs and funding to support forest conservation are needed.

Maryland’s Rural Legacy Program is one model that can be used for both working forests and farms. Delaware took positive steps to create a new Forestland Preservation Program, but the program has not received state funding since 2008. The power of strong tax incentive programs is demonstrated by Virginia’s Land Preservation Tax Credit, which has been highly effective in securing donated easements on both forest and farmland.

Chesapeake Conserved Forest Acreage: By Ownership Type

Source: Chesapeake Bay Program



Chesapeake Forest Conservation Directive Goals & Progress	Baseline: 2007		Goals: New Acres of Forest to be Protected		Progress: Forest Protected
	Total Forest in Watershed	Forest Already Protected	2012 Goal	2020 Goal	New Acres 2008-2012
Delaware	175,900	48,400 (28%)	5,000	15,000	8,280
Maryland	2,358,000	724,000 (31%)	96,000	250,000	36,780
New York	2,433,000	295,000 (12%)	5,800	15,000	3,380
Pennsylvania	8,716,000	2,896,000 (33%)	38,500	100,000	28,630
Virginia	8,367,000	2,093,000 (25%)	135,000	315,000	184,640
West Virginia	1,631,000	474,000 (29%)	--	--	6,650
Total	23,680,900	6,530,400 (28%)	280,300	695,000	268,360

Figure 6. Chesapeake Forest Conservation Directive goals and progress. Note that West Virginia signed onto the Directive goals but did not identify state-specific acreage targets. Source: U.S. Forest Service, Chesapeake Bay Program; progress data from state forestry agencies.

Spotlight on State Programs: Forest Conservation in Virginia

Virginia has been a leader in recent years in the amount of forest land protected through conservation easements, conserving nearly 185,000 acres of forest land in the Chesapeake watershed from 2008–2012 (figure 6). This success can primarily be credited to Virginia’s effective [Land Preservation Tax Credit Program](#), coupled with a strong network of conservation agencies, such as the Virginia Outdoors Foundation, and land trusts. The program provides a state income tax credit of up to 40 percent of the value of the donation. An amendment in 2002 accelerated the program by authorizing the transfer of tax credits, so that individuals with little or no state income tax burden can sell their credits to other taxpayers.

The Virginia Department of Forestry (VDOF) is unique among Bay forestry agencies in creating a dedicated Forest Conservation Division, which has spearheaded a number of innovative strategies to protect private forest land from development. Recognizing the unique values and challenges of sustaining working forests, VDOF developed an easement program focused primarily on conserving large blocks of forest land across the Commonwealth. The program provides forest landowners with a valuable option to keep their land available for healthy and productive forests. It also ensures that sustainable forests remain an integral part of Virginia’s landscape into the future. The forestry easements qualify donors for Land Preservation Tax Credits and other tax benefits of donated easements, but with a number of additional requirements:

- Forest stewardship management plan is required
- Forest harvest Best Management Practices are required, including a written pre-harvest plan
- At least 75 percent of the forest cover at time of easement must be preserved
- Parcels are evaluated based on forest acreage and percentage of “high conservation value” forest on the property

To reduce forest loss resulting from development, VDOF has been working with state and federal agencies, industry, and nongovernmental organizations over the past year on initial steps to develop a Voluntary Forest Mitigation Program. The goal is to create a sustainable forest mitigation program that financially links the loss in upland forest values to the cost of land conversion associated with development. The initiative aims to address both onsite and offsite mitigation opportunities in three categories: forest preservation, restoration, and creation. VDOF is continuing its dialogue with stakeholders to build consensus on the importance and value of upland forest conservation and the need to mitigate its loss. An agreed-upon mitigation framework will reduce uncertainty for project proposers and planners and enable VDOF to better engage state agencies and the private sector in reforestation and afforestation activities to offset upland forest loss.



Focusing on Generation “NEXT”: Family Forestland Planning

Forest landowners 65 years and older control 41 percent of Virginia’s 10 million acres of family-owned forest land. High land values and taxes cause many heirs to sell land to meet financial obligations—a major force behind the loss and fragmentation of family forests. Like other states, Virginia is on the cusp of the largest intergenerational transfer of family forests ever, and conservation-minded landowners need to know what their options are.

A common barrier to estate planning is understanding planning tools and having confidence in knowing where to start. In response to this need, Virginia Cooperative Extension, VDOF, Virginia Department of Agriculture and Consumer Services, and partners collaborated to create a short course for family forest owners titled, *Focusing on Land Transfer to Generation “NEXT.”* The course uses the expertise of private legal and financial professionals, conservation specialists, and extension agents. Over 4 years, more than 100 individuals completed the course. Follow-up surveys showed that at least 75 percent of the participants had begun forest land transition planning in the 6 months following the course. As these landowners continue executing their plans, approximately 47,000 acres of land are expected to remain open and family owned.

Focusing on High Value Forest Lands

While all forests are valuable for the health of the Chesapeake Bay watershed, there are opportunities to focus conservation efforts on forest lands that provide unique or overlapping conservation values. A variety of GIS-based prioritization tools have been developed at different scales, from the entire Chesapeake Bay watershed, to individual states, to local areas served by particular land trusts. Each of these scales is important for focusing limited resources on priority forest lands whenever possible. [State Forest Action Plans](#), created by each state forestry agency, are helpful in identifying priority areas and strategies for working forests.

The Chesapeake Forest Conservation Directive adopted in 2007 includes an emphasis on targeting forests of highest value for water quality. In response, the states used GIS analyses to map their high-value forests (figure 7). Each state used its own methodology for setting priorities, but the analyses generally included riparian forests, large blocks of intact forests, and forests vulnerable to development.¹¹ From the forest conservation progress data submitted by states, an estimated 40 percent of the acres conserved from 2008–2012 have been high-value forest. However, improved GIS-based tracking and updating of high-value forest map layers is needed to more accurately capture this goal in the future.

One technique that has been used to prioritize high-value forest is a green infrastructure planning approach that identifies a critical habitat network of forest hubs and corridors. Certain wildlife species, notably forest-interior dwelling birds, rely on large blocks of unfragmented forest (hubs) and connecting habitat corridors. These large forest hubs are also important for working forests, because a critical mass of land is needed to make sustainable timber harvest economically and practically viable. As of 2013, [Maryland](#), [Virginia](#), and [Delaware](#) have developed statewide green infrastructure assessments that can be used to target forest conservation efforts. West Virginia and Pennsylvania are currently developing similar analyses. In New York, the Finger Lakes Land Trust worked with partners to develop an action-oriented forest conservation prioritization based on multiple datasets representing a variety of conservation priorities in the Upper Susquehanna watershed. A number of communities have been putting the state data to good use by crafting local green infrastructure plans, with the technical support of partners like Virginia's [Green Infrastructure Center](#).

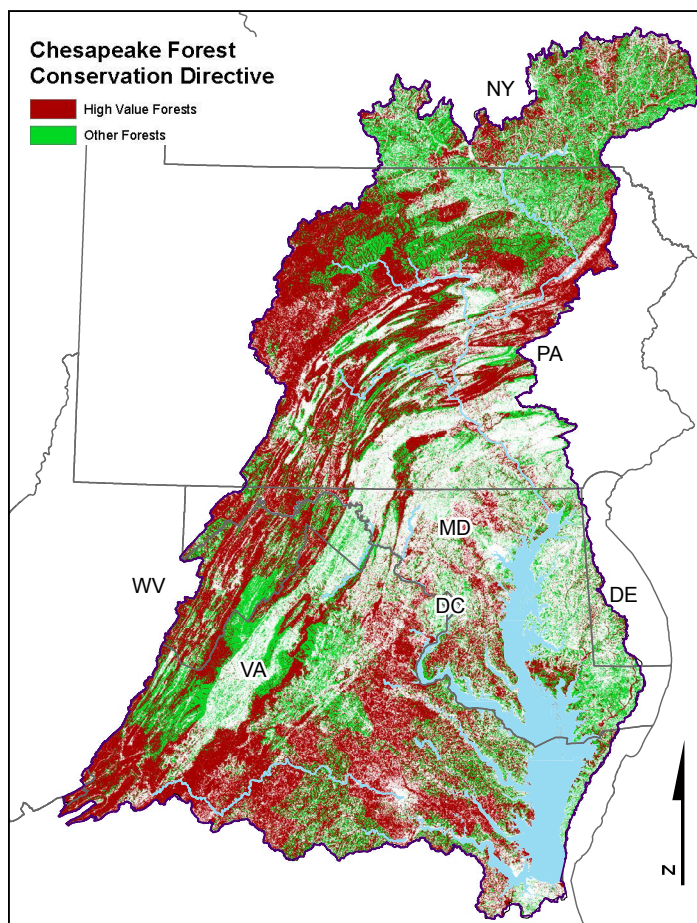
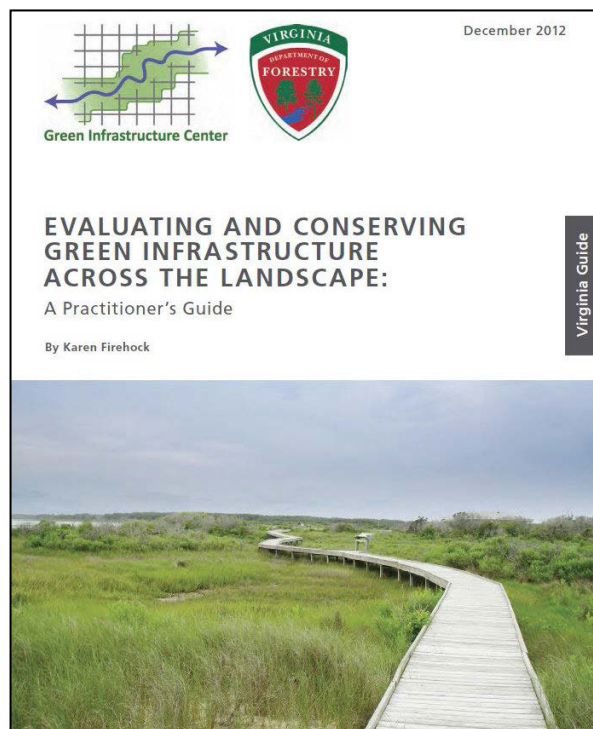


Figure 7. High-value forests identified for the Chesapeake Forest Conservation Directive. Source: USFS; data from state forestry agencies (Md., Pa., Va.); and Chesapeake Resource Lands Assessment for headwaters states



Protecting existing riparian forests along streams is a critical priority for sustaining the tremendous water quality and habitat benefits these areas provide. The Chesapeake Bay states have committed to the long-term goal of having riparian forest buffers along 70 percent of the stream miles in the watershed—a goal that requires both conserving existing riparian forests and restoring over 25,000 additional miles of riparian forest buffers.¹² Most of the effort thus far has been on planting new buffers, but preventing the loss of intact riparian forests is equally important for meeting water quality goals. Targeting easements to protect riparian forests is one good strategy. On a broader level, it is important to support continuation and strengthening of state policies to protect riparian buffers from development—such as Maryland’s Critical Area Act and Virginia’s Chesapeake Bay Preservation Act.

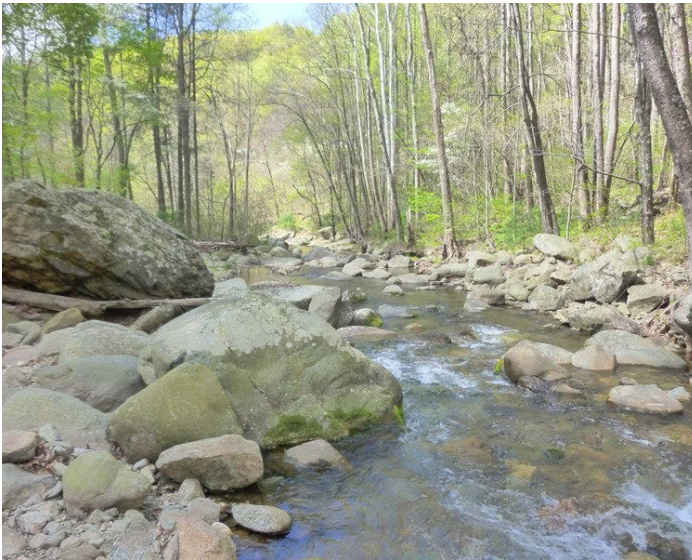
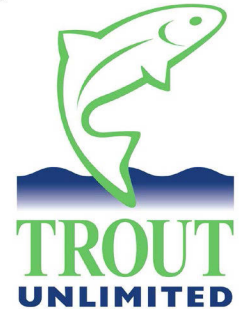


Photo: Kevin Anderson. Private riparian forest land protected along Virginia’s Conway River with help from a TU Coldwater Land Conservancy Fund grant and VDOF easement.

Protecting Riparian Forest for Brook Trout

As noted in one of the 12 key outcomes in the Chesapeake Executive Order Strategy, brook trout are a critical headwaters species and indicator of watershed health. Brook trout rely on the cold, clean water found in forested watersheds. Brook trout populations have faced devastating declines due to habitat loss and degradation, including loss of riparian forest cover. To protect and bolster remaining brook trout populations, a targeted approach that incorporates conservation and restoration of high-value riparian forest habitat is essential.



In response to this need, Trout Unlimited created the Coldwater Land Conservancy Fund with support from the National Fish & Wildlife Foundation. This program provides land trusts with essential funding to cover transaction costs associated with securing conservation easements and lands that have high-value riparian forests. The program also provides technical assistance to target high-value brook trout habitat.

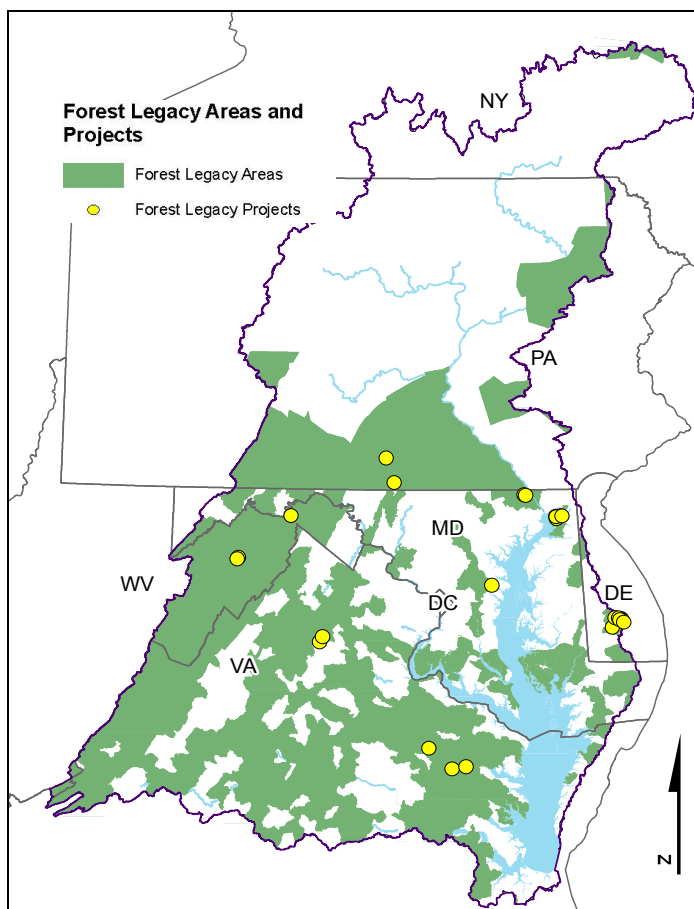
Since 2011, the Coldwater Land Conservancy Fund has supported 12 easement and land acquisition projects that conserve over 1,700 acres on 7 miles of brook trout-occupied streams in the Chesapeake Bay watershed. Partners include the Finger Lakes Land Trust (N.Y.), Lancaster County Conservancy (Pa.), Maryland Department of Natural Resources, Piedmont Environmental Council (Va.), and Virginia Outdoors Foundation. Trout Unlimited is also pursuing opportunities to enhance brook trout habitat on the conserved properties and adjacent areas.

CHESAPEAKE WORKING LANDS CONSERVATION STRATEGY

The U.S. Forest Service [Forest Legacy Program](#) was established to identify and protect important forest areas that are threatened by conversion to nonforest uses. This voluntary program is delivered in partnership with state forestry and natural resources agencies. It supports private landowners and conservation partners in protecting forest land through permanent conservation easements or fee simple acquisitions. The program ensures that both the traditional uses of private lands and the public values of our forest resources are protected for future generations.

As part of the program, each state must develop an Assessment of Need that designates priority forest lands for Forest Legacy funding (see map, figure 8). States work with landowners, land trusts, and other conservation partners in these designated areas to develop project proposals. The Assessment of Need must be approved by the U.S. Forest Service and can be updated to include new areas through a review process with the State Forest Stewardship Coordinating Committee. For example, Maryland recently reviewed its Assessment of Need to incorporate new green infrastructure eligibility criteria and significantly expand the Forest Legacy Areas eligible for the program.

Each year, state forestry or natural resource agencies submit project proposals into the national competitive selection process. The program requires a minimum non-federal cost share of 25 percent of the total project cost. Cost share can consist of state, local, or private funds; donated land value; and in some cases, project costs. The number of projects funded in a given year depends on the federal budget. For example, in FY2012, \$52.2 million in Forest Legacy funding went to support 17 forest conservation projects across the country.



State	Forest Legacy Program Project Name	Acres in the Chesapeake Watershed
Completed Projects, as of 2013		
DE	Green Horizon (multiple)	1,580
MD	Broad Creek	767
MD	Elk Neck (multiple)	668
MD	Green Cathedral	298
MD	Muddy Creek (multiple)	186
PA	Tree Farm #1	1,466
VA	Dragon Run	1,811
VA	Gwathmey	535
VA	Romine (multiple)	245
VA	Sandy Point - Mattaponi	2,093
WV	Potomac River Hills	2,505
WV	South Branch (multiple)	1,286
Total Acreage in Completed Projects		13,440
Recently Funded Projects (not completed)		
PA	Eagle Rock	1,100
WV	South Branch (multiple)	1,046
Total Acreage in Funded Projects		2,146

Figure 8. The map shows designated Forest Legacy Areas that are eligible to compete nationally for project funding each year. These areas are based on state forestry agency Assessments of Need and may be expanded where there is significant local partner interest. The table summarizes Forest Legacy Program projects funded in the Chesapeake Bay watershed. Source: U.S. Forest Service

The Forest Legacy Program has protected a number of critical working forest tracts within the Chesapeake Bay watershed (figure 8). As of 2013, the program has completed projects to protect over 13,400 acres, including over \$25 million in federal funding and over \$15 million in non-federal cost share. Despite these gains, the number of funded projects in the Bay watershed is relatively low compared to some other states in the Northeast that have been more successful in competing for Forest Legacy funding. Project applications from Bay states could be bolstered by working with partners on strategic multitract or multistate proposals that address a suite of conservation priorities, leverage multiple types of partner match, and emphasize the national importance of the Chesapeake region.



Photo: Mike Land

Delaware Forest Legacy: Green Horizons

Delaware Forest Service

In the last two decades, a number of states have leveraged Forest Legacy Program funds to conserve large tracts of forest land being sold by forest industry. In Delaware, this has occurred with the Glatfelter Pulp Wood Company's significant block of forest lands around the headwaters of the Nanticoke River, one of five high-value landscapes identified by federal agencies at the Chesapeake Bay Program. For centuries, these high-value forests have provided clean water, wildlife habitat, and jobs for local residents.

Beginning in 2001, the Delaware Forest Service, The Conservation Fund, and other partners began developing a multiphase Forest Legacy project to permanently protect the Glatfelter forests from development. The project, titled "Green Horizons," successfully competed for national Forest Legacy funding in multiple years to complete seven phases of land protection surrounding the Redden State Forest. When the last phase is completed in 2014, approximately 3,335 acres will have been conserved through a combination of fee simple acquisition (2,427 acres) and conservation easements (908 acres). These protected forest lands, many of which have been added to the Redden State Forest, are managed for multiple benefits and provide public access for recreational use.

This decade-long initiative would not have been possible without strong partners. The Conservation Fund played a critical role in negotiating the land purchases with Glatfelter and providing timely funding. Delaware's Open Space Program has been a significant source of required matching funds. By using a strategic approach to build a hub of protected working forests over multiple years, Delaware has been successful at attracting national Forest Legacy funding to the Chesapeake watershed.

New Incentives to Conserve Working Forests

In order to interest more forest landowners in managing and conserving their forests, there is a need to diversify income streams coming from forests. The forest economy changes over time—witness the 19th century ironworks industry in need of charcoal for its furnaces wherein one operational furnace required the clearing of an acre of virgin timber each day. Today’s markets are likely to change by the time a young forest matures, and forests that are conserved now will likely participate in markets that are not obvious to us today. One example is the emerging markets for ecosystem services, which are a good fit for forests.

Some markets for ecosystem services—such as the sequestration of atmospheric carbon, the provision of clean drinking water and clean air, and wildlife habitat—could become an additional source of income for forest landowners in the near term. However, stronger policies are needed to drive these markets on a widespread basis. The State of Chesapeake Forests report conservatively estimated that Chesapeake forests provide at least \$24 billion in ecosystem services each year.

Carbon credits

Trees naturally sequester carbon as they grow. In many parts of the world, market mechanisms to reduce emissions of greenhouse gases (GHGs) are underway, such as the Reducing Emissions from Deforestation and Forest Degradation United Nations effort. Those places emitting CO₂ and other GHGs pay to keep forests growing. These markets charge for carbon allowances that provide payment (credits) to those who conserve carbon such as a landowner who plants, manages, and/or conserves forest.

Locally, two Bay states (Del. and Md.) belong to the Regional Greenhouse Gas Initiative, the Nation’s first market-based regulatory program to reduce greenhouse gas pollution. This initiative has methods to calculate a forest project’s removals of CO₂ from the atmosphere. Projects on protected forests are attractive because of the certainty that the carbon will be sequestered for the long term.

Working Woodlands in Pennsylvania

The Nature Conservancy, Pennsylvania Chapter

Pennsylvania’s rich and diverse forests harbor an array of wildlife and are a cornerstone of the state’s economy. Similar to other Bay states, the vast majority of Pennsylvania’s forest land is privately held, and its owners largely lack incentives for long-term conservation and stewardship.

In response to this critical challenge, The Nature Conservancy started the [Working Woodlands](#) program to provide a way for private landowners to gain access to markets that will help them sustainably manage their lands into the future. Landowners who qualify for Working Woodlands sign working forest conservation easements to prevent both conversion of their land to non-forest uses and the use of unsustainable management practices (see map, figure 9). At no out-of-pocket cost to the landowner, Working Woodlands provides:

- A full forest and carbon inventory
- A 10-year forest management plan
- Enrollment in Forest Stewardship Council (FSC) certification
- 100 percent of all FSC certified timber and wood biomass revenues
- Access to high quality carbon markets and the majority share of forest carbon revenues

Since the program was initiated in 2009, Working Woodlands has secured protection and active stewardship on 28,000 acres in Pennsylvania. Key partners in these projects have been drinking water providers in Bethlehem and Lock Haven that are committed to sustainably managing their forest lands for source water protection. Going forward, the Nature Conservancy plans to expand the Working Woodlands program into new areas and increase access across a diverse landowner base.

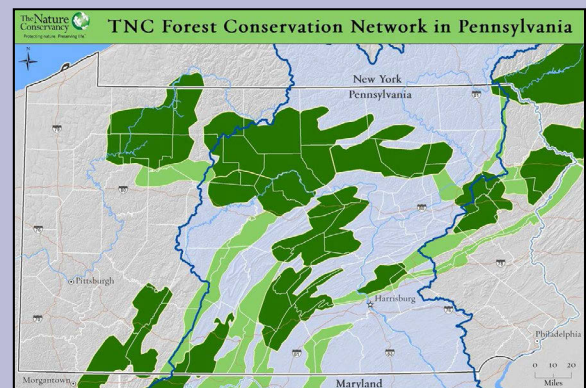


Figure 9. Map of priority forest lands (in green) that are potentially eligible for the Working Woodlands program. Source: The Nature Conservancy, Pa. Chapter

Drinking Water

In the Chesapeake region, as in the rest of the Nation, most freshwater resources originate in forests. As forest land is converted to other uses, water quantity and quality diminishes while water treatment costs rise. Approximately 60 percent of the watersheds that provide drinking water to towns in the Chesapeake are losing forest land.¹³ Forest preservation has been used in many parts of the country as a cost-effective means to ensure that clean, abundant water is available into the future.

In the Potomac watershed, 86 percent of residents get their water from surface drinking water (rivers and reservoirs) through public water suppliers.¹⁴ Water demand in the DC metro area is expected to increase 20-30 percent by 2040. In addition to land use changes, rising air and water temperatures attributed to climate change pose a serious threat to drinking water by increasing harmful algal growth and reducing stream flows needed to recharge aquifers.¹⁵

The U.S. Forest Service [Forests to Faucets](#) project analyzes the land areas most important to surface drinking water, the role forests play in protecting these areas, and the extent to which these forests are threatened by development, insects and disease, and wildland fire. For the Chesapeake watershed (figure 10), forests are particularly important for drinking water supplies in the Ridge and Valley and Piedmont regions. With increased understanding of what is at stake, residents downstream of these areas, working with their public drinking water suppliers, will need to be even more directly informed and involved in the investments needed to protect forests that support drinking water.

Biofuels

Woody biomass generated by trees can be converted to various types of heat energy and reduce the region's dependence on fossil fuels. Firewood is the least technical of these, and many small operations exist to provide firewood to homes. Institutional and commercial biomass burners are becoming more common and use a variety of wood products, including wood scraps from mills and green chips from forestry operations. The popular "Fuels for Schools" program that heats large institutional buildings using wood products is an example of a moderate-sized operation that could be supported in many parts of the Chesapeake watershed. More use of this type of renewable energy would support forest landowners by providing a new market for wood.

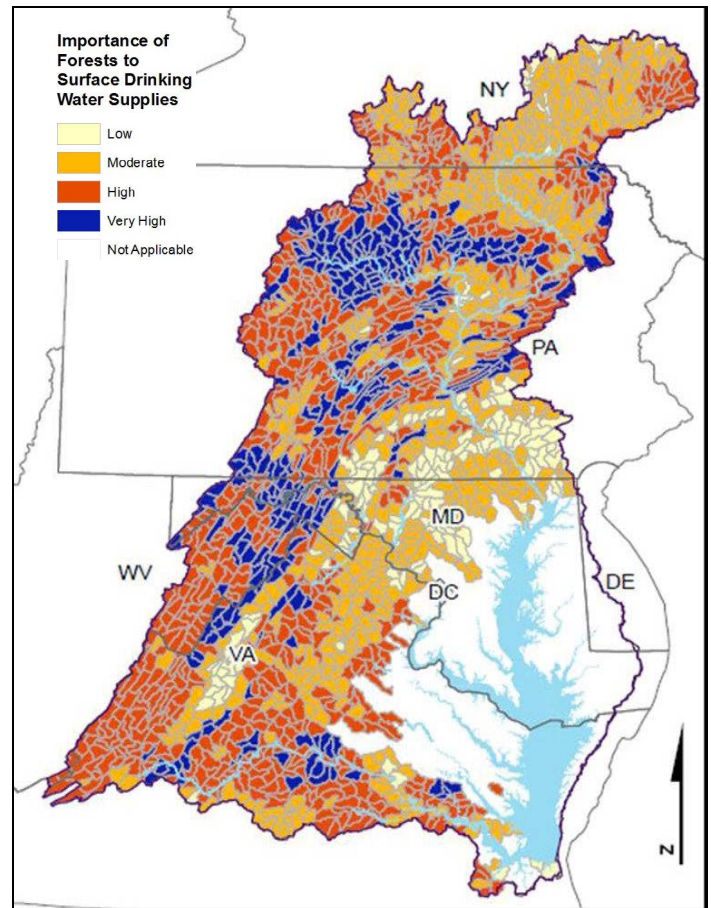


Figure 10. Small watersheds rated by importance of forests for surface drinking water supplies. The “not applicable” areas do not rely on surface water sources. Source: U.S. Forest Service, *Forests to Faucets Analysis*

Beyond Easements: Maryland’s No Net Loss of Forest Policy

Although permanent easements are important, state and local policies that help avoid, minimize, and mitigate forest loss are critical for sustaining the many benefits of forests. Maryland has long been a leader in setting progressive forest protection policies since passage of the Forest Conservation Act in 1991. Building on this framework, Maryland recently passed the Forest Preservation Act of 2013, which stresses a no-net-loss of forest strategy to maintain the state’s current 40 percent tree canopy. Among many provisions, the law encourages the retention of family-owned forests by doubling the income tax credit for forest management activities and expanding the range of activities to include the planting of streamside forests, removing invasive species, and improving wildlife habitat.

Enhancing Stewardship on Private Woodlands

Private forest landowners hold the key to maintaining the forest land base in the Chesapeake—around 78 percent of its forests are in private hands. These private lands face the compound risk of sweeping development pressure and landowners disinterested in management. In fact, only 10 percent of family forests in the region have a management plan.¹⁶ Unmanaged forests are often unhealthy due to factors such as heavy deer browse, invasive plants, and exotic pests and diseases, making them less valuable for timber, habitat, and other values. Good stewardship starts by enlisting the advice and assistance of a professional forester to develop a forest management plan. This is an important step to educate forest landowners about the specific management needs of their forest.

A forest easement is a legacy that will survive multiple landowners, so it is important to be clear about one's intentions and the language used. Just putting a conservation easement on a forest does not ensure that the forests will remain in good condition. In fact, a hands-off policy regarding forest management can be detrimental to the long-term health of the forest due to risks posed by invasive insects and diseases, increased fuel loading and wildfire risk, storm damage, and climate change impacts. Management can also support forest products and provide a source of income for the landowner. Most easement language stipulates using a forest stewardship plan and hiring reputable timber operators as needed to maintain the value of the forest. Larger tracts of protected forest may consider third party certification programs such as the Forest Stewardship Council and Sustainable Forestry Initiative, which can be more lucrative and foster long-term sustainability.



Photo: Jane Hawkey, Integration and Application Network, University of Maryland Center for Environmental Science (ian.umces.edu/imagelibrary/).

Resources for Landowners: Forests for the Bay

Alliance for the Chesapeake Bay

Forests for the Bay is a free, voluntary membership program made up of small- and medium-sized landowners who are interested in actively conserving their woodland or want to restore woods to their property. The program collaborates with state forestry agencies, extension, and other partners to provide members with the region's most up-to-date information on woodland management, training programs, and tools to more easily find conservation funding.

The [Forests for the Bay](#) website provides streamlined access to information on forest health and stewardship and an integrated suite of tools:

- [LandServer](#) allows woodland owners to create a quick and easy assessment of their property's natural resources (soils, wildlife, water) that helps estimate eligibility for various conservation incentive programs.
- [Woodland Crediting Platform](#) guides land managers in designing projects and calculating environmental benefits for a variety of conservation programs.
- Conservation Marketplace connects woodland owners to technical service providers, information on conservation program requirements, and a marketplace to connect with conservation buyers.

Forests for the Bay also collaborates with state extension partners to expand access to new training courses designed to reach different types of woodland owners.

- Real Forestry for Real Estate: For many woodland owners, a real estate agent isn't just the first "property" contact they have; that agent may be their only contact. This course helps real estate professionals understand the benefits of owning woods so that they can pass on basic messages and helpful resources to homeowners.
- Family Forest Successional Planning: Building on Virginia's successful Generation NEXT program (see p.10), workshops are now being offered in Maryland that demonstrate how estate planning can help landowners navigate tax obligations and allow them to pass their family woods to their children.

Recommendations

The following are opportunities that the network of conservation partners can pursue to advance forest conservation in the Chesapeake Bay watershed. These were developed using stakeholder input from Strategy meetings (p. 1).

Conserving Forests

Develop and enhance incentives and programs to support forest conservation

- Reinvigorate state partnership strategies to meet Chesapeake Forest Directive goals
- Bolster state funding available for forest conservation (for example, use state tax incentives like Virginia's Land Preservation Tax Credit program)
- Build resources to support working forest conservation easements
- Continue to develop new incentives for drinking water, carbon credits, biofuels, and others, and sustain viable forest products markets that enable management for healthy forests
- Incorporate forest conservation strategies into state and local Chesapeake TMDL efforts
- Support local resource-based economies and local policy tools such as planning, zoning, and subdivision ordinances that help keep resource-based industries viable

Focus conservation on high-value forests

- Use and update GIS analyses of high-value forests for water quality
- Use state and local green infrastructure assessments to identify important forest hubs and corridors for protecting high-value wildlife habitat
- Build on initiatives like the Trout Unlimited Coldwater Conservation program to conserve riparian forests that provide high-value brook trout habitat
- Work with partners to develop the role of forests/forest conservation actions in securing high-quality drinking water for future generations

Leverage Forest Legacy Program funding

- Provide outreach and training to partners on how to participate in the Forest Legacy Program
- Strengthen partnerships among state forestry agencies and a broad network of conservation organizations to submit competitive Forest Legacy proposals each year
- Craft strategic, long-term Forest Legacy projects that weave together multiple tracts and priorities to maximize conservation values and partner cost share
- Consider expanding Forest Legacy Areas where local partners are interested (e.g., New York Upper Susquehanna)

Strengthen forest landowner outreach and stewardship

- Encourage retention and management of forests on conservation easement lands
- Market and use available online tools to support forest landowners (e.g., Forests for the Bay)
- Offer educational workshops for forest landowners on succession planning and conservation easement options to encourage forest conservation during intergenerational transfers
- Provide cross-training for forestry professionals and land trusts to support conservation easements and forest management plans on private forest land

Section 3: Conserving Farms

The Nation's farms provide not only food and fiber for the world, but also a host of environmental benefits, including clean water, open space, and carbon sequestration. Maintaining healthy, sustainable farms is an essential component of protecting and restoring the Chesapeake Bay. Agricultural lands are important to the Chesapeake Bay environment because well-managed farmland recharges the groundwater supply, supports a variety of habitats, and enhances our resilience to a changing climate.

A vibrant agricultural sector is also important to the watershed's rural economies. Close to one-quarter of the land in the Chesapeake Bay watershed is devoted to agricultural production. Farms in the Bay watershed produce more than 50 commodities, including corn, soybeans, wheat, fruits, and vegetables. Agriculture is a primary economic sector in the Chesapeake Bay that produces 5.7 percent of the Nation's agricultural receipts and contributes about \$10 billion annually to the region's economy.¹⁷ Maintaining viable agriculture close to metropolitan centers is critical to supplying fresh and healthy local food and employment opportunities. Local food and farmers markets build relationships between urban dwellers and farmers. Promoting sustainable local and regional food systems that will support small and mid-sized farms also strengthens rural communities by providing jobs and protecting our natural resources.

Conversion of farmland to developed and urbanized land uses in the Chesapeake Bay area has proceeded at an aggressive rate over the past several decades. Forecasted loss of farmland is especially intense in the lower part of the Bay watershed (figure 11). On average, about 100 acres of farmland are lost to development each day across the watershed, with some of the best agricultural soils being developed the fastest. Since the best farmland



has the most productive, well-drained soils along with moderate slopes and mostly cleared land, it is also the land most commonly favored for growth and development. The increasing competition for open land endangers a way of life—a substantial proportion of the Chesapeake Bay's economic livelihood—and it endangers the environmental integrity of the watershed's open space and natural resources.

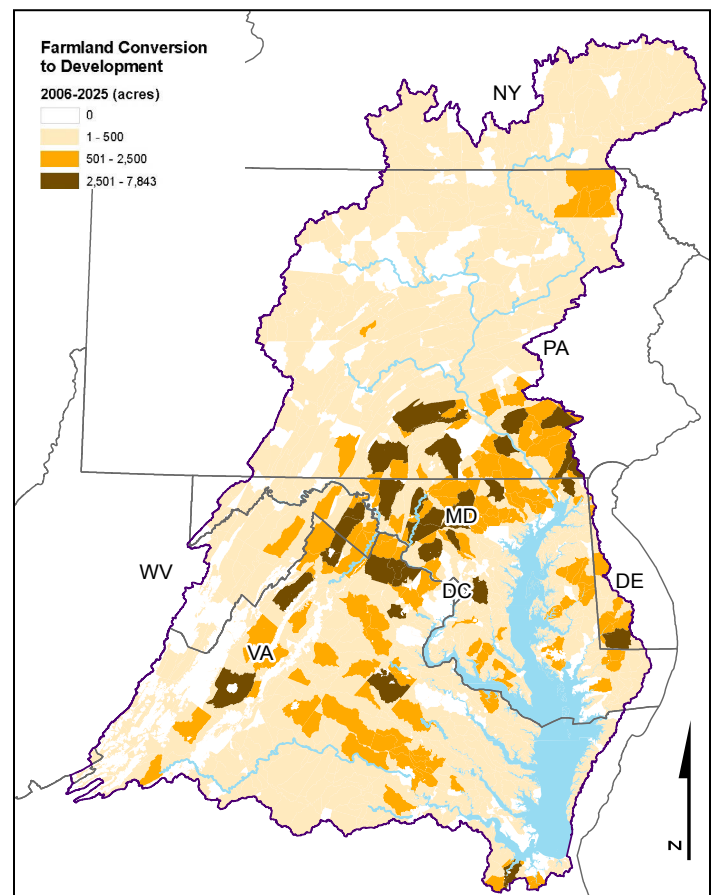


Figure 11. Acres of forecasted farmland conversion to development, 2006–2025, for each Chesapeake land-river segment. Source: USGS, Chesapeake Bay Program. Photos: Top, Tim McCabe; Left, NRCS

CHESAPEAKE WORKING LANDS CONSERVATION STRATEGY

Working farmland easements are voluntary agreements between landowners and qualified easement holders designed to protect the continued agricultural use of the land by restricting other uses of the property that would negatively impact the agricultural use. Payments to landowners for entering these conservation easements allow farmers to cash in a percentage of the equity in their land, thus creating a financially competitive alternative to development. This alternative provides landowners with liquid capital that can enhance the economic viability of individual farming operations and help perpetuate family tenure on the land. Used in conjunction with programs that support new and beginning farmers, “working lands” conservation easements increase the ability of private landowners to keep agricultural lands in production. In addition, conservation often brings a reduction in property taxes.

Leveraging Programs

Land trusts; municipal, local, and state governments; and federal agencies support programs that protect farmland. These programs purchase conservation easements, create model policies, establish criteria for conservation purposes, educate the public about farmland preservation, and leverage limited funding. All states within the Chesapeake Bay watershed adopted Purchase of Agricultural Conservation Easement (PACE) programs. Local PACE programs exist in all but Delaware. These programs are most prevalent in counties with populations of more than 100,000 that have been growing rapidly for years.

- [Delaware Agricultural Lands Preservation Program](#)
- [Maryland Agricultural Lands Preservation Foundation](#)
- [Maryland Rural Legacy Program](#)
- [New York Farmland Protection Program](#)
- [Pennsylvania Agricultural Conservation Easement Purchase Program](#)
- [Virginia Farmland Preservation Program](#)
- [West Virginia Farmland Protection Program](#)

To select agricultural easements for purchase, most PACE programs use numerical scoring systems and apply more or less formal criteria. Soil quality and productivity, a standard Land Evaluation and Site Assessment factor, is the measure used most frequently (see figure 12). Other criteria reward farmers’ capacity and skills; stewardship practices; conservation plans; proximity to other protected land; and/or complementary community planning practices, such as agricultural zoning or urban growth boundaries. Most local PACE programs are located in suburban and semi-rural parts of major metropolitan areas. While development has claimed much of their farmland, most of these communities still have major agricultural sectors that produce a variety of commodities including nursery, crops, poultry, dairy, and directly marketed produce.

Most PACE programs rely on a mix of state funds and local taxes to fund acquisitions, with state governments providing the dominant share. Local fund sources include annual appropriations from general funds, dedicated property taxes, local property transfer taxes, and sales taxes. State and local PACE programs may also leverage funding from federal programs.

Prime Farmland Soils in the Chesapeake Bay Watershed

Farmland Soil Classes

- Prime farmland soils and farmland of unique importance
- Farmland of state and local importance
- Other soils, not prime
- Counties

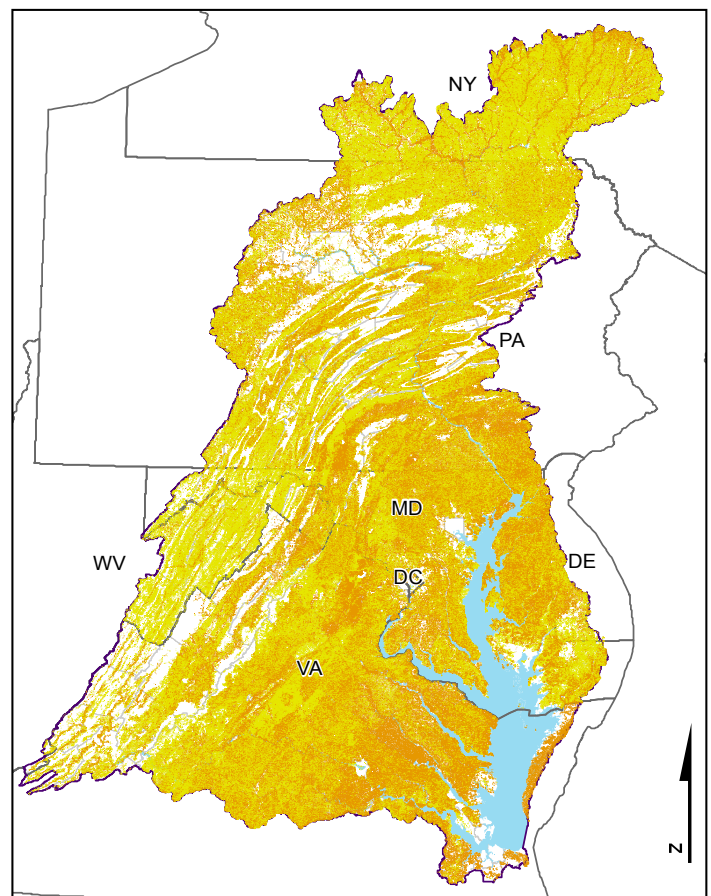


Figure 12. Prime farmland soil categories that are often used as criteria in PACE programs. Source: NRCS; SSURGO databases downloaded from Web Soil Survey, November 14, 2013

Spotlight on State Programs: Pennsylvania's Purchase of Agricultural Conservation Easements

Because one in seven jobs in Pennsylvania is related to farming, the Commonwealth took action to preserve working farms. Since 1988, the state protected more than 480,000 acres on 4,500 farms through its [Agricultural Conservation Easement Purchase Program](#). To date, the state, county, and municipal investment is over \$1.1 billion leveraging USDA and other federal programs.

Participating counties identify one or more Agricultural Security Areas (ASAs) in cooperation with local landowners to promote more permanent and viable farming operations by strengthening the farming community's security in land use and the right to farm. After the ASAs are established, a county board ranks parcels using the Land Evaluation Site Assessment. Fifty-seven counties currently participate in the program.

The program encourages landowners to make a long-term commitment to agriculture by offering them financial incentives and the security to farm. It protects farming operations from incompatible nonfarm uses that may render farming impracticable. By purchasing agricultural conservation easements that require conservation plans, the program ensures viable agriculture while improving and maintaining the soil and other resources.



Photo: NRCS. Lancaster County farm protected under easement through a combination of local, state, and federal funding.



Local Leadership: Lancaster County

The Lancaster County Board of Commissioners appointed a nine-member Agricultural Preserve Board (County Board) to develop and administer a voluntary Deed Restriction program to preserve selected areas of the county's best agricultural land. The Lancaster County Planning Map identifies the municipalities in Lancaster County that have established ASAs and delineates the approximate boundaries of those ASAs. The map also identifies areas in Lancaster County considered farmland of importance and lands where development is occurring or is likely to occur in the next 20 years.

Land trusts such as Lancaster Farmland Trust are active partners working in the same territory as one of the Nation's premier county-level PACE programs. Former Executive Director Tom Stouffer reports that in addition to purchased easements, the number of donated easements is climbing. He believes that the county program acts as a "hook" by getting people interested in land protection. After landowners learn more about the county program, some choose to work with the land trust instead. Many of the county's farmers prefer not to be involved with government agencies or to wait for funding.

Federal Easement Programs

The Natural Resources Conservation Service (NRCS) has a program that funds permanent conservation easements—the Agricultural Conservation Easement Program, Agricultural Land Easements (ACEP-ALE), formerly known as the Farm and Ranch Lands Protection Program. Easements funded by ACEP-ALE protect over 16,000 acres in the Chesapeake Bay watershed since the program's inception in 1996 (figure 13, next page).

ACEP-ALE provides matching funds to help purchase conservation easements to keep productive farm and rangeland in agricultural uses. Working through existing programs, USDA partners with state, tribal, or local governments and nongovernmental organizations to acquire conservation easements or other interests in land from landowners. ACEP-ALE provides up to 50 percent of the fair market easement value of the conservation easement.

To qualify, farm or ranch land must meet the following criteria:

- Have a pending offer from a state, tribe, or local farmland protection program
- Be privately owned
- Have an agricultural land easement plan
- Protect agricultural or grazing uses and related conservation values

Depending on funding availability, eligible entities submit proposals to the appropriate NRCS State Office during the application window. According to the American Farmland Trust, nationally more than two-thirds of ACEP-ALE landowners have a written conservation plan; of these, 92 percent report progress in carrying out the plan.¹⁸

Wetland Reserve Easements

NRCS Wetland Reserve Easements (WRE) are another easement option under ACEP that can be used to protect and restore environmentally sensitive areas on farms. Formerly known as the Wetlands Reserve Program (WRP), WRE is a voluntary program that provides technical and financial assistance to eligible landowners to address wetland, wildlife habitat, soil, water, and related natural resource concerns on private lands in an environmentally beneficial and cost-effective manner.

The program provides an opportunity for landowners to receive financial incentives to restore, protect, and enhance wetlands in exchange for retiring marginal land from agricultural use. Landowners and tribes may file an application for a conservation easement or a cost-share restoration agreement with USDA to restore and protect wetlands. Participants voluntarily limit future use of the land, but retain private ownership.

The program offers two easement enrollment options: permanent or 30-year easements. For both permanent and 30-year easements, USDA pays all costs associated with recording the easement in the local land records office, including recording fees, charges for abstracts and surveys, appraisal fees, and title insurance. In addition to the amount USDA pays the landowner for the easement, the program covers 100 percent of restoration costs on permanent easements and 75 percent of restoration costs on 30-year easements.



Photo: NRCS. Wetland restored through an NRCS Wetland Reserve Easement

Acres Under Permanent Easement Through 2012 <i>Agricultural Land Easements (ALE), Wetlands Reserve Easements (WRE)</i>		
State (CB only)	ALE	WRE
Delaware	12,033	652
Maryland	30,213	6,584
New York	748	4,184
Pennsylvania	36,708	1,373
Virginia	6,817	673
West Virginia	9,355	151
Total	95,874	13,617

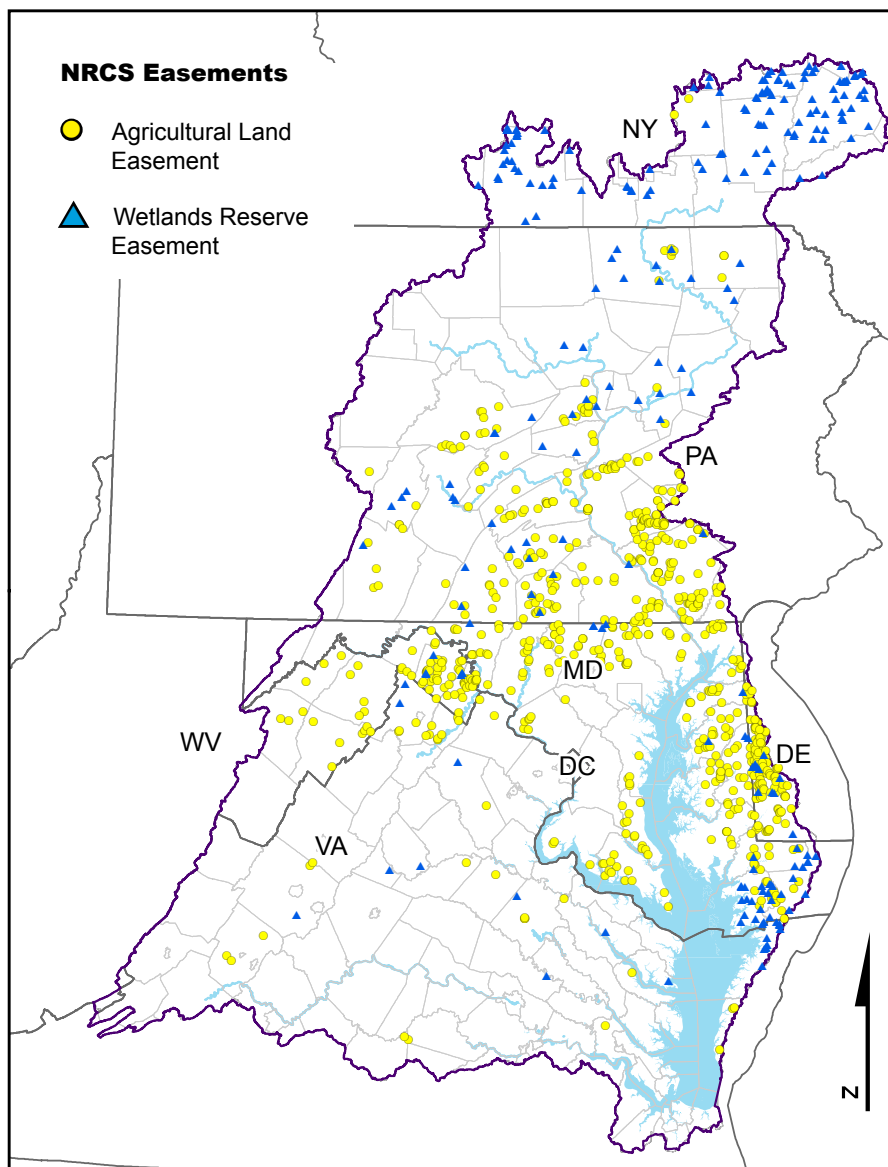
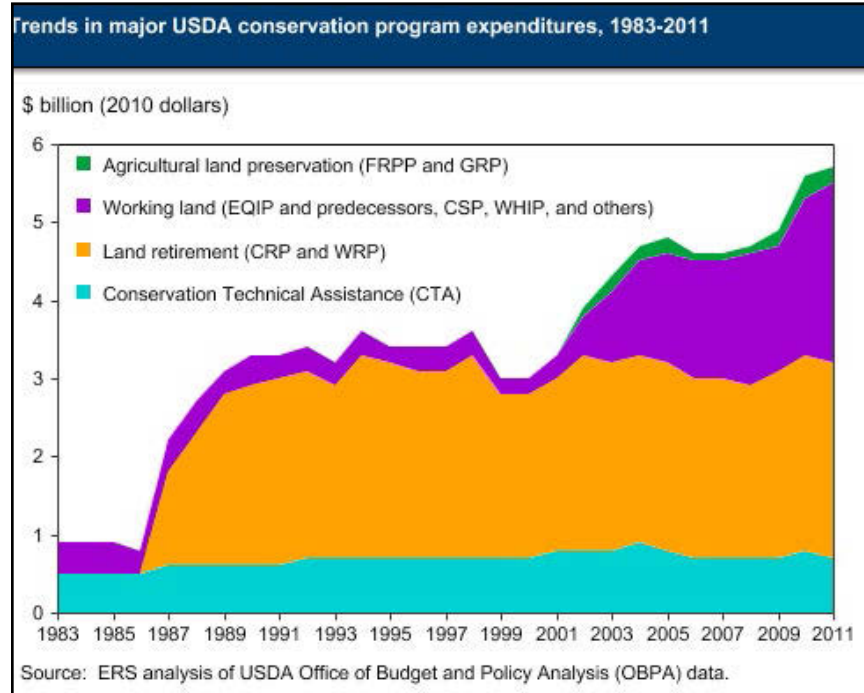


Figure 13. Acres permanently protected in the Chesapeake Bay watershed as of 2012 through Agricultural Conservation Easement Programs. Map shows locations of ALE and WRE easements. Source: NRCS

Evolution of Farm Bill Conservation Programs

The Agricultural Act of 2014, or “Farm Bill,” authorizes funding for a variety of working lands conservation programs that have evolved over time with each new authorization. The Food Security Act of 1985 was the first Farm Bill to include a specific category, or title, for conservation. It initially sought to remediate environmental degradation caused by farming marginal land in the 1970s and focused on creating wildlife habitat through authorized land retirement programs. Land retirement programs, such as the former Wetland Reserve Program, removed eligible land from agricultural production. Agricultural land retirement programs were expanded in the following Farm Bills with an emphasis on wetlands.



Starting with the 2002 Farm Bill, agricultural working land easement programs were authorized that leveraged funding to purchase conservation easements from landowners who wish to sell their development rights, thus ensuring that their lands will remain in agricultural production for generations to come. Nationally, more than \$1 billion in federal ALE funds have been doubled with matching funds from local and state governments, private donors, foundations, and discounts on the appraised value donated by landowners to place conservation easements on farm and ranch lands. With the growth of conservation programs over the past 25 years, conservation spending for Fiscal Year 2010—expressed in constant dollars—was higher than at any time since 1960 when the \$5.8 billion Soil Bank land retirement program was at its heights.¹⁹

Over time the focus of Farm Bill conservation programs shifted towards maximizing the environmental benefits in all of the conservation titles. Policy tools in the 1990 Farm Bill increased the effectiveness of federal conservation programs through conservation compliance and the Environmental Benefits Index.

During stakeholder meetings held in 2013 to get input on this Strategy, the following recommendations were made for future Farm Bills to advance working lands conservation in the Bay watershed:

- Provide greater flexibility in match requirements, such as reducing state/local match required, allowing donated easements to cover more of the match, and allowing federal-federal program matching, among others
- Streamline and simplify administrative and program eligibility requirements to encourage enrollment
- Deliver the funding as a grant program fully administered by states
- Provide unique incentives, ranking points, or dedicated funding to accelerate NRCS easements in the Chesapeake Bay watershed, similar to the Chesapeake Bay Watershed Initiative

Maximizing Conservation Benefits

There are a variety of opportunities to focus and leverage multiple agricultural conservation programs to enhance the environmental benefits of protected farms. Farmland preservation programs typically use ranking criteria to help focus conservation investments in priority areas, such as those with prime soils or soils of state and local importance (figure 12). In addition to focusing on high-value farmland, other water quality and habitat restoration priorities can help guide outreach, technical assistance, and selection of projects for maximum conservation benefit.

USDA cost-share programs, such as the Environmental Quality Incentives Program (EQIP), provide financial and technical incentives for landowners to adopt conservation practices or Best Management Practices. These programs play a critical role in improving local water quality and meeting the Chesapeake TMDL goals. Using these programs in conjunction with conservation easements means that working lands are protected forever and will continue to provide environmental services. Program funding helps farmers adopt, expand, and continue conservation practices, which often benefits the short- and long-term productivity of their farms and provides ecosystem services.

It is important to ensure that these conservation programs bring about measurable results. A December 2013 [Conservation Effects Assessment Project](#) (CEAP) report for the Chesapeake Bay watershed documented that adoption of voluntary conservation practices is working.²⁰ Farmers in the Bay watershed are making good progress towards reducing sediment, nutrient, and pesticide losses from cultivated fields by adopting conservation practices. In this report, USDA estimated that from 2006–2012, conservation practices applied by farmers and landowners reduced the amount of nitrogen leaving fields by 26 percent and reduced the amount of phosphorus by 46 percent. The report noted that conservation practices lowered estimated average edge-of-field losses of sediment by about 60 percent.

Save a Farm, Save the Bay

American Farmland Trust

The Chesapeake TMDL blueprint estimates that 63 percent of the reduction in all pollutants will come from restoration practices on farms. Future reductions, needed to offset future population growth and development, are also expected to take place on agricultural acres because they are the least costly per pound.

Do farms pollute more than development? A recent analysis shows that, on average, nitrogen loads from development (including wastewater) are higher per acre than the average farm. Loss of farms doubly threatens Bay health; not only do we increase pollution, we lose the capacity to restore farmland.

Conservation easements placed on farmland can ensure that a farm is well managed for water quality over the long term. They can increase the number and monitoring of farmland restoration practices. In addition, management on farms is elastic—it can change seasonally and annually—so there is ample opportunity for improvements as advances are made in farm and water quality science. For the landowner, there is more opportunity for monetary incentive through water quality trading on protected farmland. More importantly, landowners that protect resource lands help stabilize local and regional economies for themselves and others. Protected land serves as a societal anchor that helps retain more resource lands, therefore compounding the benefits.

With the current focus on the TMDL, Chesapeake Bay partners clearly must embrace the need to protect farms where the bulk of restoration practices are being placed. Such protection serves to reduce future harm and provides stronger assurance that the TMDL will be met. Unfortunately, the benefits of preservation are not currently linked directly to pollution load reductions. Recent work done by American Farmland Trust, the Chesapeake Bay Commission, and other groups have helped illustrate why protecting working farms and forests should be more clearly integrated into the Bay TMDL (see Section 4).

CHESAPEAKE WORKING LANDS CONSERVATION STRATEGY

While the CEAP report indicates that more needs to be done, it demonstrates that Chesapeake Bay farmers are making a significant commitment to water quality improvements. It also demonstrates the value of keeping sustainably managed farms on the landscape.

Through the 2008 Farm Bill's Chesapeake Bay Watershed Initiative, NRCS has targeted federal EQIP funding to watersheds where it will have the greatest water quality impact. Finer scale targeting can also pay great conservation dividends. Using additional conservation practices on areas most prone to runoff or leaching can reduce sediment and nutrient losses by twice as much as treating acres that have low or moderate need. Analyses of soil vulnerability provide assessment of leaching and runoff, and could guide future conservation planning from the field scale to the large watershed scale in the Bay. Continued development and use of targeting tools based on soil data and other conservation priorities can help guide farmland protection and stewardship.

As analyses such as the CEAP report show, not all practices have equal water quality benefit. Those with higher benefits, such as cover crops, should be targeted to protected farms. One such practice is restoring riparian (streamside) forest buffers on farm streams. The riparian area is an environmentally sensitive resource area, and buffers are the last line of defense for pollutants that would otherwise enter the waterways. Farm Bill programs, such as the Farm Service Agency's Conservation Reserve Enhancement Program (CREP), offer financial assistance to help farmers restore riparian forest buffers and carry out other conservation practices that benefit wildlife and habitat while enhancing water quality. By leveraging these programs, Bay state conservation agencies have worked with willing landowners to restore over 7,750 miles of riparian forest buffers to date.



Photo: Lynda Richardson. A Virginia farmer discusses his conservation plan with an NRCS employee.

The Carroll County Agricultural Land Program

requires more than other programs for its agricultural conservation easements. Landowners work with NRCS to develop conservation plans that include buffer zones that are at least 50 feet wide to protect streams from animal and fertilizer runoff. Landowners may plant trees, mainly native hardwoods, to take up excess nutrients. Their deep roots provide stability to streambanks, and their shade keeps the water cool for trout and other fish. Eric Hines, NRCS District Conservationist who helps landowners carry out their conservation plans, says, "If you're going to spend taxpayer money, you need to get a lot of bang for your buck with the buffer."



Photo: Jeff Vanuga. Virginia NRCS and Dept. of Forestry field staff inspect a CREP riparian forest buffer planting.

Keeping Farmers on the Land

There are a variety of development pressures, economic challenges, and demographic trends that can make it difficult for farmers to stay in operation. In addition to securing easements to protect valuable farmland, opportunities exist for collaboration at the local and state level to support the viability of farming into the future.

Bridging the Generation Gap

In the Bay states, the majority of farmland is owned by those 55 years old and older. As these farmers retire and age, significant acreage of farmland is likely to change ownership, becoming vulnerable to development. The shrinking agricultural land base, coupled with high real estate values, creates significant barriers for younger and beginning farmers. State programs, such as the Delaware Young Farmers Program and Virginia Farm Link (Virginia Department of Agriculture and Consumer Services), can help bridge the generation gap between older and younger farmers.

At the federal level, the National Institute of Food and Agriculture provides grants through the [Beginning Farmers and Rancher Development Program](#) to develop and offer education, training, outreach, and mentoring programs to enhance the sustainability of the next generation of farmers. The reasons for renewed interest in beginning farmer and rancher programs include the rising average age of U.S. farmers, the eight percent projected decrease in the number of farmers and ranchers between 2008 and 2018, and the growing recognition that new programs are needed to address the needs of the next generation of beginning farmers and ranchers. According to the current Farm Bill, a beginning farm is operated by one or more people who have 10 years of experience or less operating a farm or ranch. In 2007, approximately 21 percent of family farms met that definition.

The Farm Service Agency [Transition Incentives Program](#) (TIP) offers assistance for retired or retiring landowners and operators, as well as opportunities for beginning and socially disadvantaged farmers and ranchers. It provides retired/retiring landowners or operators with two additional annual rental payments on land enrolled in expiring Conservation Reserve Program (CRP) contracts on the condition they sell or rent this land to a beginning farmer or rancher or to a socially disadvantaged group. New landowners or renters must return the land to production using sustainable grazing or farming methods.

Delaware Young Farmers Program

In the first 2 years of the [Delaware Young Farmers Program](#), 21 new farms were purchased using an innovative no-interest loan. The loans fund up to 70 percent of the value of the farm's development rights up to a maximum of \$500,000. Over 1,800 acres purchased using the loans are permanently protected through Delaware's Agricultural Lands Preservation Program.

Eligible farmers must be Delaware residents between the ages of 18 and 40, have at least 3 years of farming experience, and a net worth of no more than \$300,000. The farms must contain at least 15 tillable acres zoned for agricultural use. Farmers must actively use the land for agricultural purposes for the term of the loans. "We are excited to see the interest and the initiative that has been shown by these young farmers," said Deputy Secretary of Agriculture Austin Short. "This is a way to help young people overcome the high cost of land and enter into agriculture."



Photo: Virginia Department of Agriculture and Consumer Services

Local Planning and Policy to Support Farming

Local planning, zoning, and ordinances can have a significant impact on either promoting or discouraging the conservation of working lands. Assessments of local farmland conservation programs have found that while the potential exists to use easements to complement local planning and land use policies, most programs do not work this way. Purchase of Agricultural Conservation Easement (PACE) programs and community planning are typically managed by separate organizations. PACE programs have the potential to complement local planning and land use policies but in many instances have not yet fulfilled their promise due to lack of coordination and limited planning.

Building Local Markets

USDA embarked on [Know Your Farmer, Know Your Food](#), an effort to strengthen local and regional food systems. Demand for locally produced food creates jobs and opportunity. Beginning farmers find entry into agriculture through local markets. Experienced farmers diversify their sales and capture added value through local branding. In addition, consumers learn more about where their food comes from and gain access to fresh, local foods.

Promoting sustainable local and regional food systems supports small and mid-sized farms, strengthens rural communities, promotes healthy eating, and protects natural resources.



Photo: Chesapeake NEMO

Beyond Easements: Building Local Markets

Piedmont Environmental Council

[The Piedmont Environmental Council](#) (PEC) recognized years ago the need to not just conserve land, but also make that land profitable. A first step was to increase the demand for locally produced food by consumers in the region. PEC partnered with Food Routes to bring the [Buy Fresh Buy Local](#) brand to Virginia and became the state's first chapter. While being able to list all local food producers within a nine-county region was a huge win for farmers, the innovation was in putting those listings in the hands of every one of the region's 280,000 households through Buy Fresh Buy Local mailings sent each spring.

Recognizing that the farming community is changing, and getting ever older, PEC began hosting "Exploring the Small Farm Dream" courses in 2007 to help potential farmers decide if they had what it takes to run a small farm business. Today, several graduates of the course are out on their own, running successful farm businesses. As a follow-up to the Explorer course, PEC put together a "Hosting the Small Farm Dream" seminar to help introduce landowners to the idea of leasing their land for active agriculture. In conjunction, PEC is developing leasing guidelines and tools to help landowners and farmers create partnerships that last for the long haul.

Working with expert vegetable farmers in the region, PEC is currently in the early stages of developing an incubator farm. This farm will provide a place for new farmers who have sufficient experience to develop and demonstrate a business model for 3–5 years, and then secure adequate capital to go out on their own.

These efforts complement PEC's ongoing collaboration with partners to secure conservation easements in a nine-county region, where over 160,000 acres of prime farming soils have been protected to date.

RECOMMENDATIONS

Opportunities for the network of conservation partners to advance farmland conservation in the Bay watershed, developed using stakeholder input from Strategy meetings (p. 1).

Conserving Farms

Sustain and enhance funding for agricultural preservation programs

- Provide robust, dedicated state and local funding sources for farmland preservation (for example, Pennsylvania's Agricultural Conservation Easement Purchase Program)
- Coordinate closely with federal, state, and local partners to leverage agricultural preservation funding for maximum conservation
- Provide training and assistance for partners on how to use NRCS easement programs
- Transfer successful local program models that effectively leverage local, state, and federal funding sources to other localities
- Consider federal program changes through future Farm Bills (see p.24)

Focus conservation easements on high-value farmland that provides multiple benefits

- Leverage federal funding in partnership with local and state programs to target farm conservation in areas that have a high concentration of prime and statewide important soils and the greatest threat of urbanization and development
- Use federal and/or state program ranking criteria to target easements in priority areas
- Use GIS data on prime farmland, sensitive areas for water quality, and other priorities to target easements and conservation practices where they will deliver the greatest environmental benefits
- Develop partnerships using Wetlands Reserve Easements in conjunction with other easement programs to protect and restore converted cropland acres back to functioning wetlands

Focus farm conservation practices (Best Management Practices, or BMPs) on protected farms, and vice versa

- Provide targeted outreach and technical assistance to support landowners with farm easements in using programs like EQIP, CREP, and other agricultural cost-share programs
- Encourage farmers installing a system of conservation practices (BMPs) to consider easement options to permanently protect their farm stewardship legacy
- Consider adding easement program requirements, incentives, or ranking points for farms to incorporate riparian buffers and other conservation practices
- Accelerate education and outreach to landowners to maintain existing riparian buffers and accelerate adoption of new riparian buffers through new CREP enrollments and the renewal of expiring CREP contracts

Encourage policies and programs that help keep farmers on the land and sustain local food markets

- Provide outreach, technical assistance, and incentives to support in tergenerational transfer of working farms from older farmers to the next generation of farmers (for example, Delaware's Young Farmers Program)
- Support local farm economies and local policy tools such as zoning and ordinances that help keep farmers on the land
- Encourage and support sustainable agricultural markets that provide fresh food to urban and rural populations (for example, Piedmont Environmental Council)
- Improve coordination and planning of PACE programs to better complement local planning and land use policies



Photo: Katherine Vance

Section 4: Strengthening Conversation Partnerships

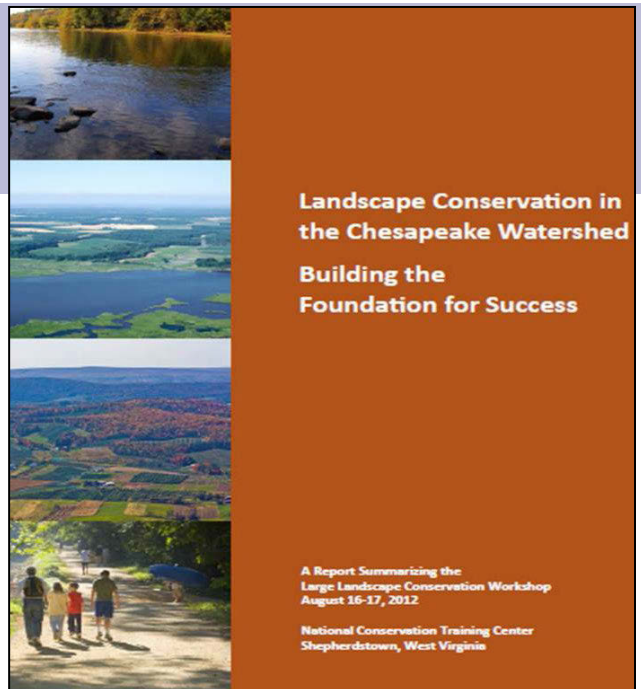
The previous sections of this report examined conservation issues and opportunities through the specific lenses of forests and farmland. In reality, however, there is not such a clear distinction. A significant portion of forest land in the watershed exists on family farms, and conservation partners typically protect a combination of farm and forest. An integrated partnership approach is vital to sustain the full range of values provided by rural, working landscapes. In times of budgetary constraints at different levels of government, the importance of strong public-private partnerships to maximize the benefit of conservation investments becomes paramount.

Collaboration on conservation priorities can be accomplished through many approaches and at different scales. This section provides some examples of these partnership opportunities, from the broadest scale of the Chesapeake Bay watershed to state, regional, and local initiatives. At each scale, coordination among federal, state, local, and nongovernmental partners is critical to leverage complementary programs, integrate conservation and restoration goals, and connect most effectively with the landowners who hold the future of our working lands.

Collaborating at the Chesapeake Watershed Scale

The National Park Service brings partners together to work on the Chesapeake Bay Executive Order goals for Land Conservation and Public Access. Since 2009, a group of federal, state, and nongovernmental organizations now known as the Chesapeake Large Landscape Conservation Partnership has been meeting annually to advance collaborative efforts, recommend policy options, and share best practices. The National Park Service and the [Chesapeake Conservancy](#) provide support for this partnership.

At the 2012 annual meeting, partners met to discuss principles or themes important to all members. Key findings are summarized to the right and elaborated on in the report [Landscape Conservation in the Chesapeake Watershed: Building the Foundation for Success](#). The partnership met in November 2013 to initiate a series of working groups that focus on core conservation priorities, including those that involve working lands, cultural landscapes, ecological landscapes, and public access.



Chesapeake Large Landscape Conservation Partnership

2012 Annual Meeting Discussion Themes

- 1. Embracing iconic landscapes with multiple values:** Participants stressed that large landscape conservation in the region focuses on areas with multiple values (ecological, historical, cultural, recreational, aesthetic, and water quality, among others).
- 2. Developing focus and priorities:** Participants spoke of the need to align funding, programming, and resources, and to focus on areas where there is an opportunity to succeed in a reasonable timeframe.
- 3. Building and communicating common stories:** Participants felt strongly about the need to communicate common conservation stories more effectively—both among partners and with the public.
- 4. Sharing information and knowledge among partners:** Participants uniformly spoke of the value of gathering with partners to share expertise, communicating regularly, and using key tools to facilitate collaboration.
- 5. Building diversity:** Participants spoke strongly of the need to broaden the group of people and entities engaged in large landscape conservation in the Chesapeake Bay watershed.
- 6. Supporting and using multiple funding sources:** Participants strongly noted the need to protect existing funding sources for land protection, attract a larger share of national large landscape conservation funding, and seek and develop new and innovative sources.

CHESAPEAKE WORKING LANDS CONSERVATION STRATEGY

One of the most significant characteristics of large landscape conservation in the region is the focus on multiple values. People care about the land for many different reasons, all of which can support conservation. Attention to the multiple values provided by working lands—such as recreation, habitat, and cultural heritage—brings more people, more resources, and more opportunities for collaboration to conservation. It enriches stories and creates the potential for ecotourism and heritage tourism in the same landscapes. It also brings richer results that benefit a broader spectrum of the public. Partners work to identify, understand, map, and interpret the multiple values of a particular landscape. For example, as part of the South Mountain Conservation Landscape Initiative in Pennsylvania, the Adams County Conservancy has identified a series of different landscape conservation priorities based on values associated with working lands, recreation, Civil War history, and an ecological corridor.

There are already results and ongoing initiatives from the partnership's work. One significant achievement is the development of [LandScope Chesapeake](#), a publicly accessible mapping tool that reflects a wide variety of conservation priorities within the Chesapeake Bay watershed (figure 14). Developed through a formal collaboration among NatureServe, Chesapeake Bay watershed states, the National Park Service, and U.S. Geological Survey, LandScope Chesapeake synthesizes data from dozens of state, federal, and nongovernmental organizations. Map layers depict various priorities for working lands, wildlife, aquatic resources, recreation, and other conservation values, while also showing all available data on the location of existing protected lands. The tool allows users to create custom map views at any scale, and turn data layers on and off in different combinations, to help in collaborative conservation efforts that have multiple priorities. Additional analysis and data query tools are being developed, and new map layers will be incorporated on an ongoing basis as they become available. Webinar training sessions on LandScope Chesapeake are available for interested groups.

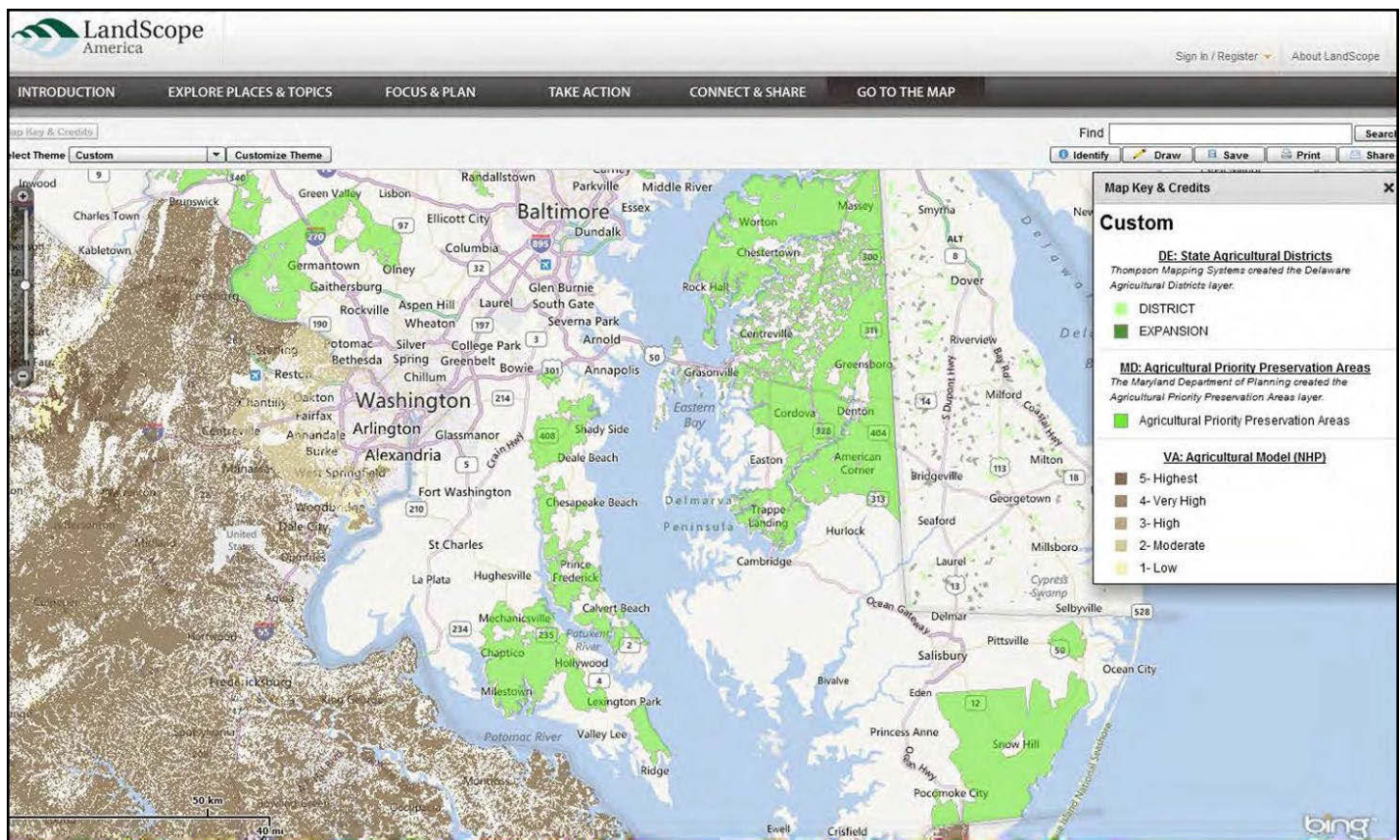


Figure 14. The LandScope Chesapeake view below depicts just one selection of many. In this case, it is showing important agricultural lands, including Maryland's agricultural priority preservation areas, Delaware's state agricultural districts, and Virginia's agricultural model. Users can select among many different layers to customize their own maps.

Leveraging Federal Conservation Funds

Flexible partnerships—often a mix of local, state, federal and nongovernmental partners—are usually more successful competing for federal funding. In addition to the USDA easement programs covered in this Strategy, other federal programs such as these can help protect working lands:

- [Dept. of Defense Readiness and Environmental Protection Integration \(REPI\) Program](#)
- [Coastal and Estuarine Land Conservation Program](#)
- [American Battlefield Protection Program](#)
- Transportation Enhancements, Recreational Trails, and Scenic Byways Programs
- National Wildlife Refuge partnerships

As a supporting action in the Executive Order Strategy, partners in the Chesapeake region are focused on attracting a larger share of Land and Water Conservation Fund (LWCF) monies to the watershed. The Rivers of the Chesapeake Collaborative between the National Park Service, U.S. Fish & Wildlife Service, Bureau of Land Management, U.S. Forest Service, and other non-federal partners seeks LWCF investments in a series of focus areas around key river corridors.

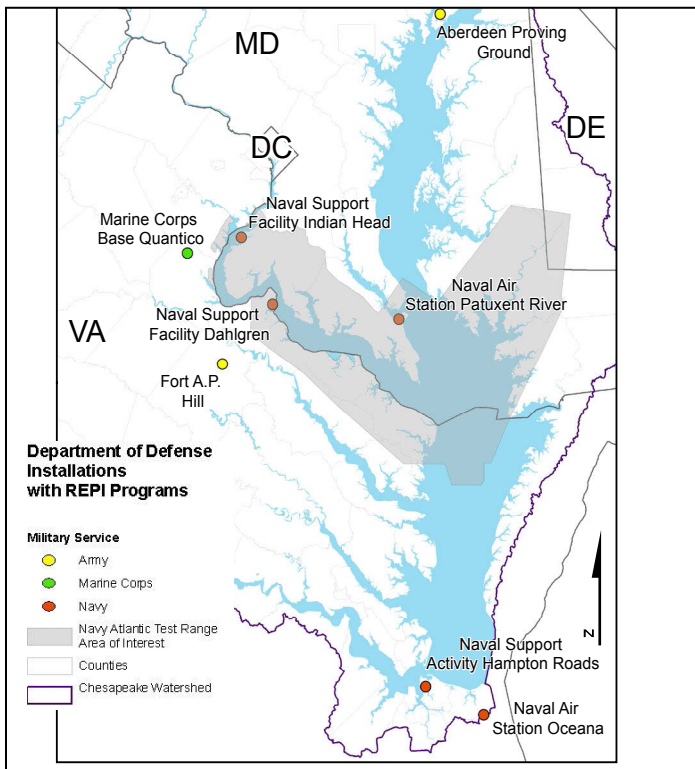


Figure 15. The installations shown on the map have REPI programs to conserve adjacent buffer lands. The gray shaded Navy area of interest includes the Atlantic Test Range and other nearby Navy conservation priorities. Source: DoD REPI Program

Conserving Lands Around Department of Defense Facilities

The farms, forests, and open space that historically surrounded many Department of Defense (DoD) military installations are increasingly threatened by development pressures. The DoD Readiness and Environmental Protection Integration (REPI) Program is a key tool for combating development-related encroachment that can limit or restrict military training and testing.

To directly protect military installations against encroachment pressures, the REPI Program funds cost-sharing partnerships for the military with state and local governments and private conservation organizations. The partnerships obtain easements or other interests in land from willing sellers that preserve critical buffer areas near military installations. Since the Program’s inception, these REPI buffer partnerships have protected over 260,000 acres of buffer land in 66 locations in 24 states.

In the Chesapeake Bay watershed, there are currently nine DoD installations with active REPI programs (figure 15). As of 2012, DoD has invested over \$34 million, leveraged with \$28 million in partner funding, to permanently protect over 14,000 acres in the Bay watershed. These lands are typically farm and forest, and can continue as working lands while under REPI easement. In addition to state and county programs, partners such as The Conservation Fund, Trust for Public Land, and the Northern Neck Conservancy have been vital in working with landowners to secure these rural landscapes into the future.

DoD REPI - Lands Covered through 2012, Chesapeake Bay Watershed

REPI Program	Acres	Total Funding (DoD+partners)
Aberdeen Proving Grounds	163	\$1,481,994
Atlantic Test Range	1,133	\$3,912,088
Fort A.P. Hill	9,611	\$25,925,187
Marine Corps Base Quantico	416	\$3,009,500
NAS Oceana	2,053	\$24,607,521
NSA Hampton Roads	639	\$3,300,000
Total	14,015	\$62,236,290

Spotlight on State Programs: Maryland's Targeting of Conservation Priorities

According to the Maryland Department of Natural Resources, the state's success in land preservation was historically measured almost solely by the number of acres preserved. However, it became clear that excessive development was fragmenting agricultural and forest land, which was threatening the viability of farming and eliminating vital environmental benefits. As a result, land preservation programs started to pay attention to the amount of development occurring in preservation areas; the ability to create large, contiguous blocks of preserved land; and the best ways to maximize the return on investment of taxpayer dollars in preservation. The state has developed several sophisticated online mapping tools to share conservation priorities, and its conservation programs target funding to priority lands in a variety of ways.

Example: Rural Legacy Program

Maryland's Rural Legacy Program uses a public-private partnership approach to preserve large, contiguous tracts of land and to enhance natural resource, agricultural, forestry, and environmental protection while supporting a sustainable land base for natural resource-based industries. Each Rural Legacy Area is initiated by local sponsors, such as land trusts or local governments, and designated by the state through an application process (see figure 16). Some of the criteria the state considers in reviewing applications include the following:

- Significance and extent of agricultural, forestry, natural, and cultural resources proposed for protection
- Threat to resources from development pressure and landscape changes
- Economic value of the resource-based industries or services proposed for protection
- Strength and quality of partnerships created for land conservation and the extent of matching funds

Targeting Tools - Mapping

GreenPrint incorporates a suite of GIS data layers showing conservation priorities in the following categories:

- Wildlife and Rare Species Habitat
- Green Infrastructure and Forests Important for Protecting Water Quality
- Nontidal Streams and Fisheries
- Tidal Fisheries, Bay and Coastal Ecosystems
- Areas Important for Climate Change Adaptation

Based on these map layers, the state designated Targeted Ecological Areas that serve as conservation targets for Maryland's Program Open Space – Stateside funding.

AgPrint uses multiple datasets to classify land into priority classes using several development measures:

- Status – a measure of fragmentation/subdivision
- Vulnerability – based on local zoning/land use
- Threat – potential future market demand
- Land Use Stability – stability is highest where current fragmentation (Status), Threat, and Vulnerability are lowest, and vice versa.

Lands in the "Most Stable" category represent a high priority for conservation with maximum potential return on public investment.

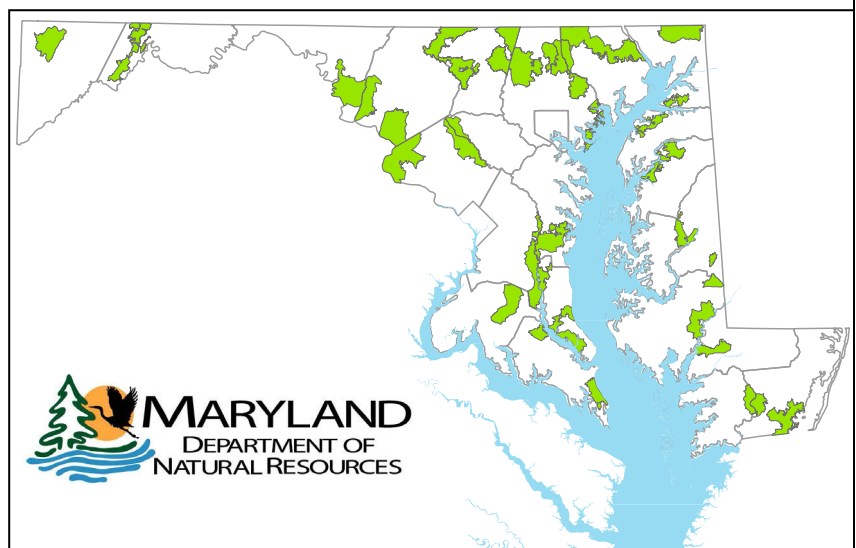


Figure 16. Maryland Rural Legacy Areas shown in green.

Working With Local Partners

Ultimately, conservation happens at the local scale, with land trusts dedicated to preserving their community's valued places by working hand in hand with the landowners who make it happen. More than 250 land trusts operate in the Chesapeake watershed at a variety of sizes and geographic scales. The scope of their impact is impressive; for example, the Eastern Shore Land Conservancy protects over 52,000 acres of rural lands in Maryland while at the same time promoting sound local land use planning and policy that conserves working lands.

Numerous organizations provide valuable training, assistance, and advocacy to support the efforts of local land trusts. The [Land Trust Alliance](#) provides leadership at the national and regional scale and supports an independent [Land Trust Accreditation](#) program. State "umbrella" organizations such as these listed below play an important role supporting local land trusts by providing annual conferences, training, and a forum for collaboration:

- [Maryland Environmental Trust](#)
- [Pennsylvania Land Trust Association](#)
- [Pennsylvania Farmland Preservation Association](#)
- Virginia's United Land Trusts

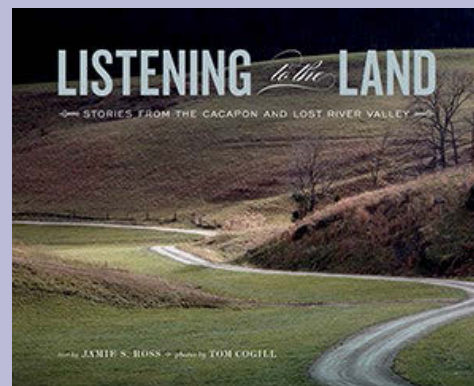
County programs and other local government initiatives play an increasingly important role as catalysts for conservation. County farmland protection programs, Purchase of Development Rights (PDR), and Transfer of Development Rights (TDR) programs help identify interested landowners and can leverage other funding sources. Some counties in Maryland use TDRs successfully to target high-value rural lands for preservation while targeting other more suitable lands for development. In Montgomery and Calvert Counties, public funds were used to purchase TDRs from rural landowners, simultaneously reducing the supply of developable land and increasing demand for TDRs among private developers. Another successful approach used by the Northern Neck Land Conservancy and others in Virginia is for larger, more experienced land trusts to build capacity of newer county PDR programs by co-holding easements.

WV: Cacapon & Lost Rivers Land Trust

The Cacapon & Lost Rivers Land Trust has been working in the Potomac headwaters since 1995 to help landowners and communities maintain healthy rivers, protect forests and farmland, and preserve rural heritage in West Virginia's Cacapon and Lost River watershed. With limited staff, Director Nancy Ailes has been a champion of forging creative partnerships to achieve an array of conservation accomplishments such as these:

- Crafting an innovative green infrastructure assessment**
- Leveraging resources from National Fish and Wildlife Foundation, EPA, and Open Space Conservancy grants; federal and state agencies; county Farmland Protection Boards; and private funders
- Protecting over 13,000 acres of forest and farmland, more than any other West Virginia land trust
- Focusing easements on priority parcels to create a network of protected, highly valued, forested lands containing habitat critical to the survival of native plant and animal species as they adapt to a warming planet
- Accredited by the Land Trust Accreditation Commission

The Cacapon & Lost Rivers Land Trust connects with the heart of community members—their land and legacy. This spirit is captured in a book commissioned by the trust and recently published by West Virginia University Press entitled, *Listening to the Land: Stories from the Cacapon and Lost River Valley*.



** See case study in *A Sustainable Chesapeake: Better Models for Conservation*. Burke, D.G. and J.E. Dunn, eds. 2010. The Conservation Fund. p. 81-88.

Beyond Easements: Local Planning Tools

Good land use planning and policies at the local level can be more important than easements in protecting large swaths of working lands. Planning and easements used together form a strong defense against sprawl and other development that restricts resource-based economies and reduces the working land base. Other than TDRs/PDRs and conservation laws, there are many other conservation tools and programs—too many to mention—that help conserve rural land character. Several examples are provided here.

Local governments can develop land use plans that include zoning, a tool to control how certain lands can or cannot be developed. A common type of zoning is based on population density and can be agriculture or forest-specific. This type of zoning usually reduces the property tax burden which is a reflection of productivity rather than on real estate value. Similar tools used to support working lands in the region include Pennsylvania's Agricultural Security Areas and Virginia's agricultural and forestal districts. Benefits of these working lands designations include:

- Conserving current and future energy use by promoting resource-based activities near markets and reducing transportation expense, and limiting suburban sprawl by preserving farmlands
- Encouraging the maintenance of a critical mass of working land necessary for agriculture or forestry operations
- Providing clear and predictable land use regulations that support sustainable management and economies

A local Comprehensive Plan, potentially the most powerful of planning documents, sets public policy in terms of transportation, utilities, land use, recreation, and housing. The comprehensive planning process seeks to determine community goals and aspirations—almost always, communities aspire to preserve what rural character is still present. Public comment is critical to the seven steps in the planning process: identify current and future issues, establish goals, collect and evaluate information, create plans, evaluate alternatives, adopt a plan, and implement and monitor the plan. All local governments in the Bay have the authority to develop a Comprehensive Plan.

Conservation referendums enable citizens of a local municipality to set aside tax dollars for land protection. This tool, described in the Introduction, is currently under-utilized by Chesapeake states. A conservation referendum is a highly successful way to raise money that is dedicated to a specific conservation purpose, and state matching grants or loans can be effectively leveraged with local funding for conservation. For an overview of the successful referendums in our region, and how much localities across the Nation have chosen to invest in conservation, go to <http://www.tpl.org/landvote>.

Integrating Conservation and Restoration Priorities

Historically, land preservation efforts have operated fairly independently from the programs used to restore water quality through Best Management Practices (BMPs) on farms and forests. That is, land trusts and other easement holders primarily focus on legal agreements to avoid land development, not on how farm and forest land is managed by the landowner. Similarly, the agricultural conservation field staff and foresters who work directly with landowners on BMPs typically do not work with easement programs. Some easement holders are focusing on how land held under conservation easements is managed by requiring forestry or agricultural management plans. Opportunities exist for strengthening coordination and expanding knowledge among these two vital groups who assist landowners with conservation goals.

Working lands that are permanently protected through easements provide an excellent place to focus watershed restoration efforts. For agencies and local governments focused on meeting the Chesapeake TMDL goals on agricultural lands, working lands under easement are a key asset and opportunity. These landowners have already demonstrated a stewardship ethic by protecting their lands from development and can be good candidates for agricultural cost-share and restoration programs. Likewise, landowners who are exemplary stewards of unprotected farm and forest land may be good candidates for permanent easements. To facilitate these connections and provide efficient support to landowners, better coordination is needed among land protection and land management organizations.

The Potomac Conservancy is one example of a land trust that works with landowners on both land protection and restoration. In recent years, the Conservancy has targeted outreach to the large population of absentee or [“non-operator” landowners](#) to help them use the suite of cost-share conservation programs that are available.

Under the 2014 Farm Bill, the NRCS [Regional Conservation Partnership Program](#) (RCPP) provides a new opportunity for partners to work collaboratively with NRCS and landowners to achieve conservation and restoration priorities. RCPP allows for partners to assist landowners using an integrated conservation approach, drawing on multiple NRCS program options such as EQIP and ACEP (easements). The Chesapeake Bay watershed is one of eight Critical Conservation Areas designated nationally to receive targeted RCPP funding, in addition to RCPP funds available at the national and state level.

NY: Upper Susquehanna Conservation Alliance

The Upper Susquehanna Conservation Alliance was formed in 2010 under the leadership of the U.S. Fish and Wildlife Service (New York Field Office). What started with 33 members working collaboratively on natural resource conservation has grown to an alliance of over 100 members from 35 diverse local, state, federal, academic, and nongovernmental organizations. Annual meetings are held to share information, discuss priorities, and foster collaboration.

The Alliance draws strength in working lands conservation from the Upper Susquehanna Coalition, a group of soil and water conservation districts that has been working with farmers on restoration goals for over two decades. Building on these efforts, the Alliance provides a forum for integrating conservation and restoration priorities through several working groups:

Conservation and Landscape Planning Working Group

Provides GIS technical assistance to members to:

- Identify important habitats and diverse landscapes
- Secure long-term conservation easements
- Support green infrastructure by using GIS to connect habitat and minimize flood damage

Natural Resources Working Group

Identifies priority species and their habitats in order to:

- Conduct surveys for priority species such as the Eastern hellbender and brook trout
- Seek restoration/preservation opportunities

Flood Mitigation Working Group

Provides guidance to municipalities in order to:

- Restore streams and rivers
- Reduce pollution through BMPs
- Manage flooding impacts on water supply

By bridging the efforts of land trusts, agencies, and other partners, the Alliance is well positioned to advance integrated working lands strategies in New York’s Upper Susquehanna watershed.

Tapping into Emerging Opportunities

The field of conservation has been advanced over the decades by innovative responses to new information, tools, and opportunities. Public-private partnerships are well positioned to build strategies around emerging policy drivers and opportunities that could bring greater investments in working lands. Environmental markets and climate change adaptation strategies are just two examples of arenas where innovative responses could help accelerate working lands conservation and restoration in the years ahead.

As noted throughout this Strategy, rural lands provide communities with an array of ecosystem services. Market-based conservation strategies help place an economic value on these services and provide income to landowners for keeping the land intact and well managed to provide these benefits into the future. Under the Chesapeake Executive Order, USDA has been leading an interagency Environmental Markets Team to support the development of effective market frameworks that can provide incentives for conservation and restoration on working lands. These efforts complement the work EPA and Bay states are doing to integrate nutrient trading and offset programs with the Chesapeake TMDL.

Bay states are developing and using water quality trading programs as a tool for achieving cost-effective pollution reductions to meet the Chesapeake TMDL. These programs can provide an additional source of income for farmers who carry out conservation and restoration practices. For example, a farmer can reduce pollution by planting a riparian forest buffer. Once approved by the state program, the pollutant reductions can then be sold as "credits" to regulated entities, including wastewater treatment plants or developers that need to meet water quality permit limits. Maintaining working lands into the future will be essential if trading markets are to operate effectively over the long term.

Linking up Conservation Incentives with the Chesapeake TMDL

Chesapeake Bay Commission

Chesapeake conservation partners have long expressed some frustration that while land conservation is critical to avoiding further water quality degradation, its role in water quality protection has not been recognized as a tool for reducing nutrient and sediment pollution under the Chesapeake TMDL. Conserving land doesn't bring about major reductions in pollution; rather, it prevents increases by avoiding land conversion.

The Chesapeake Bay Commission engaged a panel of experts to determine if there were "credible and defensible means to link land conservation with pollution reduction explicitly within the Bay TMDL framework." The report, [Crediting Conservation: Accounting for the Water Quality Value of Conserved Lands under the Chesapeake Bay TMDL](#), reflects the findings of that investigation and identifies four potential policy changes for additional discussion and evaluation.

The report notes that "efforts to incorporate land conservation into the Bay TMDL's water quality regime are important but are likely to remain incremental for some time." It further states, "It is important that we do not allow the TMDL process to relegate land conservation—which is in and of itself a critical, long-term strategy in promoting the health and resilience of the Bay—to 'sidebar' status in Bay restoration."



CHESAPEAKE WORKING LANDS CONSERVATION STRATEGY

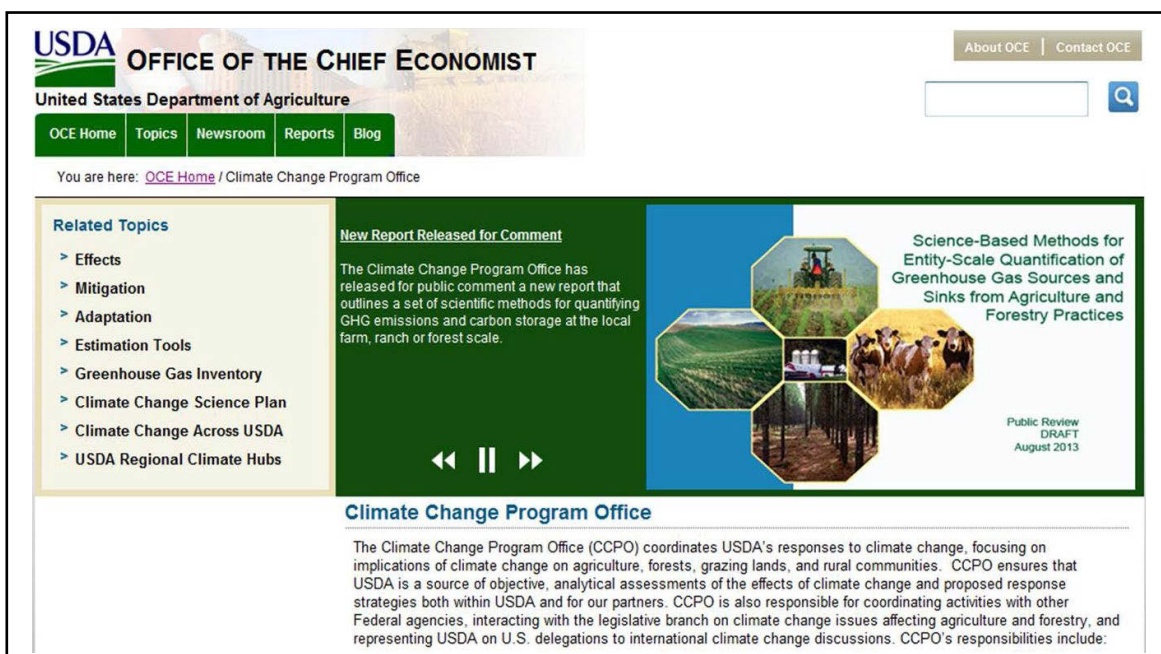
As state programs develop, working lands conservation can benefit from water quality trading through the sale of “growth offsets.” In essence, land developers must offset any new pollutant load that results from a project (i.e., a residential development). To meet their requirements, developers can purchase permanent or long-term easements from landowners that have planted new trees. Conservation professionals should keep an eye out for these opportunities because state programs are still developing. It is important that trading rules in each state be crafted in a way that provides an incentive to retain working lands. Virginia has completed a few forest-based offset trades for phosphorus pollution associated with stormwater runoff. [Maryland](#) completed a draft program design in 2013 and plans to finalize it soon. Land conservation organizations can engage with these policies at the state level to help ensure that incentives for permanent protection of working lands are well incorporated.



Photo: Chesapeake NEMO

Another emerging arena is the suite of issues and opportunities surrounding climate change adaptation. As the intensity and frequency of hurricanes, storms, and flooding increases, coupled with sea level rise in coastal areas, communities are looking for ways to reduce vulnerability and increase resiliency. These direct impacts on communities help raise the profile of natural resource challenges and the need for sustainable community-based solutions. A key strategy involves conserving a network of green infrastructure—forests, wetlands, and farms—that can help mitigate and adapt to the impacts of climate change.

As a recent example, the Department of Interior and National Fish and Wildlife Foundation recently created the Hurricane Sandy Coastal Resiliency Competitive grant program. This program funds projects that assess, restore, enhance, or create wetlands, beaches, and other natural systems to better protect communities and habitats from future storm events. Related efforts are the NOAA [Coastal and Estuarine Land Conservation Program](#), which provides federal funds to state and local governments to purchase important coastal and estuarine lands, including working lands. USDA has developed a [Climate Change Adaptation strategy](#) that supports President Obama’s Climate Action Plan. USDA’s strategy includes regional climate hubs that will provide information to private landowners on how to reduce risk and uncertainty related to climate change. This and more information can be found on [USDA’s Climate Solutions website](#). These resources complement the climate action plans being developed by a number of states.



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- > Estimation Tools
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New Report Released for Comment

The Climate Change Program Office has released for public comment a new report that outlines a set of scientific methods for quantifying GHG emissions and carbon storage at the local farm, ranch or forest scale.

Science-Based Methods for Entity-Scale Quantification of Greenhouse Gas Sources and Sinks from Agriculture and Forestry Practices

Public Review DRAFT August 2013

Climate Change Program Office

The Climate Change Program Office (CCPO) coordinates USDA’s responses to climate change, focusing on implications of climate change on agriculture, forests, grazing lands, and rural communities. CCPO ensures that USDA is a source of objective, analytical assessments of the effects of climate change and proposed response strategies both within USDA and for our partners. CCPO is also responsible for coordinating activities with other Federal agencies, interacting with the legislative branch on climate change issues affecting agriculture and forestry, and representing USDA on U.S. delegations to international climate change discussions. CCPO’s responsibilities include:

Recommendations

Opportunities for the network of conservation partners to advance integrated working lands conservation partnerships in the Bay watershed, developed using stakeholder input from Strategy meetings (p. 1)

Strengthening Conservation Partnerships

Coordinate in watershed-wide efforts to protect priority areas

- Coordinate with Baywide partners on working lands conservation priorities through the existing Chesapeake Large Landscape Conservation Partnership
- Utilize the GIS-based LandScope Chesapeake tools to identify priority areas with overlapping benefits and interest to multiple partners in which to focus collaboration
- Pursue funding partnerships like the Rivers of the Chesapeake Collaborative Land and Water Conservation Fund proposal
- Leverage diverse federal funding sources, such as DoD's REPI Program

Coordinate at the state level and local levels to focus funding and partnerships on conserving priority working lands as much as possible

- Meet regularly among conservation agencies and partners to coordinate state-level priorities
- Utilize available GIS-based tools to target conservation investments in priority areas, such as Maryland's AgPrint and GreenPrint, and Virginia's Land Conservation Needs Assessment
- Collaborate on strategic priorities and build local capacity through "umbrella" organizations such as Virginia's United Land Trusts, Maryland Environmental Trust, Pennsylvania Land Trust Association, Pennsylvania Farmland Preservation Association, and Upper Susquehanna Conservation Alliance
- Partner with local land trusts and county conservation programs that have strong connections with landowners, community interests, and local priorities
- Work with partners to develop a framework that maximizes use of state land conservation funds by partnering with local initiatives (for example, Trust for Public Lands analysis cited in Section 1)

Integrate working lands conservation with restoration priorities to improve water quality and habitat

- Broaden scope of local and regional partnerships to encompass both conservation and restoration priorities (for example, Upper Susquehanna Conservation Alliance)
- Provide cross training to land trusts and technical assistance providers to improve delivery of conservation and restoration opportunities to landowners

Pursue emerging opportunities to generate additional income and support conservation of working landscapes

- Support market-based conservation strategies, like nutrient trading and payments for ecosystem services, that could bring additional monetary incentives for landowners to conserve working lands
- Ensure that water quality trading entities and responsible jurisdictions (counties, states) assess their long-term capacity to generate pollution reductions on working lands and use trading rules that provide an incentive for conservation
- Continue to explore options to "credit" the value of permanent conservation in conjunction with the Chesapeake TMDL (for example, Crediting Conservation Report)
- Make land conservation a key strategy in planning for climate change adaptation, including green infrastructure approaches to dealing with flooding and storms

CHESAPEAKE WORKING LANDS CONSERVATION STRATEGY

- ¹Chesapeake Bay Commission & Chesapeake Conservancy. 2010. Conserving Chesapeake Landscapes: Protecting Our Investments, Securing Future Progress. Accessed from: <http://www.chesbay.us/Publications/Conserving-Chesapeake-Landscapes.pdf>
- ²Data from The Trust for Public Land, unpublished paper entitled Chesapeake Forest Conservation Funding Report prepared for the U.S. Forest Service & Chesapeake Forestry Workgroup
- ³The Trust for Public Land. 2008. Protecting the Forests of the Chesapeake Bay Watershed by Enhancing Local Land Conservation Funding. Accessed from: http://cloud.tpl.org/pubs/confin_chesapeake_forest%20protection.pdf
- ⁴Federal Leadership Committee for the Chesapeake Bay. 2010. Executive Order 13508 Strategy for Protecting and Restoring the Chesapeake Bay Watershed. Accessed from: <http://executiveorder.chesapeakebay.net/category/Reports-Documents.aspx>
- ⁵De la Cretaz, A. and P. Barten. 2007. Land Use Effects on Streamflow and Water Quality in the Northeastern United States. CRC Press.
- ⁶Pan, Y. et al. 2005. "Forest Productivity and Effects of Nitrogen Deposition on Water Quality." USDA Forest Service, Northeastern Area.
- ⁷Sprague, E. et al. 2006. The State of Chesapeake Forests. The Conservation Fund. Accessed from: <http://www.na.fs.fed.us/watershed/socf.shtm>
- ⁸See Reference 7, State of Chesapeake Forests
- ⁹Analysis by Renee Thompson, USGS, of Chesapeake Protected Lands Dataset (2011)
- ¹⁰Forest conservation data provided annually by state forestry agencies to USFS, Chesapeake Bay Program: Delaware Forest Service, Maryland Forest Service, New York DEC Division of Lands and Forests, Pennsylvania Bureau of Forestry, Virginia Dept. of Forestry, West Virginia Division of Forestry
- ¹¹The Chesapeake Forest Conservation Directive GIS layer is included in Landscape Chesapeake, with information about the state methodologies for identifying high value forests: http://www.landscape.org/chesapeake/chesapeake_map_layers/conservation_priorities/high_value_forests/26051/
- ¹²The current Chesapeake Bay Riparian Forest Buffer goal was set by the Chesapeake Executive Council in 2003 and reaffirmed in the 2007 Chesapeake Forest Conservation Directive signed by all seven Bay jurisdictions. The goal was incorporated into the 2010 Executive Order Strategy Forest Buffer Outcome and the new 2013 Draft Chesapeake Bay Partnership Agreement.
- ¹³See Reference 7, State of Chesapeake Forests
- ¹⁴Potomac drinking water data from presentation given by Stephanie Flack, The Nature Conservancy, entitled Payment for Watershed Services to Benefit Downstream Drinking Water Supplies and the Bay, June 2013 Potomac Watershed Partnership Information Exchange. Accessed from: http://potomacpartnership.org/pdf/InfoExchange_June%202013/Presentations/StephanieFlack_%20PWS.pdf
- ¹⁵Konikow, L.F., and E. Kendy. 2005. Groundwater depletion: A global problem. *Hydrogeology Journal*, v. 13, p. 317-320.
- ¹⁶Data queried from National Woodland Owners Survey database for Maryland, Virginia, and Pennsylvania combined, December 2013. Accessed from: <http://www.fia.fs.fed.us/nwos/>
- ¹⁷USDA National Agricultural Statistics Service; note that economic contribution of \$10 billion is estimated based on cash receipts only and is not intended to capture contributions from all agriculture-related industries and employment
- ¹⁸Esseks, J.D. and B. J. Schilling. 2013. Impacts of the Federal Farm and Ranch Lands Protection Program: An Assessment Based on Interviews with Participating Landowners. American Farmland Trust. Accessed from: <http://www.farmlandinfo.org/FRPPImpacts>
- ¹⁹Information from USDA Economic Research Service. Accessed from: <http://www.ers.usda.gov/topics/natural-resources-environment/conservation-programs/background.aspx>
- ²⁰USDA Conservation Effects Assessment Project (CEAP). 2013. Impacts of Conservation Adoption on Cultivated Acres of Cropland in the Chesapeake Bay Region, 2003-06 to 2011. Accessed from: <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/newsroom/releases/?cid=stelprdb1240074>

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