

## Buffering the Bay:

*Progress and challenges in Restoring Forest Buffers in the Chesapeake*  
November 2013

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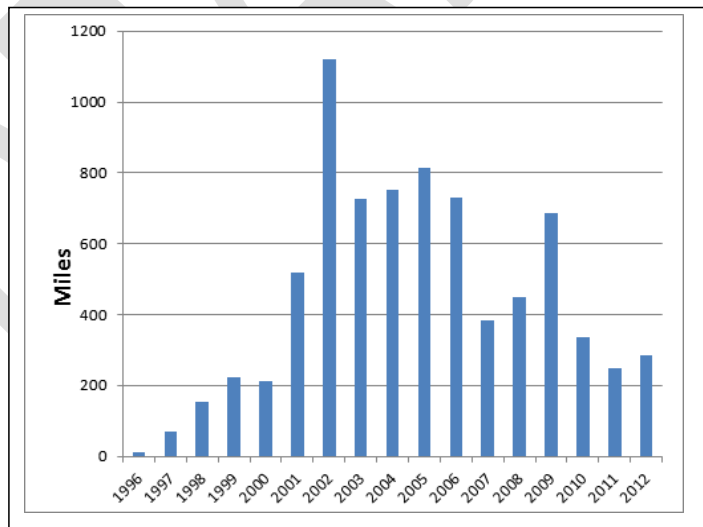
### History of the Buffer Goal

Expanding riparian forest buffers may be the single best action to restore the Chesapeake. These forests provide a critical barrier between polluting landscapes and waterways--- they are sought after because they can greatly improve the water quality and habitat, without occupying much space. Per acre, they provide more benefit than any other BMP. Forest buffers have been part of the fabric of Bay restoration since 1994 when the EC first called upon the CBP to develop a policy to *enhance riparian stewardship and efforts to conserve and restore riparian forest buffers* (Directive 94-1).

Chesapeake Bay Program partners—especially the states of MD, PA, VA and NY--- have shown extensive leadership in establishing riparian forest buffer incentive programs. In partnership with federal and non-profit organizations, the states have promoted this practice while encumbering themselves with countless hours providing landowner outreach and technical assistance and contract administration (i.e., paperwork). In the busiest 5 years (2002-2007), the Chesapeake states added over 4000 new miles of riparian forest buffer --- an average of 830 miles/year.

The current goal for this practice, first established in 2003, is to have a minimum of 70% of the riparian area forested. Using low-resolution land cover data (30 m pixel), ~ 58% of the

riparian area in the watershed is forested (this estimate will be revised when a new analysis, using higher-resolution imagery, becomes available in the next few years). An annual target of



**Figure 1. Riparian Forest Buffer Restoration 1996-2012.**

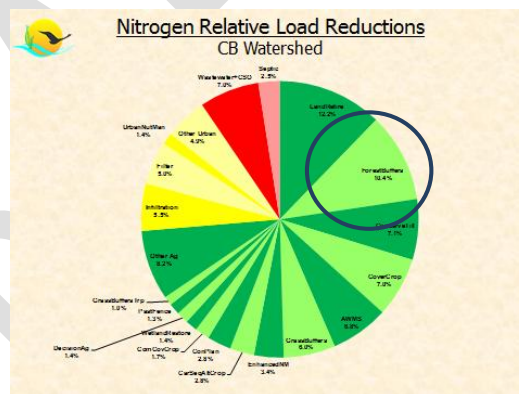
900 miles---every year out to 2036-- was set to reach the 70% threshold. This timeline assumes that very few existing riparian forest buffers will be lost (see section on Conservation).

At present, the number of new forest buffers being restored is at the lowest point since CREP was adopted by Bay States. This is despite the fact that forest buffers are one of the most cost-effective practices for improving water quality in the Bay when one considers their longevity and essentially no maintenance costs after establishment. By comparison, riparian grass buffers, which sometimes contend for the same, limited amount of land available, require mowing at least once per year. Some assessments have averaged the investment for this practice only out to 15 years (life of contract), but 88% of landowners surveyed intended to keep their new buffers in perpetuity (Cooper 2005). Some reasons for the lackluster performance of late are addressed in the Challenges section.

### Role of Buffers in Chesapeake TMDL

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Bay states are depending on restoring riparian forest buffers, particularly on agricultural land, to meet the Chesapeake Bay Total Maximum Daily Load (TMDL) mandate for N, P, and sediment. In an analysis done by the Chesapeake Bay Program Office, the riparian forest buffer practice is second only to land retirement in BMP's most counted-on for nitrogen reduction according to the WIPs (Fig. 2). This analysis includes all BMP's accomplished and planned between years 1985-2025.



According to the WIPs, the projected need is for an additional 185,000 acres of riparian forest buffers in the next 13 years (average 14,200 acres/year) -- this would be an increase from 2012 implementation of 600% for every year out to 2025. Clearly, a new, more concerted approach is needed to achieve this level of implementation.

Similarly, this dramatic increase in riparian forest buffers will be essential to reach non-water quality Chesapeake goals: i.e., brook trout, stream restoration, and healthy watersheds. These goals do not call for riparian grass buffers.

### CREP

The Conservation Reserve Enhancement Program (CREP) is a land retirement program of the Farm Service Agency (FSA) that is designed to take marginal agricultural land out of production in order to help protect water and soil. CREP debuted in Maryland in 1998. Riparian forest buffer establishment is a common CREP practice, known as CP22. NRCS, not FSA, provides technical assistance for CREP. State partners often provide matching financial assistance -- such that 90% or more of the practice costs are provided. Other partners, known as technical service providers, can receive funding from NRCS to provide technical assistance to landowners for CREP.

FSA reports that 63,000 acres are currently under CREP contract in the Chesapeake Bay.

### Importance of CREP

Riparian forest buffers cost money to establish, but unlike other restoration practices, there is abundant cost-share funding available to defray expenses. The vast majority of riparian forest buffers that are restored in the Chesapeake, are done so through the Conservation Reserve Enhancement Program (CREP--see inset). There is no funding cap for CREP and the acreage cap has not been realized in any Bay state (Table 1). For this reason, CREP advocates say "money is being left on the table" when it could be put to use restoring buffers. Table 1 shows the funding that would be available under the acreage caps for each state. Some states are near there acreage cap for CREP should be working to extend it at least for the Bay portion of their state.

Riparian forest buffer plantings can also be cost-shared using the USDA Environmental Quality Improvement Program (EQIP) funding. In the Chesapeake Bay, EQIP funding has been at an all-time high since 2009 when funding for the Chesapeake Bay Watershed Initiative (CBWI) was designated to that program. CBWI was born of the 2008 Farm Bill to help USDA meet its overall goal to improve water quality in the Chesapeake. For a landowner implementing buffers, CREP is almost always more desirable than EQIP since it pays more--- the landowner receives an initial incentive payment and annual "land rental" payments for the life of the contract (10 or 15 years). A shorter time commitment could be a potential selling point for EQIP, but very few riparian forest buffers have been established with this funding. In three years (2009-2011) of CBWI/EQIP, only 23 acres of riparian forest buffers were restored through the program.

Table 1. Acreage caps for all forms of CREP.

State	CREP acreage cap	Type of cap: state or CB only	CREP acres enrolled under this cap (June 2013)	Acres left that are available under this cap	New acres FB needed 2012-2025 for WIP
DE	10,000	state	5,540	4,460	4790
MD	100,000	state	67,660	32,340	1190
NY	40,000	state	10,970	29,030	6180
PA	219,746	CB	125,110	94,636	89,630
VA	25,000	CB	14,800	10,200	80,820
WV	9,160	state	5,690	3,470	3250

CREP funding needs to be secured through reauthorization of a new Farm Bill. While the new Farm Bill continues to be debated, it is critical that CREP stay open. From October 2012 through April 2013, CREP was closed to new sign-ups while other cost-shared agricultural restoration programs stayed open. As a result, the number of new riparian forest buffers planted will be further reduced for 2013 and 2014. (insert # when available). In October 2013, CREP closed again and remains closed as of

this writing. Such interruptions greatly increase skepticism about program viability, a particular concern for long-term contract programs like CREP. Further uncertainty persists about the future of CREP and the riparian forest buffer practice because a new Farm Bill could decrease current benefits.

## Challenges

The TMDL necessitates a significant acceleration of current efforts in establishing riparian forest buffers. But the following challenges are often cited:

- likely landowners have already been reached;
- higher commodity prices for crops means less land retirement;
- desire to keep options open for development—many landowners/farmers are of retirement age;
- the confusing mix of programs and funding sources;
- landowners not well informed about benefits of practice and CREP incentives;
- landowners anticipate high planting and maintenance costs (planting failures); and
- the lack of field staff (boots on the ground) to do outreach/TA to promote buffers.

These challenges are real, yet it is not known how much sway any one of them has. No surveys have been done, and there is no information about how many landowners have turned forest

buffers down. By contrast, one technical service provider in Pennsylvania found that if landowners are educated, incentivized, and encouraged, they were nearly always willing to put in forested buffers as part of good farm stewardship (See PA example, page 8). Headway has been made on some of these challenges.

### **Establishment and Maintenance**

Restoring riparian forest buffers to agriculture and urban landscapes is a formidable task. Many of the buffers installed in the early years (1998-2003) encountered a disproportionate number of problems. Lack of proper site preparation and maintenance contributed to the failure of many plantings. Specific problems were attributed to competing vegetation, vole damage, lawn mowing, and deer browse, among other issues. Problem sites were often replanted, but these initial failures left many landowners, producers, and technical assistance providers discouraged.

Lessons were learned to address these problems. A proven formula -- herbicide applications and proper use of tree tubes -- have helped tree establishment greatly. One study cites a 6-fold increase in survival coupled with a 2-fold increase in tree growth when this formula is followed. (Sweeney 2004). In 2008, USDA approved first-in-nation cost-share on post-planting care of buffers in Pennsylvania. More attention to these proven establishment methods is needed as is continued technical assistance and post-planting care until the riparian forest is considered



established (~3-8 years).

More regimented monitoring program would help identify and reverse problems.

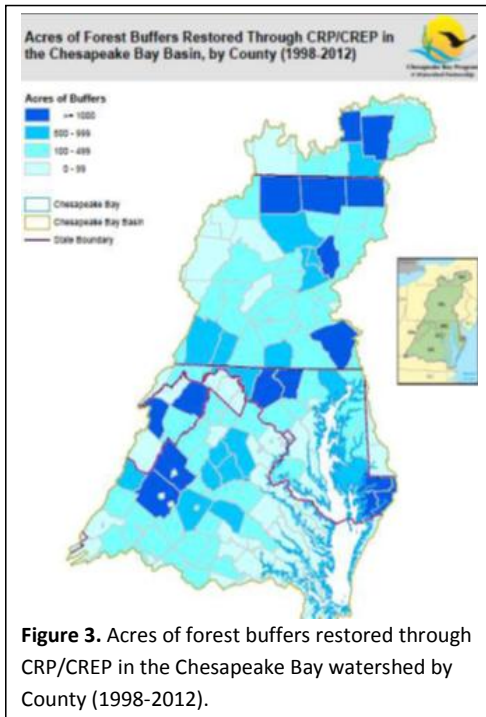
A good example of monitoring comes from Virginia where the Department of Forestry works closely with NRCS to conduct detailed annual survival on every CREP

forest buffer planting until it is deemed established. See Appendix for monitoring worksheet that is completed by a forestry professional.

### **Outreach and TA**

Each new riparian forest buffer represents a considerable amount of promotion and time

invested in landowner relations. Outreach is conducted to interest landowners and can be done through direct mailings, paid advertising, signs, toll-free call-in centers, and earned media, to name a few. Often the most effective type of outreach is direct contact through a trusted farm technical service professional. Technical assistance can be a bottleneck for not getting more riparian forest buffers on the ground.



**Figure 3.** Acres of forest buffers restored through CRP/CREP in the Chesapeake Bay watershed by County (1998-2012).

Some counties in the watershed have clearly been exemplary at prioritizing the forest buffer practice through CREP (Fig 3). In fact, 75% of the riparian forest buffers in the watershed occur in just 25% of the counties. This is likely because the outreach and technical assistance provided in that county, but also can be the ranking criteria used. Likewise, the state of Pennsylvania has been restoring more forest buffers than other states.

Pennsylvania uses state cost-share only for

this CREP practice (e.g., no state cost-share for grass buffers). See Pennsylvania example for more information on how they have been leaders in restoring forest buffers.

### **New Challenge: Expiring Contracts**

Many CREP contracts will expire in the next few years (Fig 3). These contracts represent an enormous amount of work and expense. They also represent a lot of acres that are already being counted toward the TMDL. Advocates for the Chesapeake need to seize the opportunity to re-enroll as many of these acres of forest buffer as possible to minimize the loss of acres and safeguard the investment. Even for a willing landowner, it may take 1-3 years to make some acres eligible for re-enrollment if stocking is inadequate. While the contract is still active, outreach is needed to ensure the landowner is aware of the re-enrollment opportunity and to learn the landowner's intentions regarding the buffer.

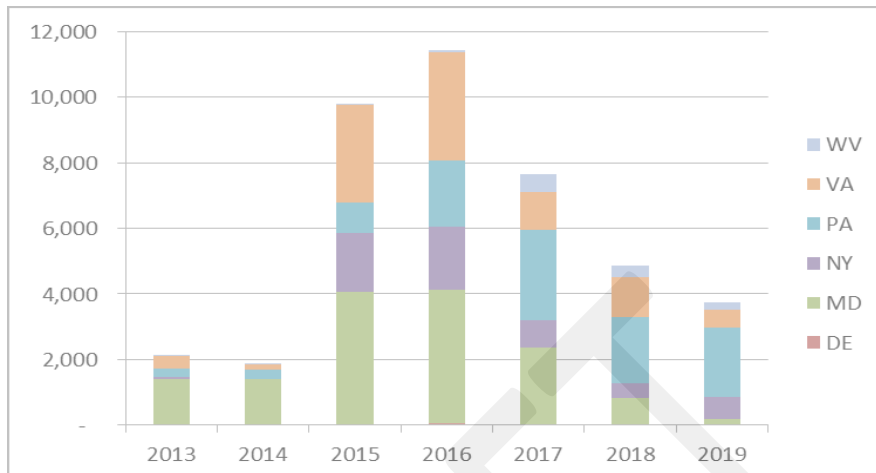
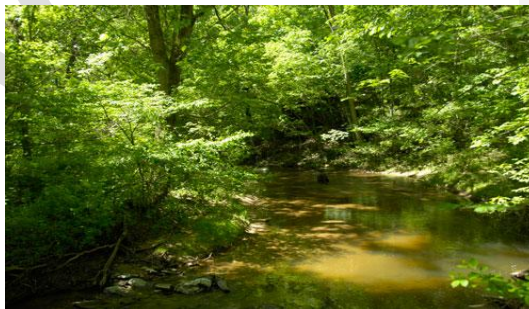


Figure 4. Acres of CREP (CP-22) that will be expiring.

## Conservation

Even though conservation of riparian forest buffers was called upon by the Executive Council early on (Directive 94-1), this has not been adequately incentivized by the states. Yet when compared to restoration, conservation is an easier, more successful, and cost-effective means toward ecosystem integrity. And with 58% of riparian areas in forest, there is a lot to lose. An easement program exists that pays extra (\$500/acre) for permanent retirement of the land under a CREP contract. Maryland the only state in which this is active. Maryland also has a strong conservation framework that includes an emphasis on conservation of forest buffers with their Critical Areas Law and Forest Conservation Act.



New Verification Guidelines for the CBP indicate the need to better account for buffer loss as well as any gain in acres of riparian buffers.

Only a net gain in area of riparian forest can be claimed as a pollution-reducing practice. It is expected that states will increase their

conservation of existing forest buffers as a result. Another way to prevent buffer loss, while not permanent, is to re-enroll CREP forest buffers when the current contract expires.

Forest buffers should be required when public funding is used to protect farmland. Linking easement programs with forest buffers benefits both programs. Likewise, conservation could be targeted to places where public funding has been invested in restoration practices. Tapping these programmatic synergies stretches the investment.



### Learning from Pennsylvania's CREP Partnership

There are several innovations from Pennsylvania within the CREP riparian forest buffer program that have enabled them to restore more than twice as many buffers as any other Bay state. There, a federal-state-nonprofit partnership is focused specifically on forest buffers and provides coordination and programmatic guidance at the state level. In addition to getting more forest buffers, they have improved survival by established new funding and policies around post-planting care.

So, how did they get all those acres of forest buffer? First, Pennsylvania state cost-share dollars are available as an incentive only for riparian forest buffer. This is an effective way to communicate to the landowner the importance the state places on the riparian forest practice. Second, some counties will improve the ranking of other conservation practices (e.g., EQIP practices) if the landowner has or agrees to put a riparian forest buffer (can use CREP for this). This is known as a tiered system of practice ranking -- the value of a forest buffer leverages other Farm Bill program funding. A voucher system is another model for incentivizing buffers. Vouchers (cash payment) are given to a landowner that, when asked, agrees to put in a riparian forest buffer. These vouchers are used to pay for the landowner's share of a conservation practice. Funding for vouchers is most likely to come from state or private grants.

The Chesapeake Bay Foundation (CBF) found that 114 out of 117 Pennsylvania farmers were willing to do CREP forest buffers when partial funding (i.e., a voucher) was made available to pay for other BMPs that the farmer wanted. In the process, the landowner is educated that by putting in a forest buffer good steward.

In summary, we can learn from the Pennsylvania example that by having a focused collaboration, new ways of leveraging Farm Bill funding can be found. Policies and programs, some of which are listed here, have been instrumental in getting high quality-- along with high quantity --forest buffers.

- increased technical assistance
- bonus payments
- tiered ranking systems
- vouchers to landowners
- improved survival (with TA)
- extending the establishment period from 3 to 5 years
- funding herbicide applications twice/year for up to 5 yrs paid by state and federal funding