Riparian Forest Buffer Fact Sheet

Planting and keeping trees near waterways is one of the most important ways to *improve water quality for* your local streams and the Chesapeake Bay!

Trees and forests improve water and air quality, provide recreational opportunities and wildlife habitat, and strengthen local economies, thereby improving the quality of life for everyone. Currently, forests in the Chesapeake Bay watershed are being converted to other land uses at a rate of 100 acres/day. As a result of this conversion, the water quality of the Chesapeake Bay has deteriorated, reducing the productivity of the Bay. A great way to compensate for this loss of forests and its effects on the Bay is to plant trees along waterways.

Trees, and other natural vegetation along waterways, are called riparian forests. These forests "buffer" waterways from effects of nitrogen (N) and phosphorus (P) (nutrients that are found in nature, bus are especially concentrated in fertilizer and animal waste) and suspended sediment (eroded soil) washed from upland sources. Annually, one acre of forest buffer can remove up to 100 lb (69 %) of total nitrogen, 8 lbs (60 %) of phosphorus, and 2,483 lb (71 %) of suspended sediment in an average agricultural setting. Buffer width and placement are key factors affecting how efficient a buffer is.

Riparian forest buffers are one of the most important restoration practices for the Bay, particularly in agricultural areas. Forest buffers in suburban and urban areas also provide multiple benefits. However, because of increased rapid stormwater run-off and the down-cutting of stream channels, urban forest buffers do not interact with the water as effectively, and therefore, do not provide as much pollutant removal as forest buffers on agricultural land. By combining buffers with other practices in urban settings, removal efficiencies of riparian forest buffers can increase.

Riparian Forest Restoration practice on Agricultural land: *A minimum of 35' width along a waterway, planted with two or more tree species and allowed to form natural forests after establishment. Two kinds of credits apply:*

1. Land use change on the acre planted

2. Efficiency credits for adjacent upland areas:4 adjacent acres for N, 2 acres for P and sediment

Cost-efficiency

Recent cost averages for the following restoration projects:

- Stormwater retrofit $137,000/acre
- Stream restoration $15,000/acre
- Riparian Forest Buffers <$1,200/acre

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Why does this matter?

In 2010, the U.S. Environmental Protection Agency established the Chesapeake Bay Total Maximum Daily Load (TMDL) because of the slow rate of water quality improvement. The TMDL limits the load of pollutants that can enter waterways, essentially establishing a comprehensive "pollution diet" with rigorous accountability measures to restore the Chesapeake Bay and all streams feeding it.

The goal of the pollution diet is to reduce N by 25%, P by 24%, and suspended sediment by 20%. Each of the six Chesapeake Bay states (PA, NY, MD, VA, WV, and DE) and Washington D.C. developed a Watershed Implementation Plan, or WIP, to meet their pollutant limits.

As the jurisdictions are implementing their Phase I WIPs, they have begun development of Phase II WIPs, designed to more closely engage local governments, watershed organizations, conservation districts, citizens, and other key stakeholders in reducing water pollution. **Riparian forest planting, and all tree planting, are key practices toward the needed pollution reduction and should be included in WIPs and reported.**

Tree planting is an ideal practice for local governments and other organizations because trees have a low cost overhead, they have multiple environmental benefits, and for every dollar invested in growing a tree, it returns $2.50 in environmental services.

FAQs

Do both sides of a stream need to be planted to count? No. While it is desirable to have forests on both sides of a stream, the riparian area on just one side of the stream is buffering pollutants that otherwise would be entering the stream from that side.

Are riparian grass buffers as effective as riparian forest buffers as a conservation practice? No. Grass is 30% less efficient at reducing nitrogen loads. Forest buffers also provide shade for streams, woody debris for aquatic habitat and in-stream processing of nutrients, bank stabilization, and air quality benefits. Unlike grass buffers, forest buffers do not require long-term maintenance.

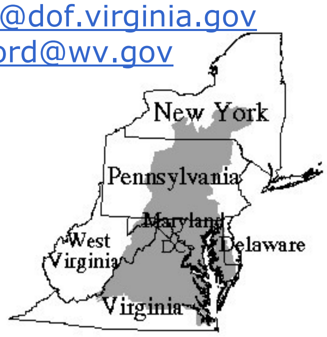
How do I ensure my riparian forest planting efforts are counted toward the restoration of the Bay? Any riparian forest planting that is not part of a government program, like the Conservation Reserve Enhancement Program, should be reported to a state contact. State contacts are:

DC: Steve.Saari@dc.go
DE: Jennifer.Volk@state.de.us
MD: AStrang@dnr.state.md.us
NY: cdy3@cornell.edu
PA: TrCoulter@state.pa.us
VA: Barbara.White@dof.virginia.gov
WV: Herb.F.Peddicord@wv.gov

Table 1

Agricultural Riparian Forest Buffers Nutrient & Sediment Reduction Efficiencies	**N**	**P**	**SS**
Inner Coastal Plain	65	42	56
Outer Coastal Plain Well Drained	31	45	60
Outer Coastal Plain Poorly Drained	56	39	52
Tidal Influenced	19	45	60
Piedmont Schist/Gneiss	45	36	48
Piedmont Sandstone	56	72	56
Valley and Ridge – marble/limestone	34	30	40
Valley and Ridge – sandstone/shale	46	39	52
Appalachian Plateau	54	42	56

Note: These numbers are in terms of percent reduced. For more info, see the following website: www.chesapeakebay.net/watershedimplementationplantools.aspx.



Chesapeake Bay Program
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