RappFLOW 2007 Cost-Sharing Program for Non-Agricultural Land Owners to Protect and Improve Riparian Buffer Vegetation

Report to the Rappahannock County Planning Commission
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Importance of all our Streams in Rappahannock County

Rappahannock County's seven hundred and fifty-five (755) stream miles are important not only to us locally, but also to the health of Chesapeake Bay, because we are at the headwaters where the Rappahannock River begins. All of our streams flow into the Rappahannock River and thence to the Bay. Recent scientific studies underscore the profound influence that headwater areas have on shaping downstream water quantity and water quality. (1)

Importance of Riparian Buffer Vegetation

The Rappahannock River Tributary Strategy calls for Rappahannock County landowners to establish 1,704 acres of riparian buffers on agricultural land, and 908 acres of new riparian buffers on residential and commercial land by 2010. (2) Recent scientific studies are showing that Riparian buffers are a "best management practice" (BMP) that should be used in conjunction with a comprehensive watershed management plan that includes control and reduction of point and non-point sources of nitrogen from atmospheric, terrestrial, and aquatic inputs. It is especially important to slow down the runoff from a storm so that the water has a chance to penetrate beneath the surface. (3)

The Riparian Buffer – the vegetation along a stream -- is "the last line of defense" in keeping pollution out of the stream and the groundwater. The vegetation stabilizes the stream bank and the trees help keep the water cooler and provide beneficial "leaf litter" for the stream. Actions of the buffer improve the water quality, helping the macroinvertbrates thrive and making better "homes" for fish. Better vegetation, especially trees, can transform a stream from having no fish or bottom dwellers like Carp into a stream that cold water fish like Trout can thrive in.
To improve water quality, we want to prevent nonpoint source (NPS) pollution from entering our streams. The pollutants of most concern are: Nitrogen, Phosphorous, sediment, and bacteria (fecal coliform, e-coli). Segments of four of our main streams, including the Thornton River, have been designated "impaired" by the VA DEQ due to excessive e coli bacteria.

We are inventing and testing a new program to inform and assist Non-Ag Landowners

For agricultural landowners, the state and federal governments offer cost-sharing programs to assist in restoring vegetation along the streams. However, no such government programs exist for non-agricultural landowners. RappFLOW and its partners have adopted a goal for 2007 of creating a cost-sharing program to assist landowners in improving or restoring 40 acres of riparian buffers. We are learning what are the most cost-beneficial practices for residential and

commercial land in our area, and what incentives will be most helpful to the landowners in making decisions about improving their land management practices.

Many volunteers and landowners are contributing to the work
So far this year, over 40 volunteers, several organizations, and about a dozen landowners have been working to help achieve this goal. Our pilot test area is in the Thornton River watershed, and we call this the Thornton Re-Leaf program. Our first buffer restoration is at the Old Schoolhouse in Sperryville, a highly visible site we are using for training, education and public awareness purposes.

Expert scientific and technical knowledge and guidance is critical
Expert technical and scientific guidance to our leaders and volunteers is essential to ensure that the program is promoting sound practices and offering valid and practical advice to the landowners. Our main technical advice comes from Greg Wichelns, Manager of the Culpeper Soil & Water Conservation District, Mike Santucci of the VA Department of Forestry, Mark Malick (retired landscaper from the National Park Service), and Jack and Sally Price (Master Gardeners). Tim Bondelid has been reviewing the most recent scientific literature and using the science to inform our buffer assessment methods and land management practices.

Local, state, and national organizations are key partners in the work
Rappahannock County's current ordinances such as those for erosion and sedimentation control, zoning and subdivision are important context for this work. We are also learning by working with the County's Clean Streams program, especially the stormwater ordinance development. We received funding from the National Fish and Wildlife Foundation, Virginia Department of Conservation and Recreation, Virginia Department of Forestry, the Virginia Water Quality Improvement Fund, the Virginia Department of Environmental Quality, and several private donors. Our public schools are also key partners in this work, as are other groups such as RLEP, RCCA and the Boy Scouts.

There are several purposes for this program
The purposes for this program include:

- protecting water quality in our streams and ponds,
- protecting quantity and quality of groundwater supplies which provide our drinking water,
- improving habitat for fish and wildlife,
- enhancing the recreational uses and aesthetic beauty of the property from the landowner's standpoint
- promoting public awareness and knowledge about good land management practices and why they matter,
- helping to clean up the Rappahannock River Basin and the Chesapeake Bay.

There is always something that can be done to help reduce the water pollution coming from a landowner's property
Landowners and businesses can save time and energy and money as they improve the buffer. It may be as simple as not mowing along any stream and letting the trees that volunteer to be there develop. The greater the width of the buffer the better. Other possible actions include developing

an attractive landscaping plan and then planting the trees, shrubs, etc. Our project at the Old Schoolhouse is a good example of this.
Some businesses and homeowners want to retain a view of the stream. This can be done with clever landscaping using low-growing shrubs and grasses, walkways and seating areas.
Consider overall drainage, lawns, swales, and ponding areas. Observe what happens with the runoff in a heavy rain. Many things can be done on the property BEFORE runoff reaches the stream or drainage ditch. SLOW the water down, let it seep into the ground. For instance, a landowner could select an area to stop mowing and let it grow up into a forested area. This will be a haven for wildlife, birds, and butterflies. Undesirable invasive trees and other plants can be removed or controlled.
Better lawn care practices don't cost anything and can save money and energy. Practices to consider are:

- Mow higher – 4 inches instead of 2..
- Fertilize only as needed.
- Don't rake up the clippings – these are a form of "free" fertilizer and they return nutrients to the soil.
- Be very selective about using herbicides, and be sure they biodegrade quickly.
- Clean up after pets and keep them out of the stream – this is a source of pollution just like cow manure is.

Mowing higher, say 4 inches instead of 2 inches is better for the grass and will help runoff infiltrate into the soil. The higher you mow, the deeper the roots of the grass. This can help the grass survive in dry weather conditions because the roots are reaching farther down to get moisture. The grass uses the nutrients in the runoff from a storm, and removes pollution from the shallow groundwater. This helps keep pollution from going into the deeper groundwater that our wells use for our water supply.
Fertilize less or not at all. The instructions on "weed and feed" bags or from the lawn care recommend fertilizing much more than is necessary. Excess nitrogen and phosphorous from the over-fertilizing become a source of excess nutrients that contribute to the pollution problems.

Driveways can be a major source of pollution, especially sediment. Evaluate the areas where the driveway runoff goes and see if some of the solutions described above can be used along the shoulders or ditches where the flow goes. For new private roads and driveways, the new county stormwater ordinance should be of great assistance.

Impervious areas with high stormwater runoff such as parking lots and rooftops can be helped by measures such as rain barrels, cisterns, and raingardens. A raingarden is a "structural" improvement that provides control for much more runoff in a smaller space. The general guideline is to control at least the first ½ inch of runoff because studies have shown that most of the pollution from parking lots and other impervious surfaces comes in this first ½ inch.

HOW DOES THE BUFFER IMPROVEMENT PROGRAM WORK?

RappFLOW volunteers are working to inform the public and riparian landowners about stream buffers and related land management practices. We are collecting informative materials from many different sources and making these available. (e.g. see (4)).

We are refining an assessment form and procedure, and training a cadre of volunteers to conduct site assessments, interview landowners, and report their findings.

Landowners are encouraged to let RappFLOW know they are interested. Our pilot test area is in the Thornton River watershed.

1) Stage 1: RappFLOW volunteers, with technical assistance from our partners, will:

- Learn about your interests and concerns for your property
- Evaluate land management, drainage, streams and buffer vegetation on your property;
- Report to you the assessment and suggest buffer and land management improvements based on your objectives.

2) Stage 2: If your site is selected for further consideration, you and the project managers decide on a plan. Services of a professional landscape gardener or other specialist may be called upon.

3) Stage 3: If your site is selected for cost-sharing, assistance may include such activities and costs as:

- Testing soil or water quality;
- Drawing up a site plan, schedule of activities, and budget;
- Preparing the ground; removing invasive vegetation;
- Acquiring native trees, shrubs & native grasses;
- Planting;
- Maintaining the buffer area.

We will provide Stage 1 assistance to any landowner who requests it. Criteria for selecting a site for Stage 3 cost sharing include landowner interest; potential for reducing pollution, especially nutrients and sediments; educational value of the site; and cost-benefits of the intervention. For more information, please see www.rappflow.org

References:

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Available: http://www.naturalresources.virginia.gov/Initiatives/WaterQuality/FinalizedTribStrats/rappahanock.pdf

(3) Mayer, Paul M., Steven K. Reynolds Jr., Timothy J. Canfield, Marshall D. McCutchen, 2005. Riparian Buffer Width, Vegetative Cover, and Nitrogen Removal Effectiveness: A review of Current Science and Regulations. *EPA/600/R-05/118*. October, 2005.

(4) USEPA, 2007. http://www.epa.gov/nps/toolbox/