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The Benefits of Riparian Buffers

For thousands of years, thick forests lined virtually every linear foot of stream or riverbank in the Schuylkill watershed. The huge trees and dense underbrush were an awesome sight to early European explorers, such as Captain John Smith and William Penn, whose homeland had long been deforested. As they sailed inland from the Atlantic, these men, whose knowledge of old-growth timber came primarily from folklore, literally could not see “the forest for the trees.” Yet, despite the millions of tons of tree trunks, leaf litter, seeds, fruit, bird feces, and other forest outputs that fell annually into the streams and rivers, the waters of the Schuylkill, its tributaries and the Delaware Bay were clear and full of fish and other wildlife. The reason for that was that most of the organic debris entering the streams was quickly processed by aquatic ecosystems. The efficiency of those ecosystems resulted from thousands of years of fine-tuning, during which the local stream flora and fauna gradually adapted to the physical and chemical conditions created by the riparian forests and to the spatial and temporal patterns of forest inputs. So efficient were those species and their ecosystems that each reach of stream acted as a giant predator, devouring the organic molecules and particles that fell or flowed into it, while allowing a small portion to move downstream to nourish – not bury – the Bay.

As William Penn looked at the trees that lined the banks of the Schuylkill and its tributaries and the fish that filled their waters, he well understood their value as timber and food. But like many of us four centuries later, he little appreciated their invisible but more important value to humanity as the purveyors of “ecosystem services.” Below we briefly summarize those services and their value to help you understand the need to protect and restore riparian forests as a critical step in reviving Chesapeake Bay and promoting environmental health, both here and around the world.

Riparian forest buffers improve:

•Stream health and the quality of freshwater by:

- Serving* as a natural filter that keeps pollutants out of streams
- Processing* nutrients and toxic pollutants that do get in the water
- Reducing* the proliferation and downstream transport of water borne pathogens
- Stabilizing* stream banks to prevent erosion
- Providing* food and habitat for fish and other aquatic life
- Protecting* streams from high temperatures and UV light
- Reducing* light levels to allow more nutritious algae for stream life

•Your neighborhood's health by:

- Acting* as a natural flood regulator by slowing and absorbing storm water
- Providing* natural habitat for birds and other wildlife
- Establishing* natural corridors for wildlife
- Enhancing* local biodiversity and the quality of open space
- Restoring* natural fisheries to local streams
- Shading* all who come to their banks
- Creating* natural visual breaks
- Absorbing* noise
- Creating* windbreaks that reduce soil erosion

• The world's health by:

- Storing* the carbon that contributes to global climate change
- Providing* a long-term renewable source of wood
- Increasing* the production of oxygen
- Absorbing* atmospheric pollutants
- Reducing* dissolved nutrients that produce dead zones in estuaries and oceans