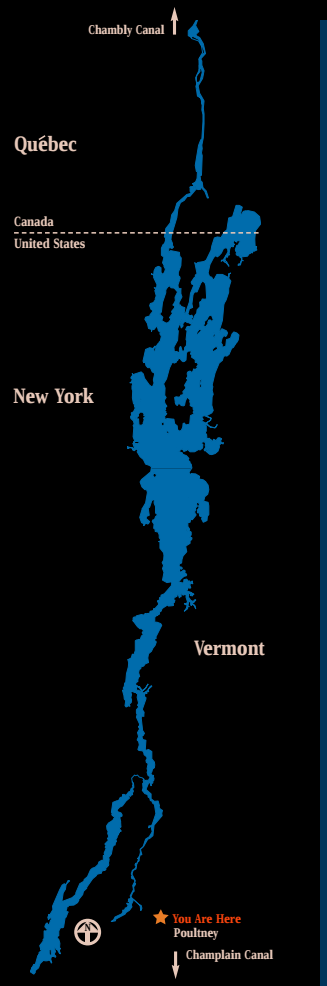
Riprap and Log Vanes: Erosion Busters



Poultney Mettowee Watershed Partnership

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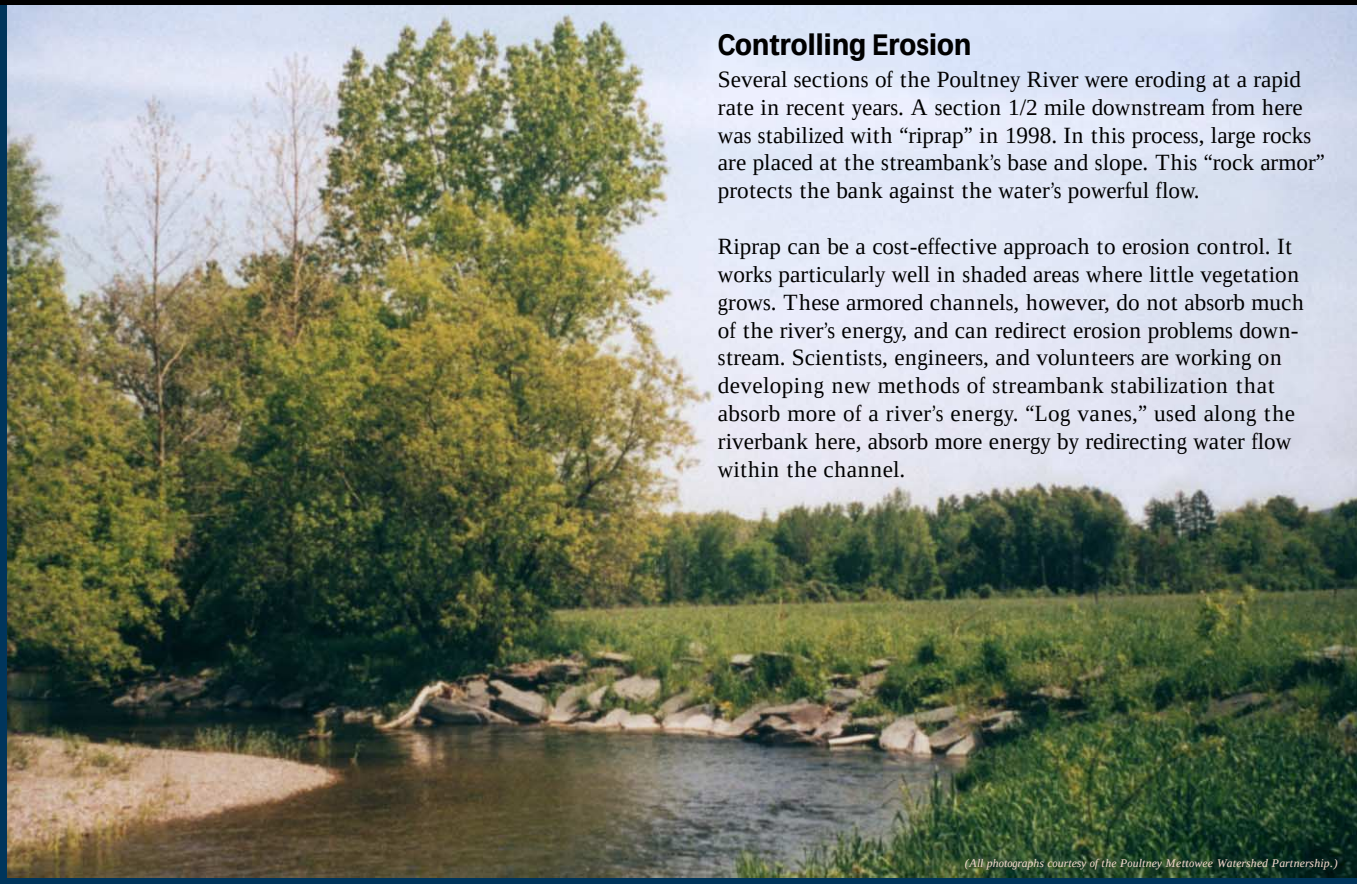
Eroding Banks

Rivers constantly work to reduce their energy. River bends, for example, are created to slow water flow. When a river's path is straightened by the work of humans or a powerful natural event, such as a heavy rainfall or an unusually quick snowmelt, new energy is created in the stream flow. When a river "bends" to reduce this new energy, it pushes against the streambank and erosion may occur. Erosion along rivers can fill fish spawning areas with sediment, eliminate aquatic food sources, remove vegetation that is critical to keeping water temperatures cool, and wash away agricultural land and private property.



Controlling Erosion

Several sections of the Poultney River were eroding at a rapid rate in recent years. A section 1/2 mile downstream from here was stabilized with "riprap" in 1998. In this process, large rocks are placed at the streambank's base and slope. This "rock armor" protects the bank against the water's powerful flow.

Riprap can be a cost-effective approach to erosion control. It works particularly well in shaded areas where little vegetation grows. These armored channels, however, do not absorb much of the river's energy, and can redirect erosion problems downstream. Scientists, engineers, and volunteers are working on developing new methods of streambank stabilization that absorb more of a river's energy. "Log vanes," used along the riverbank here, absorb more energy by redirecting water flow within the channel.

(All photographs courtesy of the Poultney Mettowee Watershed Partnership.)

Building a Log Vane

Three logs are cabled together to form the vane. The grey material on top is a filter fabric, that is unrolled around the vane after it is installed. Without this, water and sediment would flow through the vane, as opposed to the vane redirecting water around it.

Redirecting Water

The vane is carefully placed in a trench dug at a specific angle into the streambed and streambank. At this angle, the vane redirects water flow away from the river's bank. Gravel and large rocks help keep the vane in place.

Stabilizing Banks

Because log vanes are not expected to last forever, vegetation is planted to further protect and stabilize the riverbank. Shrubs such as elderberry, highbush cranberry, and dogwoods are planted along the edge of the bank, while trees such as maple, oak, and willow are planted further back.