

# River Dynamics



Excessive sediment from upstream is deposited in this reach of river that is too wide and slow to carry it. This aggradation forces the flow of the river against the riverbanks, causing additional erosion and a further widening of the channel.

Many rivers in Vermont need to access their floodplains during high water events. This section of the Intervale's Rena Calkins Trail provides floodplain access in its riparian forest. This forest helps to break the momentum of the flooding, and absorbs much of the water.

Healthy riparian forests can help prevent serious erosion problems that plague many Vermont river systems.

Healthy rivers maintain a balance between their width, depth, water velocity and volume, sediment size, and gradient (slope). Rivers become unbalanced when at least one of these factors is affected. For many rivers in Vermont, healthy river dynamics include having access to their floodplain during high water events. A river's inability to access its floodplain can result in its flowing too quickly, eroding and carrying away sediment at a rapid rate. This is called

*degradation*. Sometimes rivers become too wide and slow. This phenomenon often results in extensive deposition of sediment, which is called *aggradation*.

Degradation and aggradation can result in serious impacts on the larger river system. Excessive erosion and deposition severely impact the health of streams. The Intervale Conservation Nursery grows trees and shrubs that help to stabilize rivers and streams throughout the state.



(Photographs courtesy of the Intervale Foundation.)



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