

Memorandum

To: David Corbett
Chair
Comeau Trails Committee

From: Beth Reichheld
Woodstock Resident
Stream Management Program Director, NYC DEP

Re: Sawkill Erosion and its impact on the Comeau Trails

Date: April 3, 2009

This memo is provided in response to your March 2009 request for an assessment of the Sawkill through the Comeau Reach. Recommendations are included.

There are three general categories of concern described in this memo: debris jams that are and will continue to alter the course of the Sawkill exacerbating erosion on the property, gulying along the trail in the riparian area, and tree fall/tree and shrub regeneration.

Streams naturally change in character as they flow from headwaters to mouth. Over the length of the Comeau Property, the Sawkill changes from a meandering, riffle pool stream ("C" stream type) to a step pool stream ("B" stream type). The stability of meandering channels relies heavily on the density and vigor of riparian vegetation and the stability of adjacent (up and downstream) reaches. Meandering stream reaches are considered "sensitive" from a stream management perspective and can experience high rates of erosion if destabilized. Destabilizing forces can be natural or human-induced. In the case of the upper Comeau/West Meadow reach of the Sawkill, excessive erosion is being experienced that is caused by nature's response to human pressures in the upper parts of the Sawkill watershed. (For more on that, see the December 2007, Sawkill Stewardship Manual, Section 5, Overall Condition of the Sawkill). The lower reach of the Comeau along the Sawkill is step-pool which is governed by bedrock and is very stable. This memo addresses processes visible in the upper portion of the Comeau property which are of primary concern to the Trail.

The first and most immediate concern is the substantial debris jam that is at the head of the Comeau reach. For a very useful stream condition map, see Integrated River Solutions, May 2007, Appendix E, Stream Inventory Mapping, River Section 4.55 – 5.40. This debris jam appears to be mostly on the Lang property; however, this should be confirmed. This debris jam should be removed for two reasons. First, it is so substantial now that it is assured to grow in the future as it traps new trees mobilized during floods; it is unlikely to break up on its own. Left in place, it will continue to divert the Sawkill to both outside stream banks and accelerate their rate of erosion. For the Comeau, removal would reduce the erosive flows to the high scenic bluff at the cedar bench. The Sawkill

would be able to better access the floodplain on the opposite, south, side and reduce erosive pressure on the north, Comeau, side. It is recommended that the trees in this debris jam be cut into smaller logs that can be carried by streamflows downstream over time without causing flood hazards by clogging at bridges. Care should be taken not to straighten the stream or over-excavate the stream gravels. Additional guidance can be provided if this approach is pursued. Because erosion of riparian trees upstream is a substantial problem of this section of the Sawkill, upstream to above the Yerry Hill Bridge, the accumulation of woody debris in this area is likely to recur. Visual monitoring should be conducted after floods and it is likely that bucking up the trees will be needed every few years.

A second debris jam is located at the downstream end of the Stone Beach area. The stone beach is a natural point bar that is mobilized and new gravel is re-deposited with each flood flow. The woody debris jam on its downstream end is advised for removal by bucking up into smaller passable logs. Like the first jam, it is growing in size and while it provides great fishery habitat functions, in this reach it is contributing to excessive erosion downstream at the stone beach overlook and plank bench. Smaller woody debris jams downstream of this area are also diverting flows into the Comeau property and exacerbating the erosion and tree fall along the stream trail in the area just upstream of where the South Trail intersects the Stream Trail.

Excessive erosion of the Comeau property along the Sawkill is caused in part by the natural stream processes described above, but also in part by drainage problems and the condition of riparian vegetation, called the riparian “buffer.” A first concern here is the drainage of the Comeau property during spring thaw and heavy rainfall. In several locations, drainage is naturally channelized over the stream bank. Sometimes this is associated with or is near the Stream Trail, but often it is not. Where the stream bank is steep, drainage has concentrated into gullies. These gullies will continue to become over steepened and continue to cut back into the Comeau property. The trail should be moved away from all of these gullying areas, and the gullies should be stabilized using natural materials and vegetation. They are naturally wet areas, so should stabilize well with vegetation.

Several mature trees along the trail are slowly falling into the Sawkill. When they go, they will take with them a substantial “chunk” of the Comeau property as their roots pull away. Their lengthy stems in this area will divert Sawkill flows into stream banks on both sides. In a wild or completely natural setting, this is a biologically important natural process. However, if the Town’s goal is to maintain the Comeau trails and property, the riparian trees should be visually monitored and managed. As heartbreaking as this is, it is advised that these trees be cut when they have reached an angle less than 45 degrees from vertical (90 degrees). In some instances, this may not be possible as they are difficult to access. The roots, of course, should be left intact as they will continue to help hold the bank. Some species will re-sprout from the remaining stem, or trunk. These openings will encourage new growth.

The overall condition of the riparian corridor needs attention. There are a number of areas where the Stream Trail is so close to the top of the stream bank that soils have become compacted preventing new growth, and where new growth is trampled by paw or sneaker. It is advised that the Stream Trail be moved back from the top of bank 30-50 feet wherever possible. If certain areas are selected as lookouts, riparian plantings should be fenced to enable them to succeed.

Reference:

Integrated River Solutions, May 2007, Sawkill Creek: Stream Corridor Assessment Report, Ulster County, New York. Appendices include reach by reach aerial photography of the river with associated features and photographs of site conditions.

Sawkill Stewardship Manual, December 2007. Prepared by Candace Balmer, Mary MacNamara, and Beth Reichheld for the Sawkill Watershed Alliance, and the Towns of Woodstock, Kingston and Ulster with funding from the Hudson River Estuary Program.