



Rondout Neversink Stream Program

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The Basics of Stream Dynamics-Project Implementation

Stacie Howell

Program Coordinator

Brenden Wagner

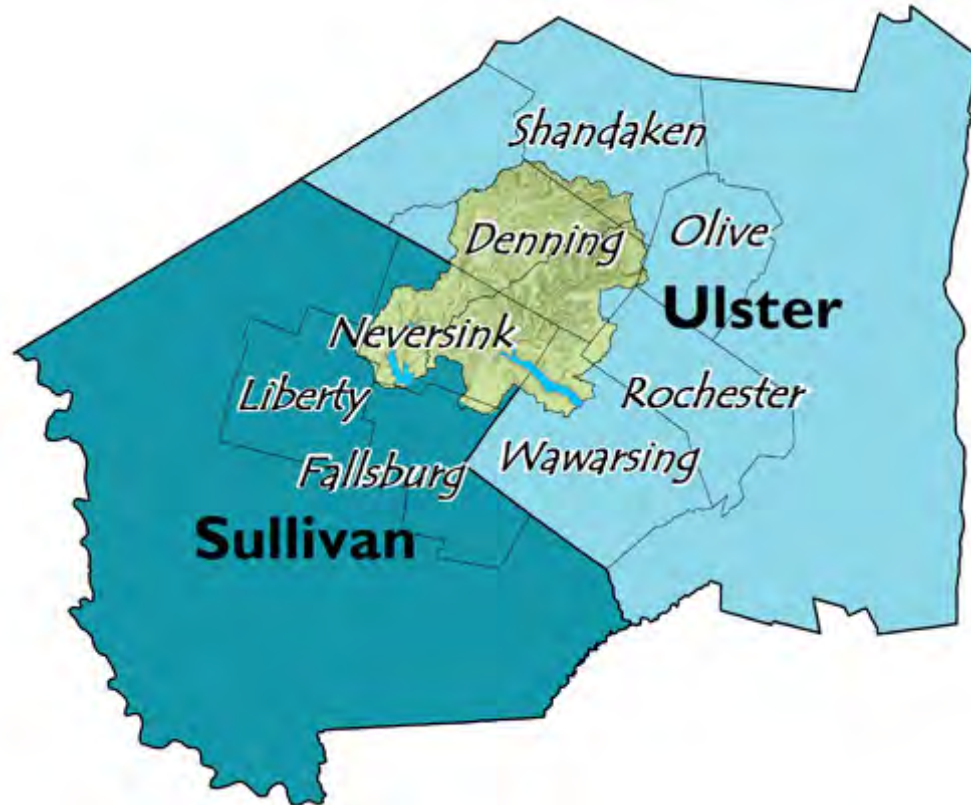
Stream Restoration Coordinator

Haley Springston

Watershed Planning Coordinator



Work Area



- Rondout Watershed Area: 48 square miles, Rondout Creek is 13 miles
- Neversink Watershed Area: 92 square miles, 30 miles of primary stream
- Town of Denning (Ulster County)
- Town of Neversink (Sullivan County)



How We Work

The mission of Rondout Neversink Stream Management Program is to protect and restore stream system stability and ecological integrity by providing for the long-term stewardship of streams and floodplains.

- Multi-objective watershed stream management plans
- Informed by latest stream science and regional data
- Restoration demonstrates best practices for stream system stability
- Utilizing native plant material; controlling invasive species
- In partnership with Town and County governments, private riparian landowners and land trusts
- Guided and advised by community stakeholders in a Watershed Advisory Group
- Administered through Sullivan County Soil & Water Conservation District



What We Do

- **Restoration Projects**
 - Full channel restoration and streambank stabilization using Natural Channel Design principles whenever possible
- **Catskill Streams Buffer Initiative (CSBI)**
 - Riparian (Stream Adjacent) Plantings
 - Invasive Species Management
- **Education and Outreach**
 - Both through SMIP grants and in-house education projects
- **Technical support to landowners for best management practices**
- **Research**
 - Through grants and in-house research efforts
- **Highways and Infrastructure**
 - Funding provided to Towns/Counties through grants
- **Flood Hazard Mitigation**
 - Local Flood Analysis
 - Implementation of Recommended Mitigation Projects
- **Flood Response**



Catskills Stream Buffer Initiative



Inform, educate and assist landowners in better stewardship of their riparian areas through protection, enhancement, restoration, or management by facilitating:

- Native Riparian Plantings and Bioengineering
- Technical Guidance
- Invasive Species Management
- Educational Information and Materials



Catskills Stream Buffer Initiative

Catskill Streams Buffer Initiative
At the Heart of Streamside Protection

FREE TREES

for streamside landowners

You apply. We deliver & install Catskill native plants along your stream.

To get started, email info@rondoutneversink.org

Catskill Streams Buffer Initiative
At the Heart of Streamside Protection

RONDOUT STREAM NEVERSINK PROGRAM
SULLIVAN COUNTY SOIL & WATER CONSERVATION DISTRICT



Erosion



- Eroding streambanks
- Increased turbidity
- Property loss
- Habitat degradation





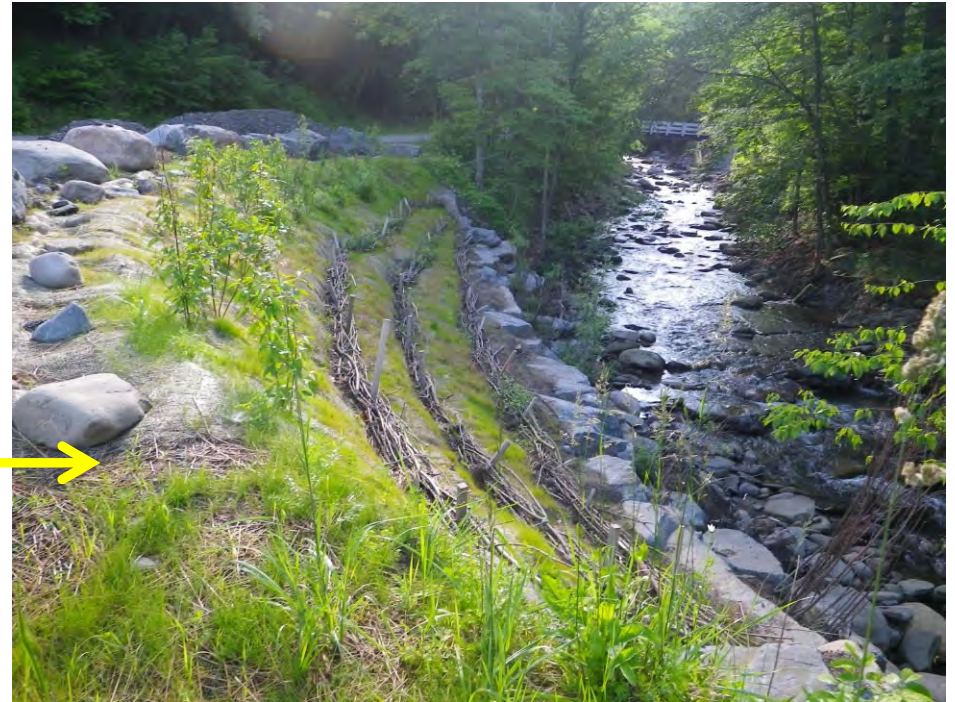
Rock vs. Vegetation

Rock is stronger upon installation, but *weakens over time*

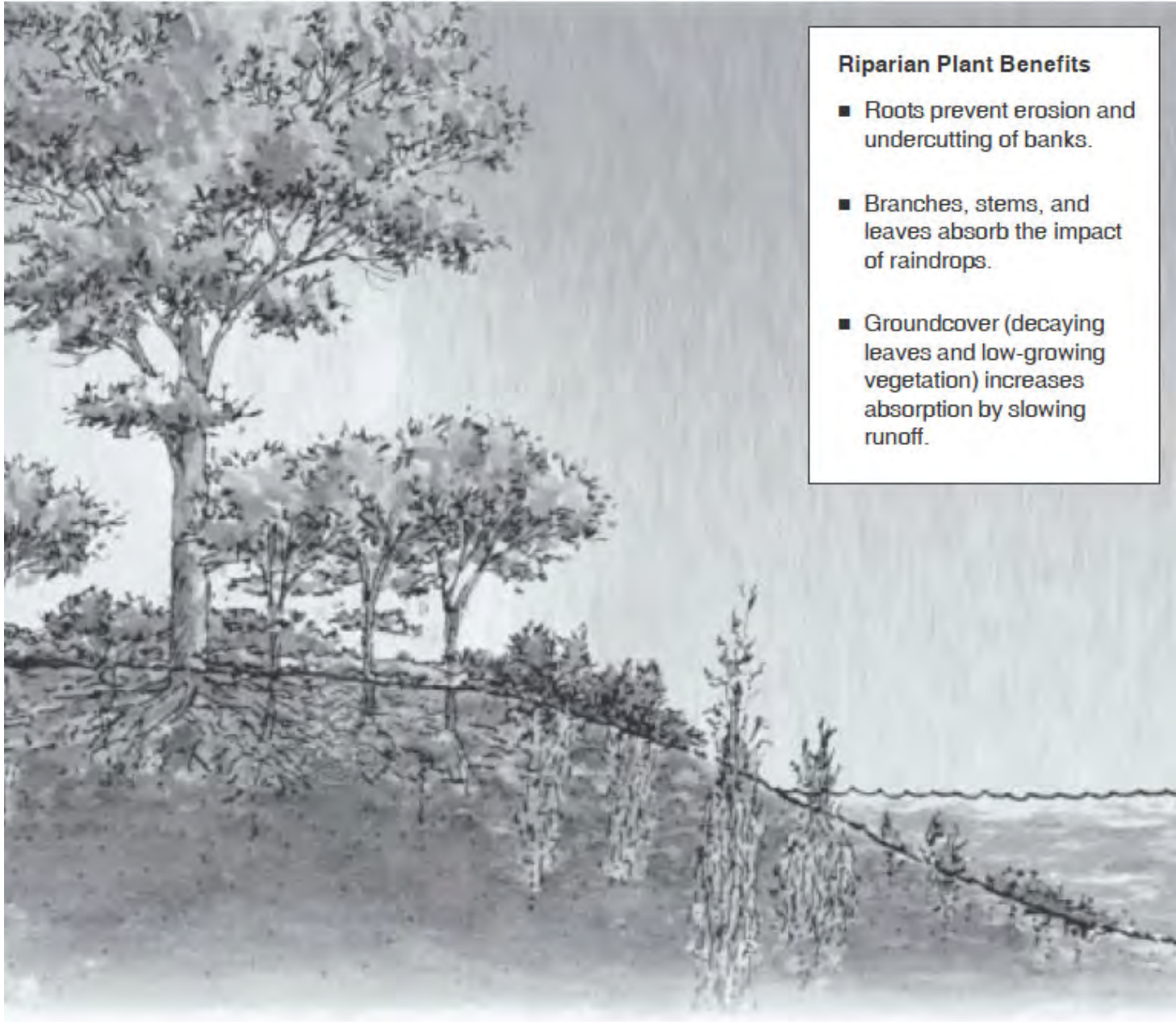


Vegetation

Vegetation is weaker upon installation, but *strengthens itself over time*



Complex Root Systems



Riparian Plant Benefits

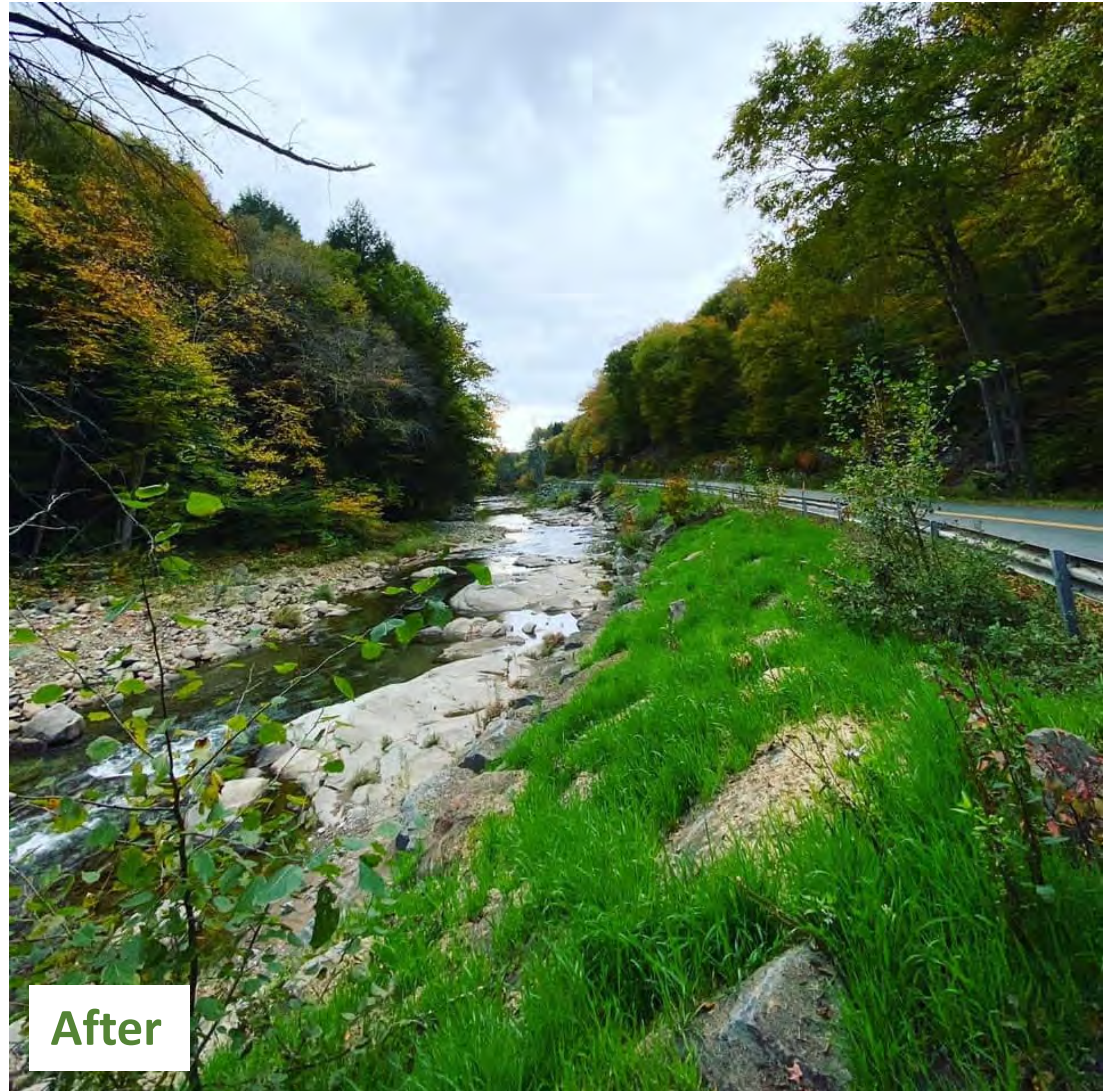
- Roots prevent erosion and undercutting of banks.
- Branches, stems, and leaves absorb the impact of raindrops.
- Groundcover (decaying leaves and low-growing vegetation) increases absorption by slowing runoff.



AMS application

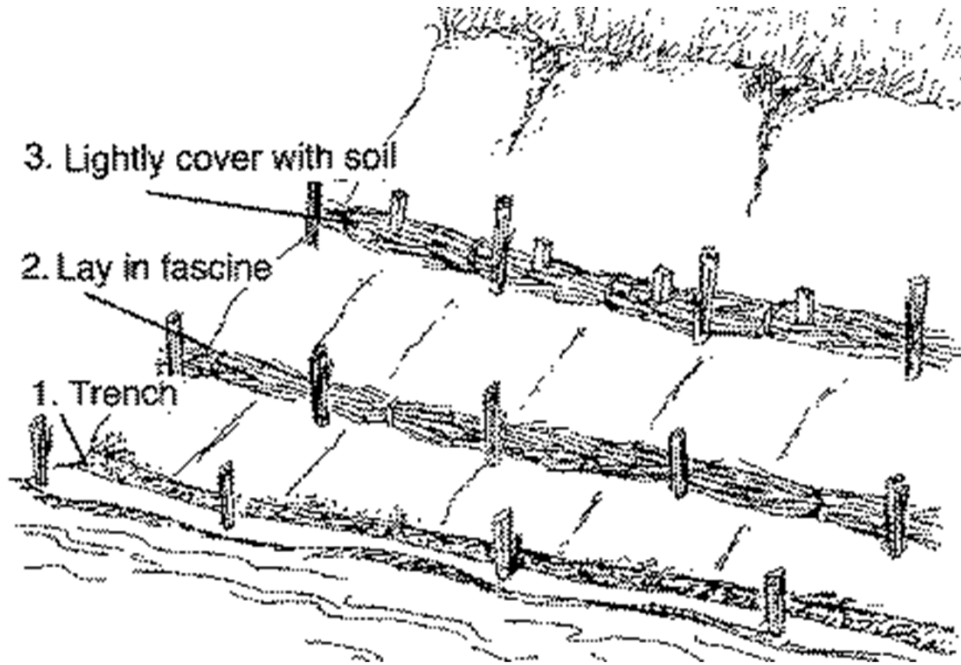


Before



After

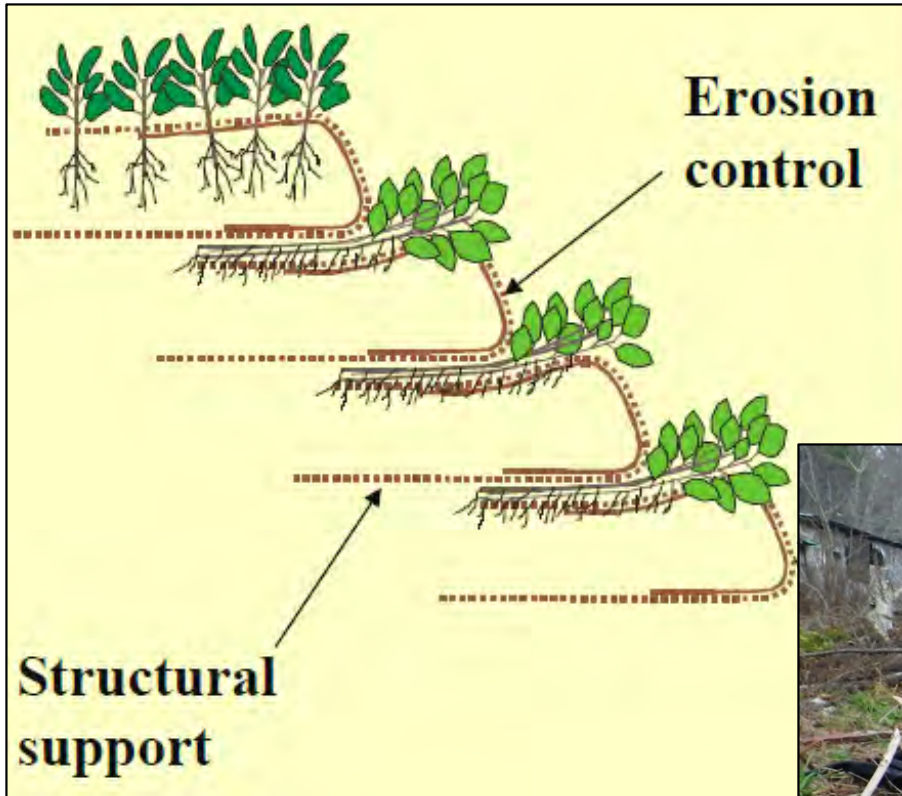
Fascines



Fascine Growth



Soil Lifts



Before and After



5 Months Post-Construction

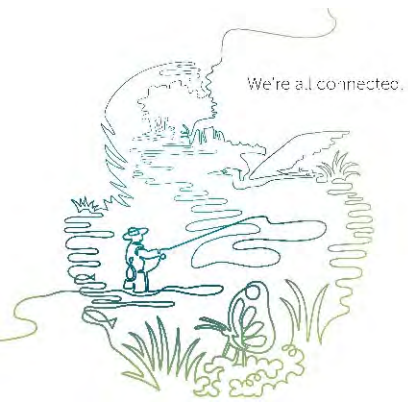






Full Channel Restoration





Stream Feature Inventory



Restoration Prioritization

Table 1. Prioritization by Suspended Sediment Source

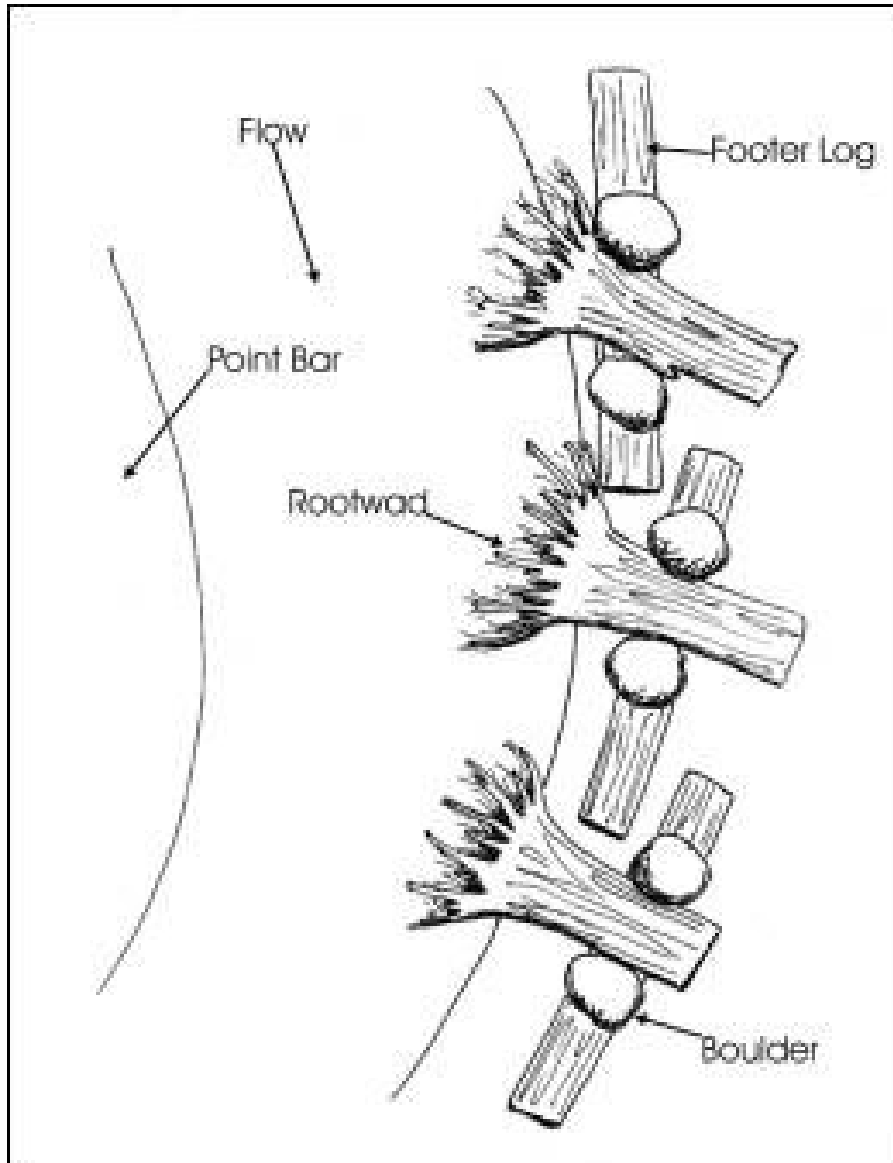
Stream	ID	Bank Area	BEHI Rating	BEHI Adjective Rating	NBS Method 2		NBS Method 5		NBS Method 6		Fine Sed	Structure Threat	Infrastructure Threat	Stream Type	Management Implications by Streamtype (Rosgen, 1994)		
					Ratio	NBS Adjective Rating	Ratio	NBS Adjective	Ratio	NBS Adjective Rating					Sensitivity to Disturbance	Recovery Potential	Streambank Erosion Potential
WBNS	58275	19,537	48.5	Extreme	0.92	Extreme	2.83	Very High	2.83	Extreme	Y	0	0	B4	Moderate	Excellent	Moderate
EBNS	22800	18,072	51.6	Extreme	2.64	Low	2.57	Very High	2.57	Extreme	Y	0	0	C3	Moderate	Good	Moderate
EBNS	6800	11,170	53.6	Extreme	10.36	Very Low	1.89	High	1.89	Extreme	Y	0	0	C3	Moderate	Good	Moderate
MSNS	15400	9,254	45.8	Very High	10.28	Very Low	3.1	Extreme	3.1	Extreme	Y	0	0	C	Moderate	Good	Moderate
EBNS	41100	6,511	51.1	Extreme	28.41	Very Low	1.86	High	1.86	Extreme	Y	0	Y	B3c	Low	Excellent	Low
WBNS	400	3,672	50.3	Extreme	3.04	Very Low	2.27	High	2.27	Extreme	Y	0	0	B4c	Moderate	Excellent	Moderate
EBNS	7000	3,599	56.8	Extreme	10.58	Very Low	2.09	High	2.09	Extreme	Y	0	0	C3	Moderate	Good	Moderate
EBNS	42300	3,556	49.8	Extreme	1.3	Extreme	2.15	High	2.15	Extreme	Y	0	0	B3c	Low	Excellent	Low
MSNS	26800	3,361	42.9	Very High	2.23	Low	1.86	High	1.86	Extreme	Y	0	0	C3	Moderate	Good	Moderate
EBNS	8200	3,157	57.3	Extreme	3.28	Very Low	1.49	Low	1.49	Very High	Y	0	0	F3	Moderate	Poor	Very High
WBNS	28225	2,224	21.7	Moderate	4.78	Very Low	2.99	Very High	2.99	Extreme	Y	0	0	C3	Moderate	Good	Moderate
WBNS	53150_2	1,525	56.3	Extreme	0.89	Extreme	1.48	Low	1.48	Very High	Y	0	0	C4	Very High	Good	High
WBNS	53150_1	1,525	42.5	Very High	0.83	Extreme	3.1	Extreme	3.1	Extreme	Y	0	0	C4	Very High	Good	High
WBNS	18975	1,274	44.5	Very High	1.72	Very High	2.15	Moderate			Y	0	0	B3c	Low	Excellent	Low
EBNS	20700	18,234	40.6	Very High	2.25	Low	2.43	High	2.43	Extreme	N	0	0	C3	Moderate	Good	Moderate
EBNS	12500	11,851	43.9	Very High	2.46	Low	1.89	high	1.89	Extreme	N	0	0	C4	Very High	Good	High
WBNS	1500 1100	8,085	29.3	Moderate	1.13	Extreme	2.9	Very High	2.9	Extreme	N	0	0	C3	Moderate	Good	Moderate
WBNS	39750	7,229	50.6	Extreme	1.02	Extreme	2	High	2	Extreme	N	0	0	F3	Moderate	Poor	Very High
WBNS	43600	6,576	42.5	Very High	0.82	Extreme	2.09	High	2.09	Extreme	N	0	0	D3	Very High	Poor	Very High
WBNS	13200	6,568	21.3	Moderate	8.7	very low	1.35	Low	1.35	Very High	N	0	0	F3	Moderate	Poor	Very High
EBNS	8800	3,277	46.1	Extreme	2.21	Low	2.28	High	2.28	Extreme	N	Y	0	F3	Moderate	Poor	Very High
EBNS	22400	3,261	48.4	Extreme	2.07	Moderate	1.9	High	1.9	Extreme	N	0	0	C3	Moderate	Good	Moderate
WBNS	19425	2,939	47	Extreme	2.19	Moderate	1.69	Moderate	1.69	Extreme	N	0	0	C3	Moderate	Good	Moderate
MSNS	20600	2,695	48.5	Extreme	3.06	Very Low	1.36	Low	1.36	Very High	N	0	0	B3c	Low	Excellent	Low
EBNS	14900	2,673	52.5	Extreme	11.14	Very Low	1.49	Low	1.49	Very High	N	0	0	B3c	Low	Excellent	Low
WBNS	52525	2,601	56.9	Extreme	2.8	Low	1.39	Low	1.39	Very High	N	0	0	C4	Very High	Good	High
MSNS	5600	2,541	46.9	Extreme	2.57	Low	3.1	Extreme	3.1	Extreme	N	0	0	C3	Moderate	Good	Moderate
EBNS	23600	2,397	40.4	Very High	2.05	Moderate	1.42	Low	1.42	Very High	N	0	0	B3c	Low	Excellent	Low
EBNS	37900	2,392	32.9	High	0.85	High	2.36	High	2.36	Extreme	N	0	0	C3	Moderate	Good	Moderate
EBNS	30500	2,267	56.6	Extreme	1.12	Extreme	1.7	Moderate	1.7	Extreme	N	0	Y	C3	Moderate	Good	Moderate
EBNS	21600	2,245	47.9	Extreme	5.85	Very Low	2.13	High	2.13	Extreme	N	0	0	C3	Moderate	Good	Moderate
WBNS	35450	2,117	39.5	Very High	1.01	Extreme	3.4	Extreme	3.4	Extreme	N	0	0	E3	High	Good	Low
EBNS	11500	2,084	49.4	Extreme	1.72	Very High	1.6	Moderate	1.6	Very High	N	0	0	C3	Moderate	Good	Moderate
EBNS	11501	2,084	43.6	Extreme	4.6	Very Low	2.08	High	2.08	Extreme	N	0	0	C3	Moderate	Good	Moderate
WBNS	20500	2,079	50.2	Extreme	1.27	Extreme	2.07	High	2.07	Extreme	N	0	Y	C3	Moderate	Good	Moderate
EBNS	17400	2,031	46.9	Extreme	2.39	Extreme	1.58	Moderate	1.58	Very High	N	0	0	B3c	Low	Excellent	Low
WBNS	4025	1,892	16.5	Low	6.13	Very Low	2.7	Very High	2.7	Extreme	N	0	Y	F3	Moderate	Poor	Very High
WBNS	32200	1,873	41.4	Very High	1.05	Extreme	1.48	Low	1.48	Very High	N	0	Y	F3	Moderate	Poor	Very High
EBNS	32100	1,672	49.4	Extreme	8.43	Very Low	1.48	Low	1.48	Very High	N	0	0	C3	Moderate	Good	Moderate
EBNS	32100_2	1,672	49.4	Extreme	32.49	Very Low	1.53	Moderate	1.53	Very High	N	0	0	C3	Moderate	Good	Moderate
EBNS	36400	1,633	35.6	High	1.43	Extreme	1.96	High	1.96	Extreme	N	0	0	C3	Moderate	Good	Moderate
WBNS	55300	1,302	41.5	Very High	3.86	Very Low	1.67	Moderate	1.67	Extreme	N	0	Y	C3b	Moderate	Good	Moderate
WBNS	33975	1,181	35.6	High	0.6	Extreme	3.45	Extreme	3.45	Extreme	N	0	Y	C3	Moderate	Good	Moderate
EBNS	11100	923	46	Extreme	28.85	Very Low	1.73	Moderate	1.73	Extreme	N	0	0	B3c	Low	Excellent	Low
WBNS	34700	589	40.5	Very High	0.69	Extreme	2.53	Very High	2.53	Extreme	N	0	0	E3	High	Good	Low
EBNS	44500	555	27.6	Moderate	37.05	Very Low	1.57	Moderate	1.57	Very High	N	0	0	B3c	Low	Excellent	Low

West Branch Neversink

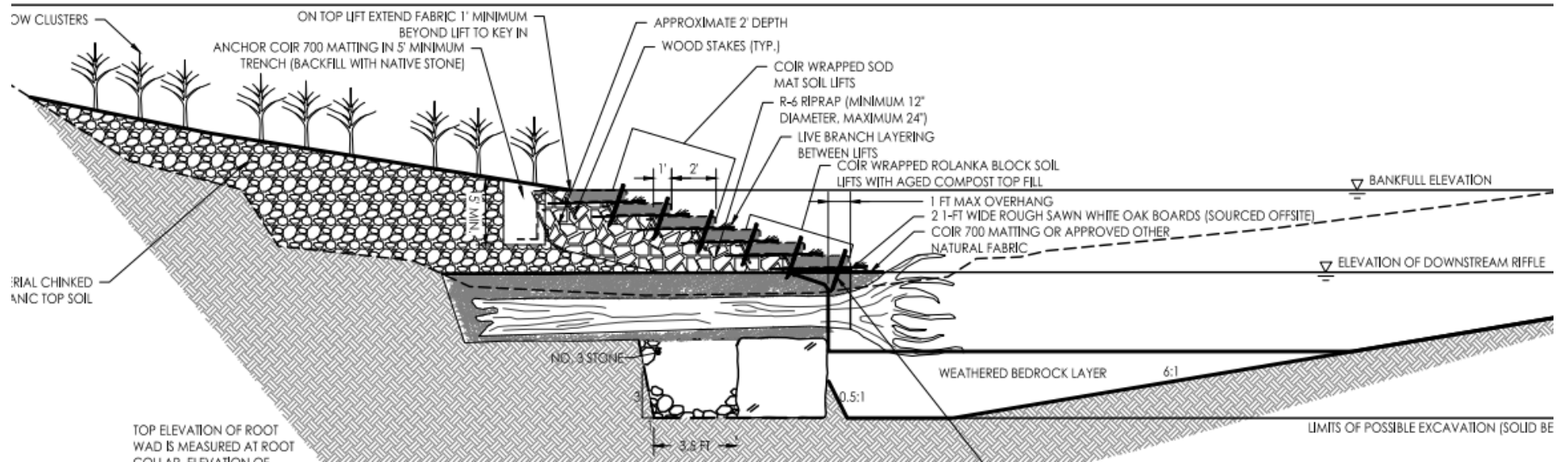




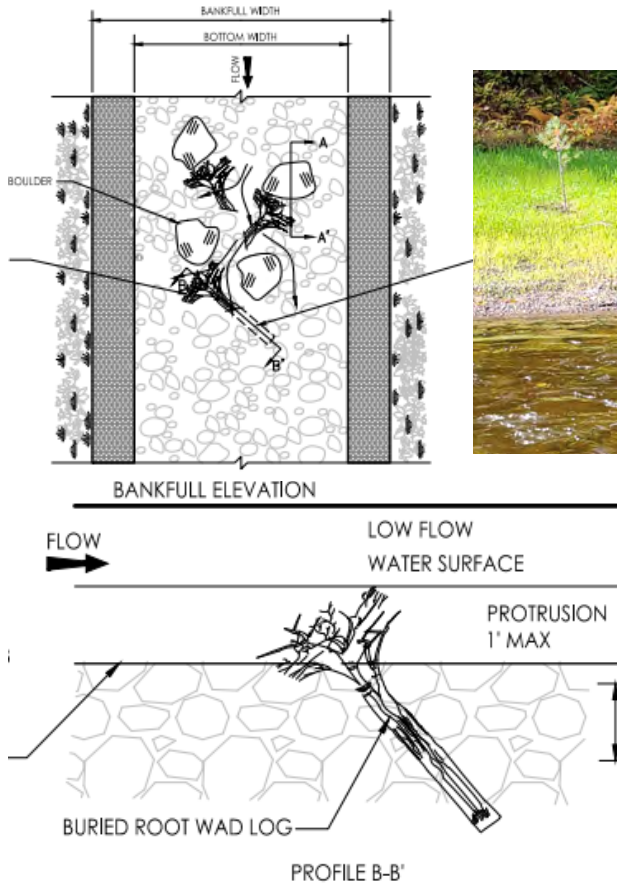
Root Wads



Undercut Rootwads



Boulder Cluster w/ Root Wad













10/22/20



10/3/20





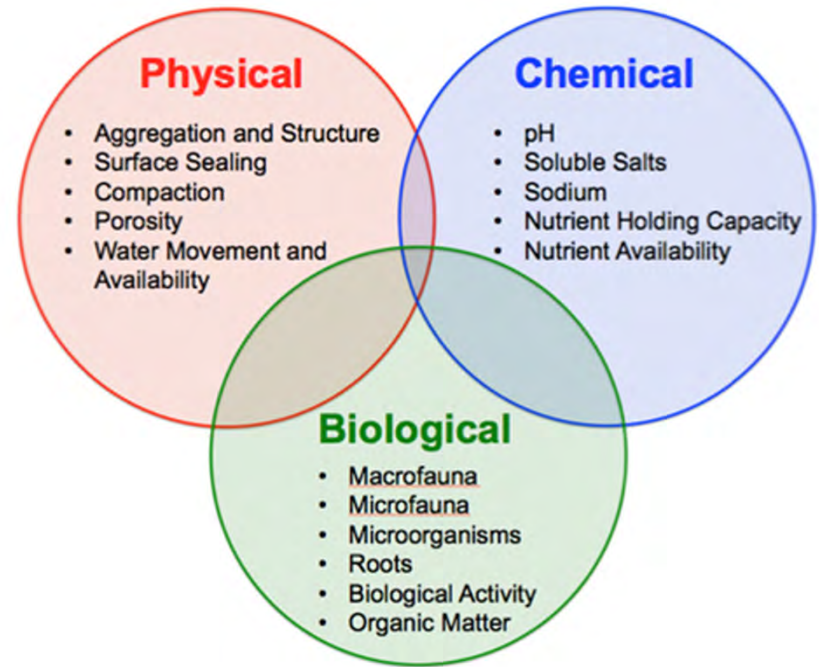
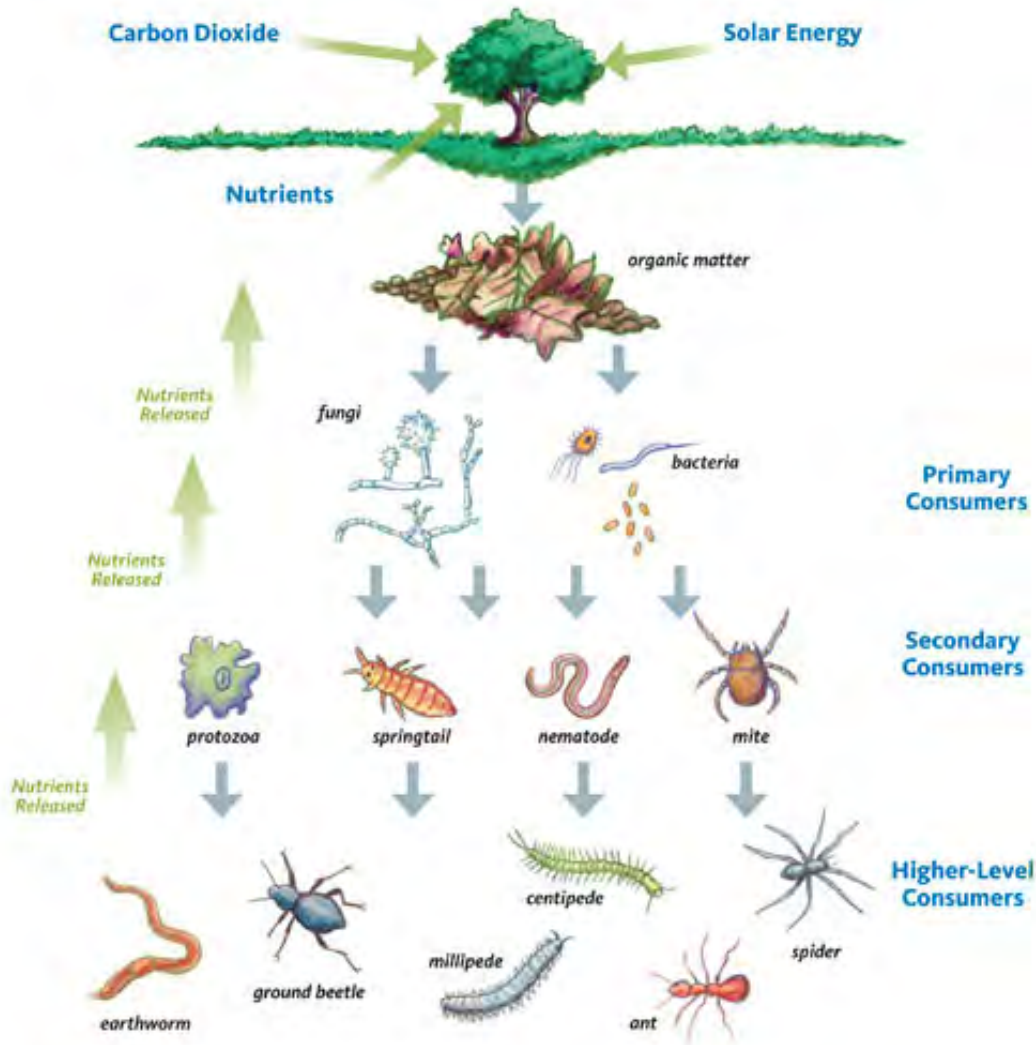
Buffers won't function if plants don't grow.

- **Herbivory**
- **Poor or Limited Soil**

Soil (or lack thereof)



Healthy Soils



“Soil Box” Experiment





Questions?

Flora and Fauna of Catskill Streams

