

An Introduction to Stream Wise

New York Citizens Advisory Committee

April 2024 Meeting



Bringing neighbors together to protect and restore healthy waterways across the Lake Champlain Basin

Presented By:

Lauren Jenness, Environmental Analyst
Lake Champlain Basin Program (LCBP)



What is Stream Wise?

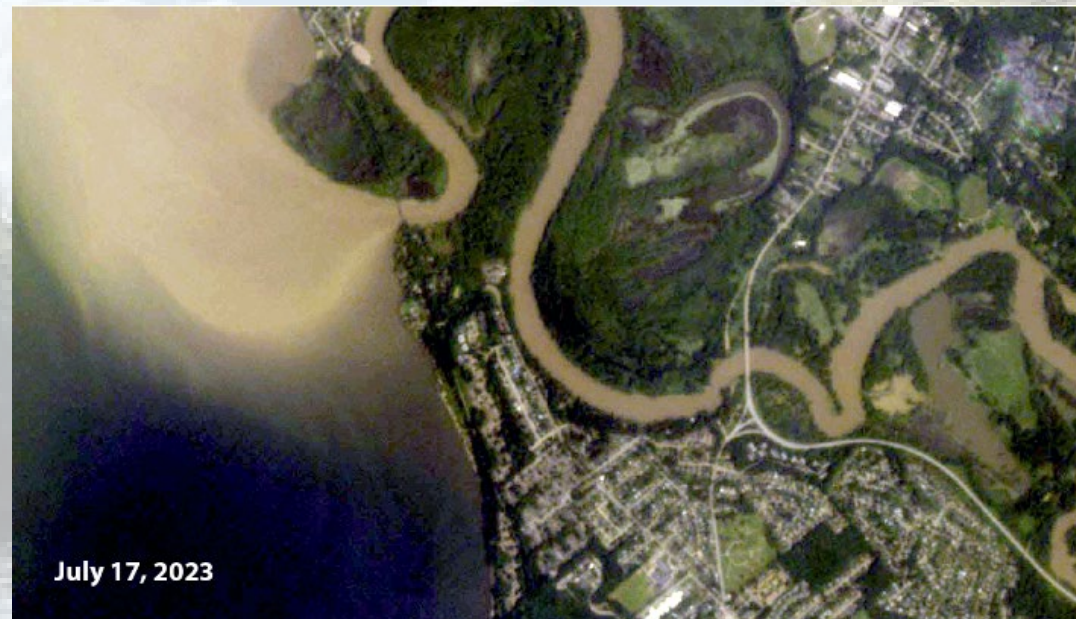
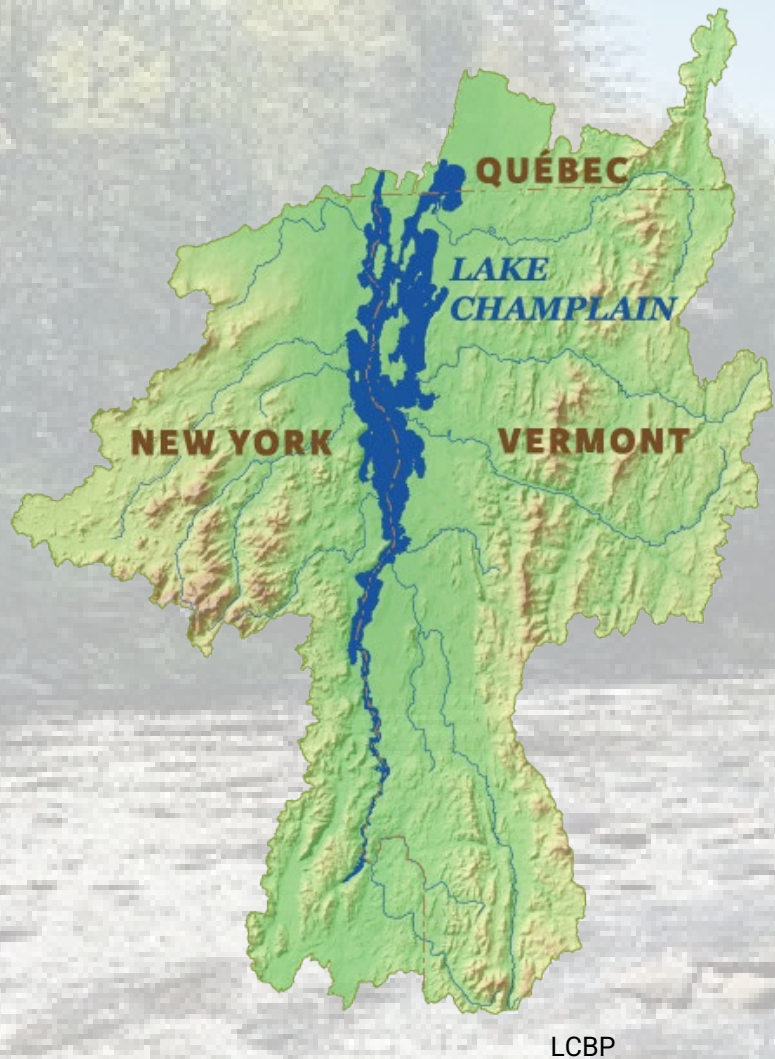
“**Inform** and **incentivize** communities within the Lake Champlain Basin to **engage** in activities that **enhance** and **protect** water quality, aquatic/riparian habitat, and increase flood resiliency.”



- Voluntary Award Program
- Targets residential properties
- Leverages social marketing using social media
- ***Awareness Campaign & Assistance Resource***



Rationale



Sediment at the mouth of the Winooski River. Credit: University of Vermont and Planet

A major storm like the July 2023 flood can send as much phosphorus downstream as an entire typical year.

Streambank erosion accounts for approximately 18% of the annual phosphorus load to Lake Champlain.

Stream Wise Process

Process



Local Outreach



Property Assessment



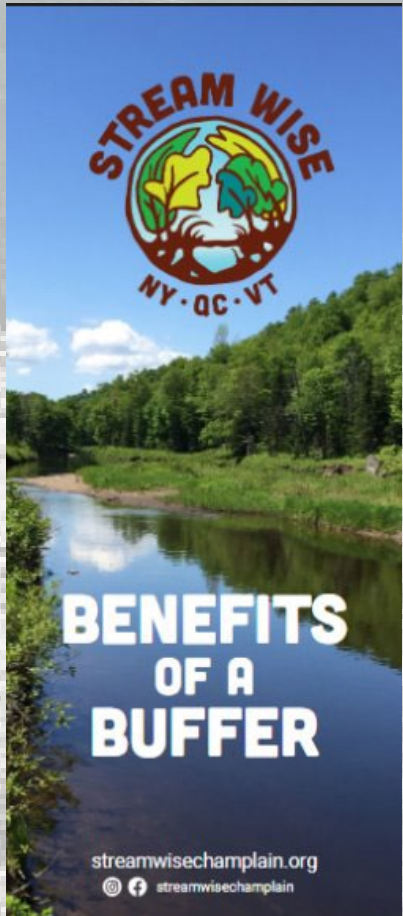
Certification & Award



Next Steps & Technical Assistance



Follow-Up & Reassessment

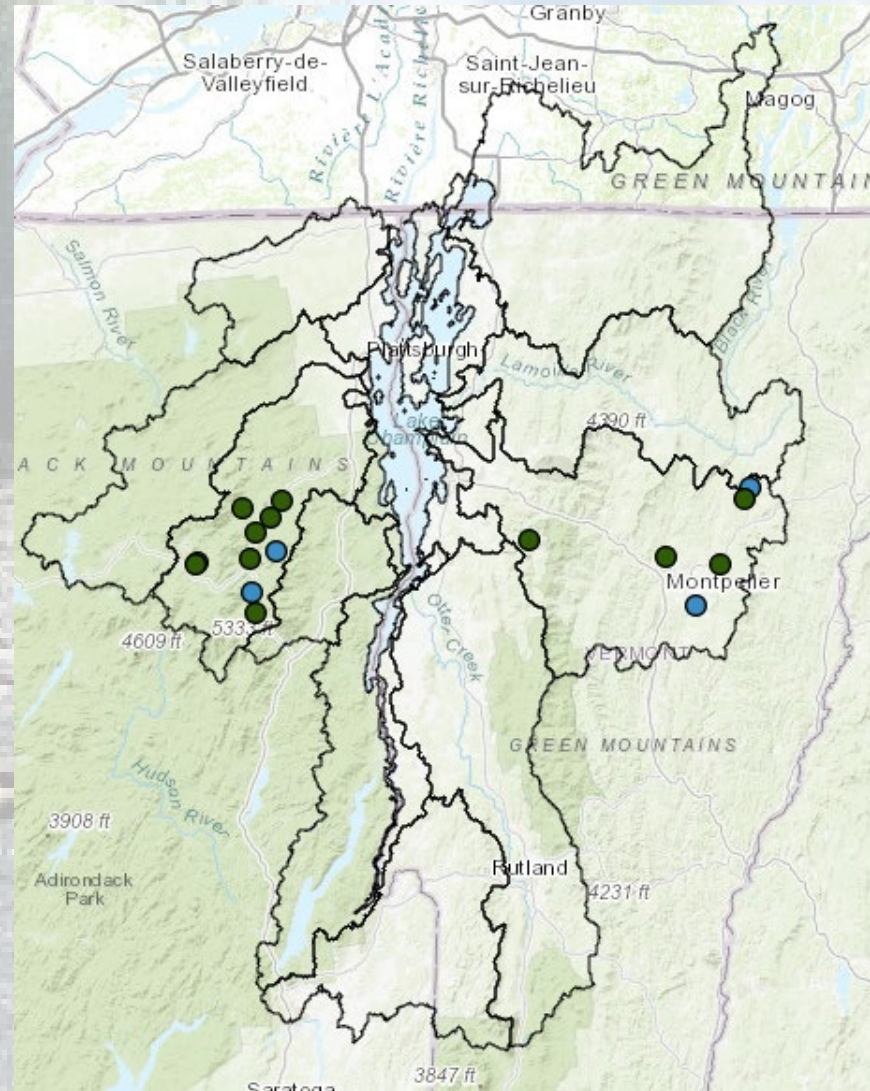


Our Stream Wise Community is Growing! 2022 – pilot year

2 Organizations
Participating

15 Stream Wise
Assessments
conducted

10 Stream Wise
Awards!

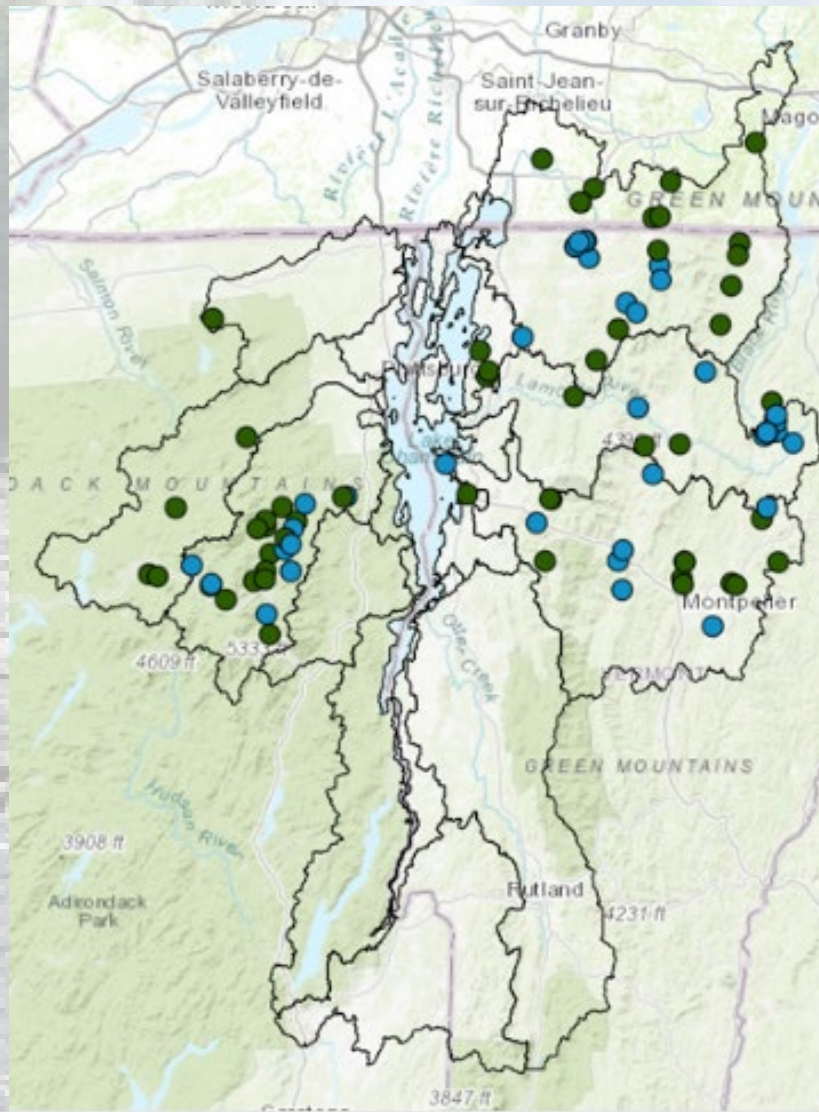


Our Stream Wise Community is Growing! 2023

10 Organizations
Participating

76 Stream Wise
Assessments
conducted

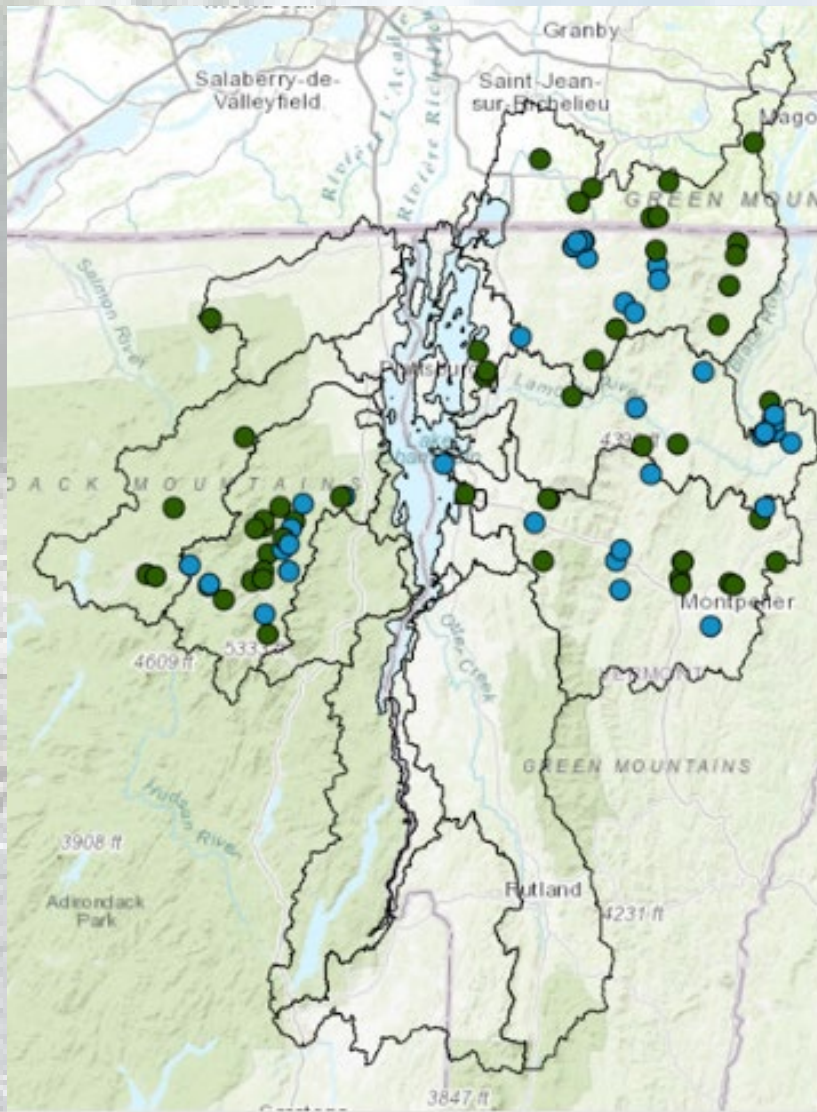
42 Stream Wise
Awards!



Our Stream Wise Community is Growing! 2024

13 Organizations
Participating

Plan to conduct
101 Stream Wise
Assessments!



What are we trying to create?

- 50' (or 30') wide stream buffer composed of native vegetation, supporting animal and fish habitats
- Multi-tiered tree canopy (or natural community such as a wetland) that slows down water during a storm with a strong root system that holds the streambank in place
- No (or minimal) impervious surfaces near the stream. Surfaces such as roofs, decks, driveways, and grass do not infiltrate water during a storm.

Before



After

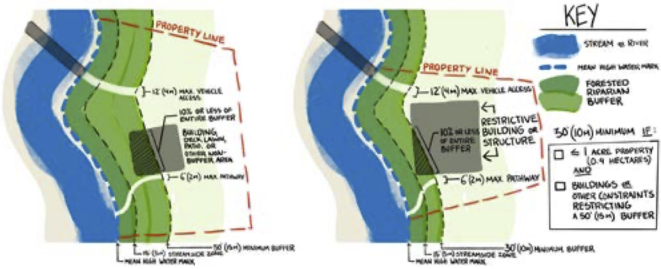


Site Assessments - Three Primary Criteria


 Field Visit Form: Property Assessment Tool Continued

1. Buffer Width

Meets Does Not Meet

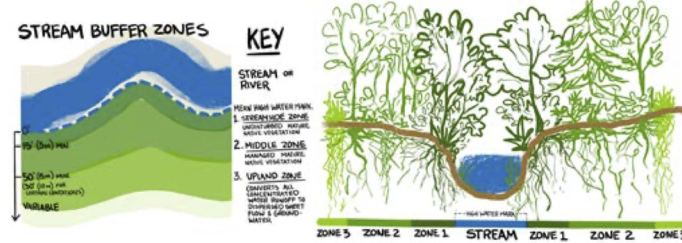


Criteria	Meets	Does Not Meet	NA
1a. There is a 50' (15m) minimum vegetated buffer OR 30' (10m) minimum if property is 1 acre (0.4 hectares) or less and has existing infrastructure that prevents a 50' (15m) buffer. See exceptions to the rule (p.3, Assessment Protocol).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1b. There is a maximum of 10% of the minimum buffer area that is in existing impervious or pervious development, including lawn, structures, decks, patios, or other non-naturally vegetated areas. This development is AT LEAST 15' (5m) FROM MEAN HIGH WATER MARK (not in the Streamside Zone). This 10% does not include access paths.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1c. All surface water runoff from developed areas within the buffer is captured and infiltrated or converted to dispersed sheet flow (not concentrated runoff points).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1d. Foot paths or stairs are 6' (2m) wide or less and are minimized (e.g., remove unnecessary paths).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1e. Vehicle access is 12' (4m) wide or less.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1f. Access points are pervious and infiltrating water or are hydrologically disconnected (all water runoff is diverted into vegetated areas, spread out, and infiltrated using switchbacks, water bars, crowned roads, turnouts, rock aprons, etc.).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

 Field Visit Form: Property Assessment Tool Continued

2. Buffer Zones

Meets Does Not Meet



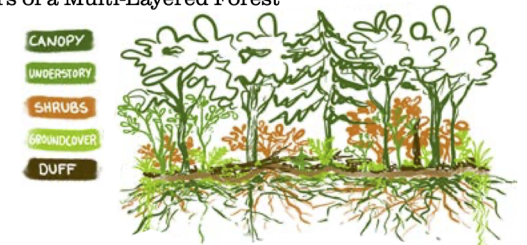
Criteria	Meets	Does Not Meet	NA
2a. Streamside Zone (min. 15' or 5m from mean high water mark): There is no disturbance, clearing, or development in this zone, except for access paths and some limbing up for views (3e). Vegetation has all natural community tiers (3a) present and provides a stable root system to hold the streambank soil and prevent erosion.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2b. Middle Zone (from Streamside Zone to min. buffer edge): There is limited human-caused disturbance (3d) and clearing in the Middle Zone (3e); 70% of canopy cover (or naturally occurring canopy cover) and vegetation below 3', including the duff layer, is maintained. Limited development is allowed in the Middle Zone, with a maximum area of 10% of the total buffer area.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2c. Upland Zone (beyond minimum buffer edge): Converts all channelized or concentrated stormwater runoff flows (pipes, rills, ditches, etc.) to dispersed sheet flow or groundwater through infiltration before entering the buffer area. Natural topography, vegetation, and stormwater management practices (rain gardens, infiltration trenches, vegetated swales, etc.) slow upland runoff, spread it out, and soak it into the ground.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2d. Streambank is stable. There is no erosion, channelization, or unnaturally bare soil caused by <i>upland runoff</i> above the mean high water mark. If there is erosion above the mean high water mark caused by in-stream/river flows (e.g., bank undercutting, scouring, sediment deposits), the property is still eligible for an award, but technical assistance is recommended to help restore and stabilize the streambank. Erosion occurring within the stream channel - below mean high water mark - is outside of the Stream Wise criteria. There is no hard-armoring (rip rap, retaining walls) that is not <i>also</i> stabilized with a strong and extensive root system underneath made up of woody vegetation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

 Field Visit Form: Property Assessment Tool Continued

3. Buffer Vegetation

Meets Does Not Meet

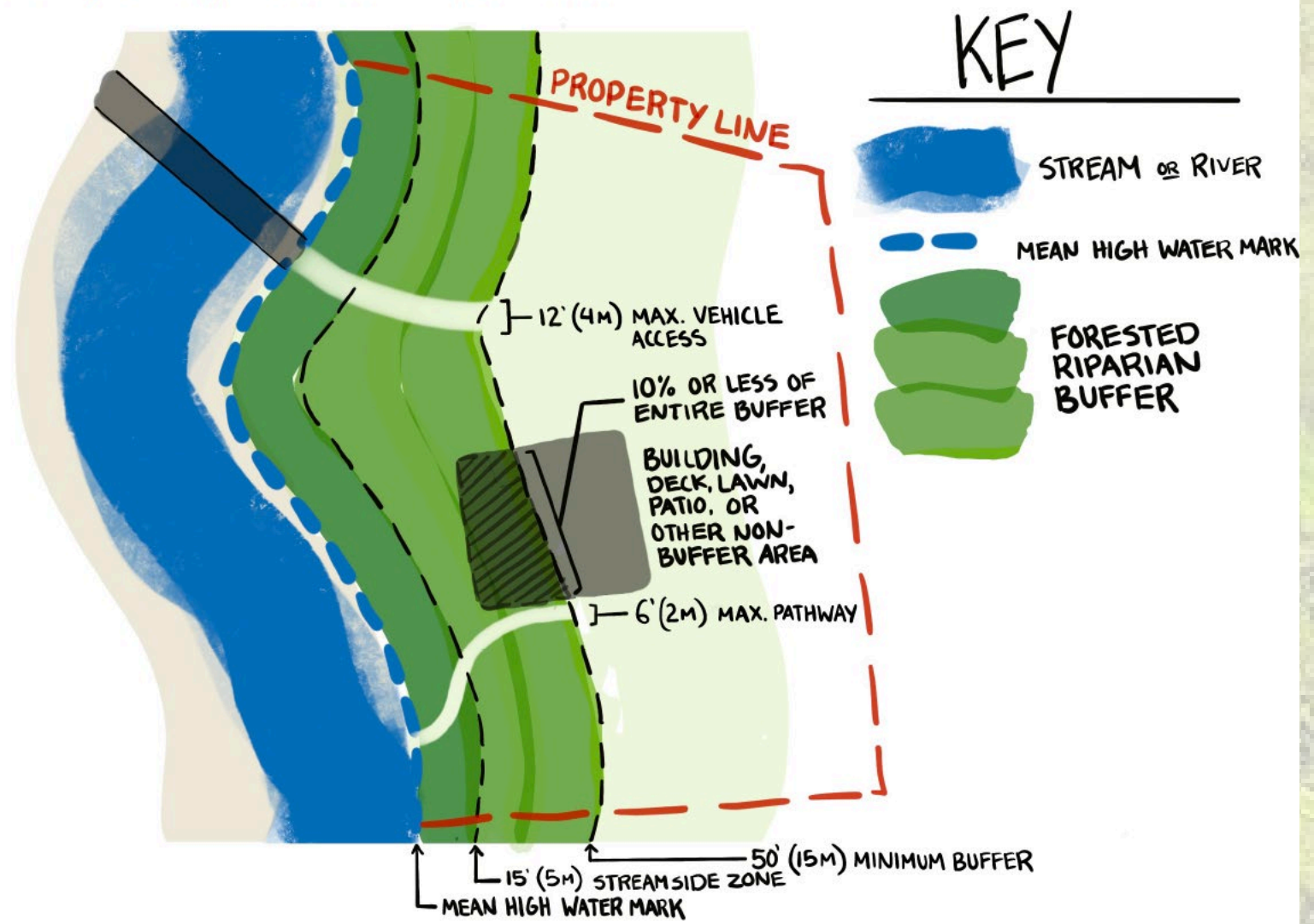
Five Tiers of a Multi-Layered Forest



Criteria	Meets	Does Not Meet	NA
3a. All vegetation tiers normally associated with the predominant local natural community are present, unless lack of vegetation tier is outside landowners control, e.g. deer grazing, microburst, or other natural causes. Some communities may not have all five tiers naturally present, such as an evergreen forest with little understory, wetland marsh/meadow, woody shrub swamp, rocky ledge with no duff, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1. Canopy Layer: Tall, mature deciduous and evergreen trees that create structure and canopy cover	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Understory Layer: Saplings/sufficient replacement trees (e.g., in the case of a dying canopy, ability of forest to bounce back) replacement trees, small understory trees and tall shrubs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Shrubs Layer: Low-growing deciduous and evergreen woody shrubs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Groundcover/Herbaceous Layer: Herbaceous vegetation (perennials, annuals, biennials), including native grasses, sedges, flowers, ferns, and mosses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Duff Layer: Organic material on forest floor – leaves, twigs, dead plant material, woody biomass, mushrooms, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3b. Native plant species comprise 75% or greater of the buffer area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3c. Invasive species comprise 25% or less of the buffer area. (Remove invasive species physically where possible, seek technical assistance for other solutions)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3d. Limited cutting for views and firewood/coppice is allowed in the Middle Zone, but not the streamside zone; Limbing up trees for views is allowed in both zones, e.g., prune lower 1/3 of branches instead of cutting tree or topping tree - leave branches on the ground. There is a minimum 70% or naturally occurring canopy cover. There is no removal of vegetation (or duff) below 3' (1m) (removal of hazardous trees is allowed)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3e. There is no pesticide or herbicide use on the property unless recommended by a professional to remove invasive species	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

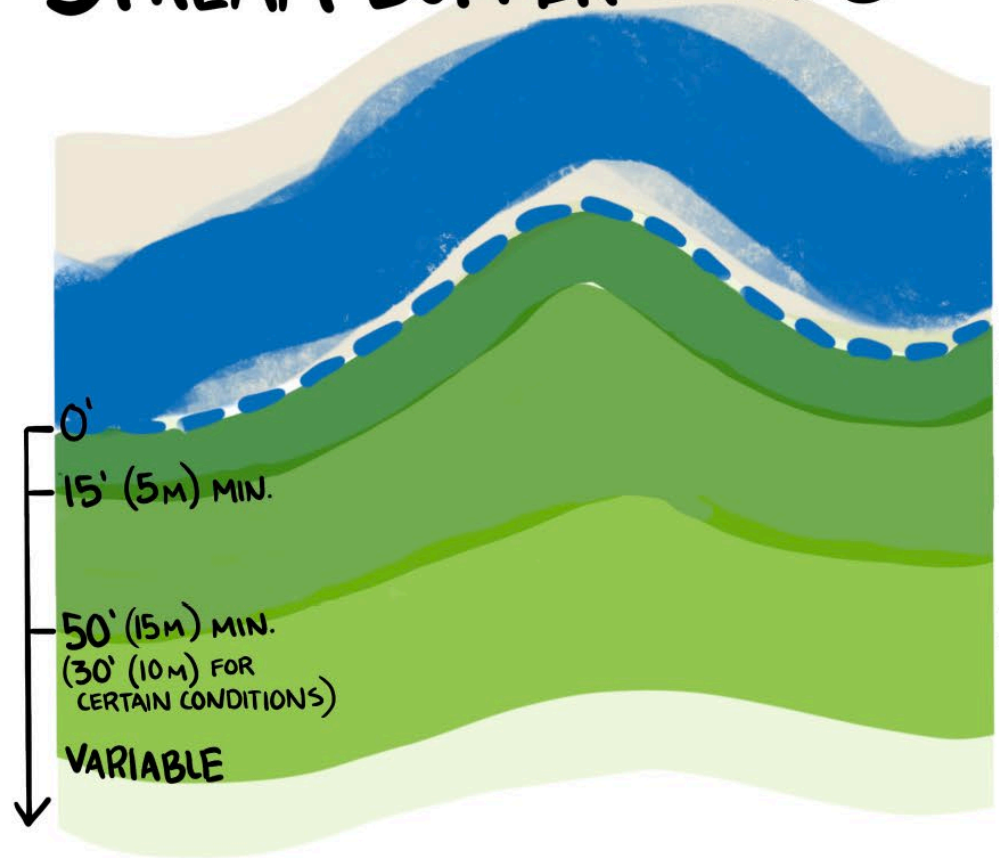
Buffer Width

50' (15m) Buffer Minimum



Buffer Zones

STREAM BUFFER ZONES

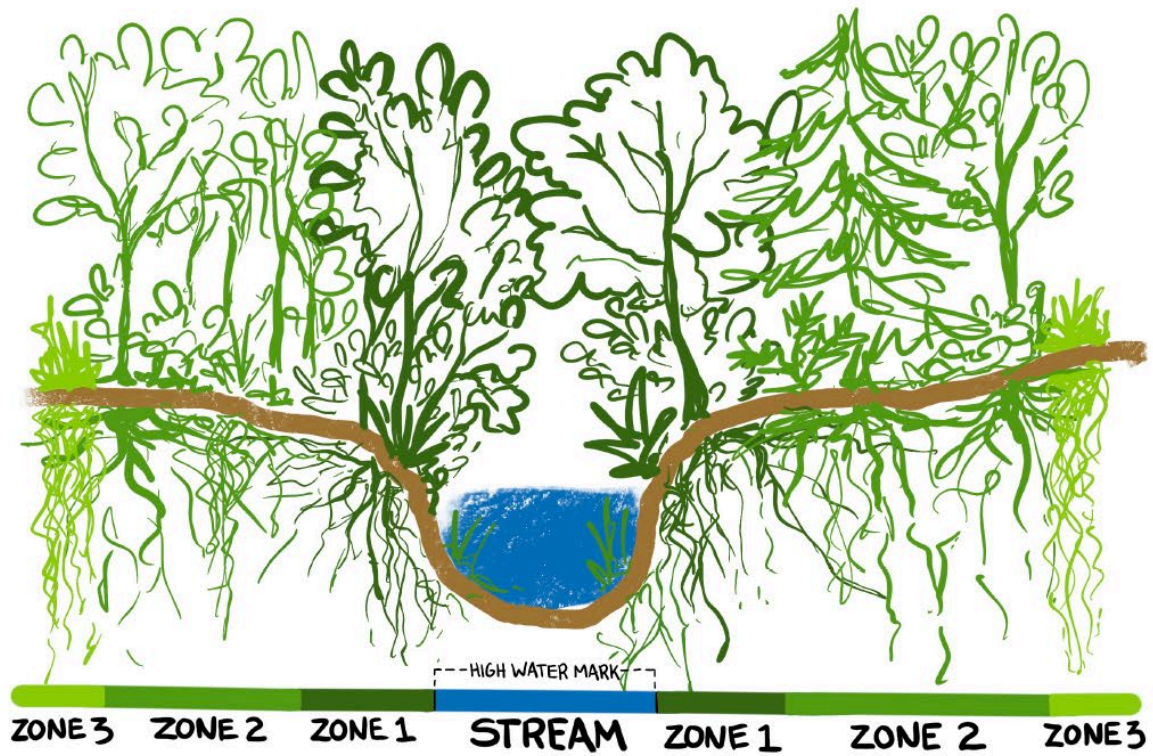


KEY

STREAM OR RIVER

MEAN HIGH WATER MARK

- 1. STREAMSIDE ZONE
UNDISTURBED MATURE NATIVE VEGETATION
- 2. MIDDLE ZONE
MANAGED MATURE NATIVE VEGETATION
- 3. UPLAND ZONE
CONVERTS ALL CONCENTRATED WATER RUNOFF TO DISPERSED SHEET FLOW & GROUND-WATER



Buffer Vegetation



Landowner Follow-Up



Helping to protect waterways, properties, and stream communities.



Thank you for participating in Stream Wise. You are a valuable part of your stream community!

Your Report is on the way.

Evaluator: _____


Organization: _____

Date: _____

Buffers are better together. Share Stream Wise with a neighbor!



streamwisechamplain.org



Stream Wise Report

Thank you for participating in the Stream Wise Assessment. You are a valuable part of your watershed!

Solutions Buffer Width

Stop Mowing and Adopt a 'No Mow' Zone, Prevent Invasive plant species.

Basics:
The simplest way to establish a Riparian Buffer is to stop mowing and/or remove development from the buffer to allow vegetation to grow. If this is the method used to re-vegetate a riparian buffer, invasive species must be managed and not allowed to take over. Areas that have been disturbed (e.g., compacted soils, areas with fill, lawns treated with herbicides, eroded soils) and areas that have significant invasive species presence nearby are high risk for invasive species

Benefits:

- Naturally stabilizes stream bank
- Filters runoff
- Increases privacy
- Prevents erosion
- Creates shade for fish
- Reduces damage to your property

Review Stream Wise Criteria

Buffer Width

- Is buffer wide enough?
- Is there the maximum allowed developed area in the buffer?
- Is all surface runoff from developed areas in the buffer managed?
- Are access paths minimized?
- Are vehicle access points minimized?
- Are access points hydrologically disconnected?

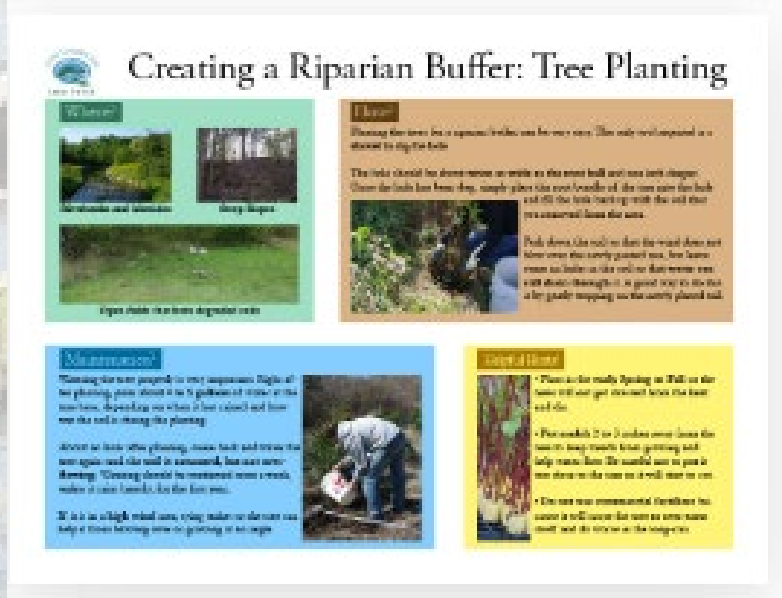
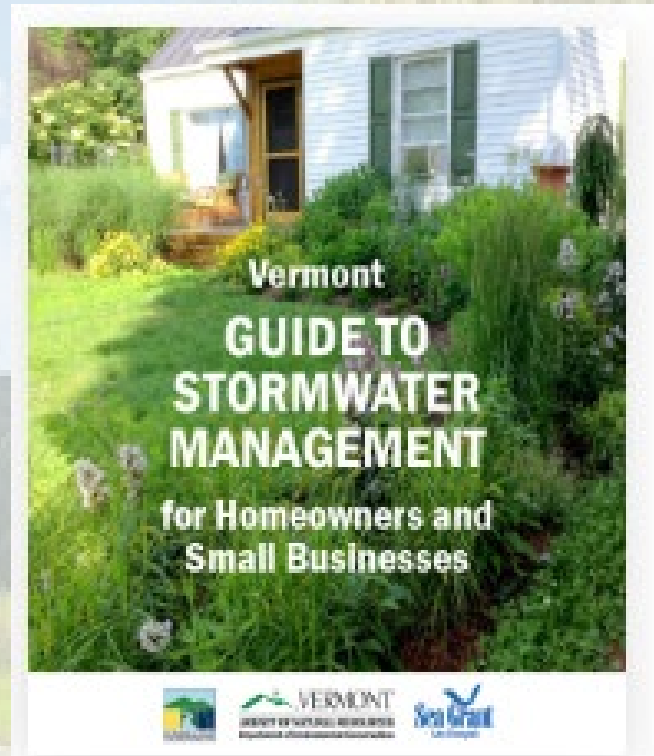
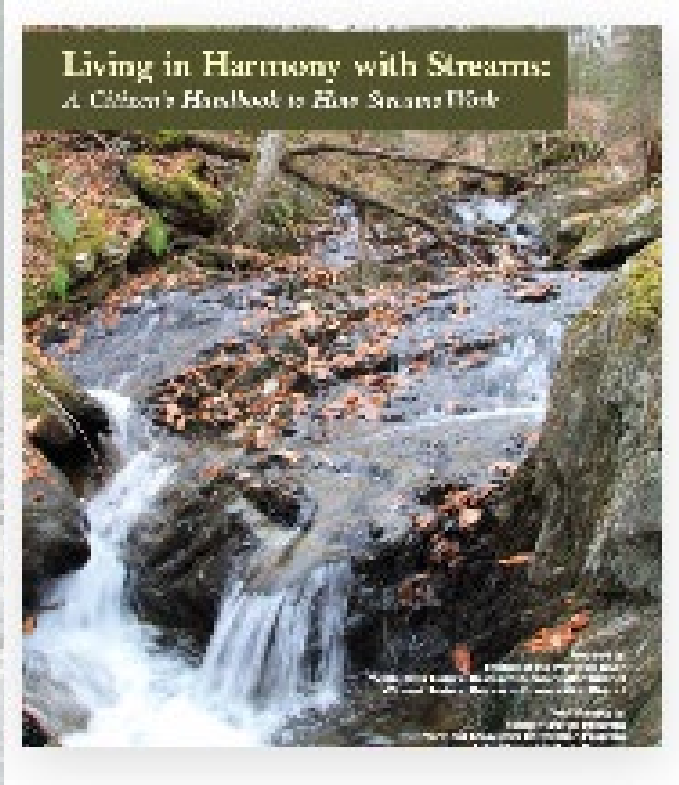
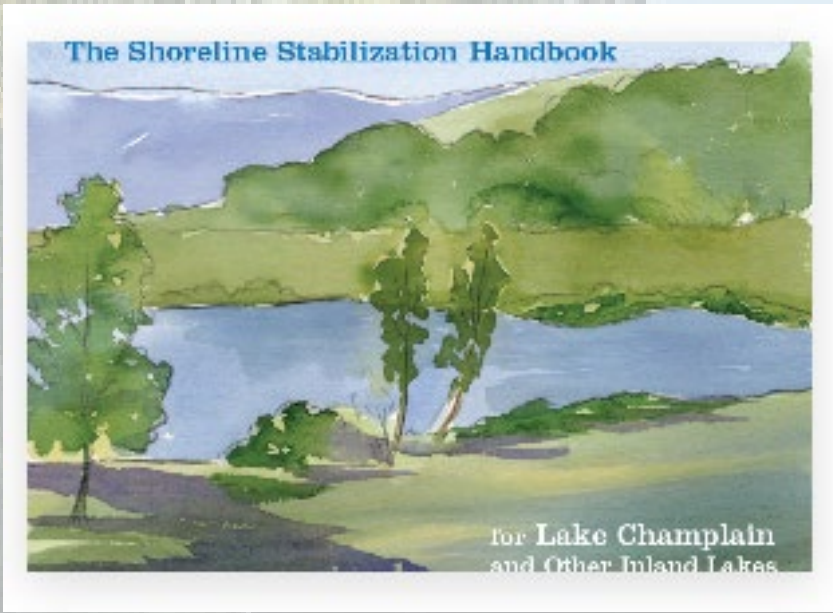
Buffer Zones

- Does the Streamside Zone match the Stream Wise description?
- Does the Middle Zone match the Stream Wise description?
- Does the Upland Zone match the Stream Wise description?
- Is the streambank stabilized above mean high water mark with woody vegetation?

Buffer Vegetation

- Are all natural vegetation tiers present?
- Do native plant species comprise 75% of buffer area?
- Do invasive species comprise 25% or less of buffer area?
- Is clearing limited? Is naturally occurring canopy cover and vegetation/duff below 3' maintained?
- Are no pesticide or herbicides used? (unless recommended by a professional for the removal of invasive species).

Online Resources



Be Stream Wise - 8 Steps for Streams



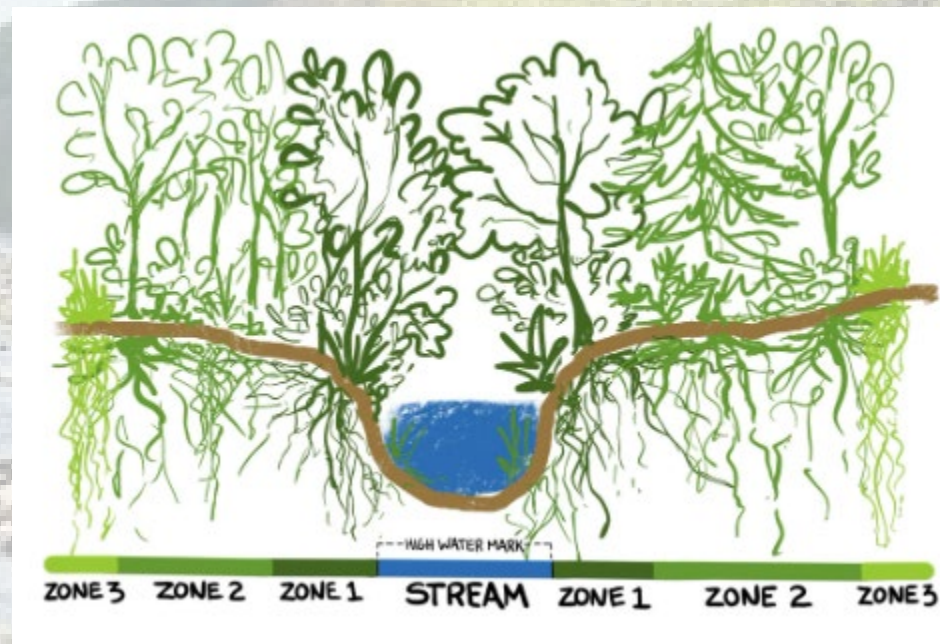
1) Widen your vegetated buffer

The wider the natural vegetation along a stream or river, the better for water and wildlife. Ways you can do this are to stop mowing and let vegetation grow, plant native species, and mark off the area or fence plantings to protect from disturbance.

Be Stream Wise - 8 Steps for Streams

2) Do not disturb buffer vegetation

Natural vegetation near rivers and streams, including dead plant material, provides numerous benefits to water, wildlife, and flood resilience. Let your native buffer grow wild, especially within 15' of your stream, but ideally within 50' or more – no mowing, weed whacking, raking, or removing woody debris. Leave the 'duff' – leaves, twigs, and other organic matter on the ground – it soaks up water, prevents erosion of soil, and build soil organic matter to support nutrient cycling and plant health.



Be Stream Wise - 8 Steps for Streams

3) Plant diverse multi-layered native vegetation

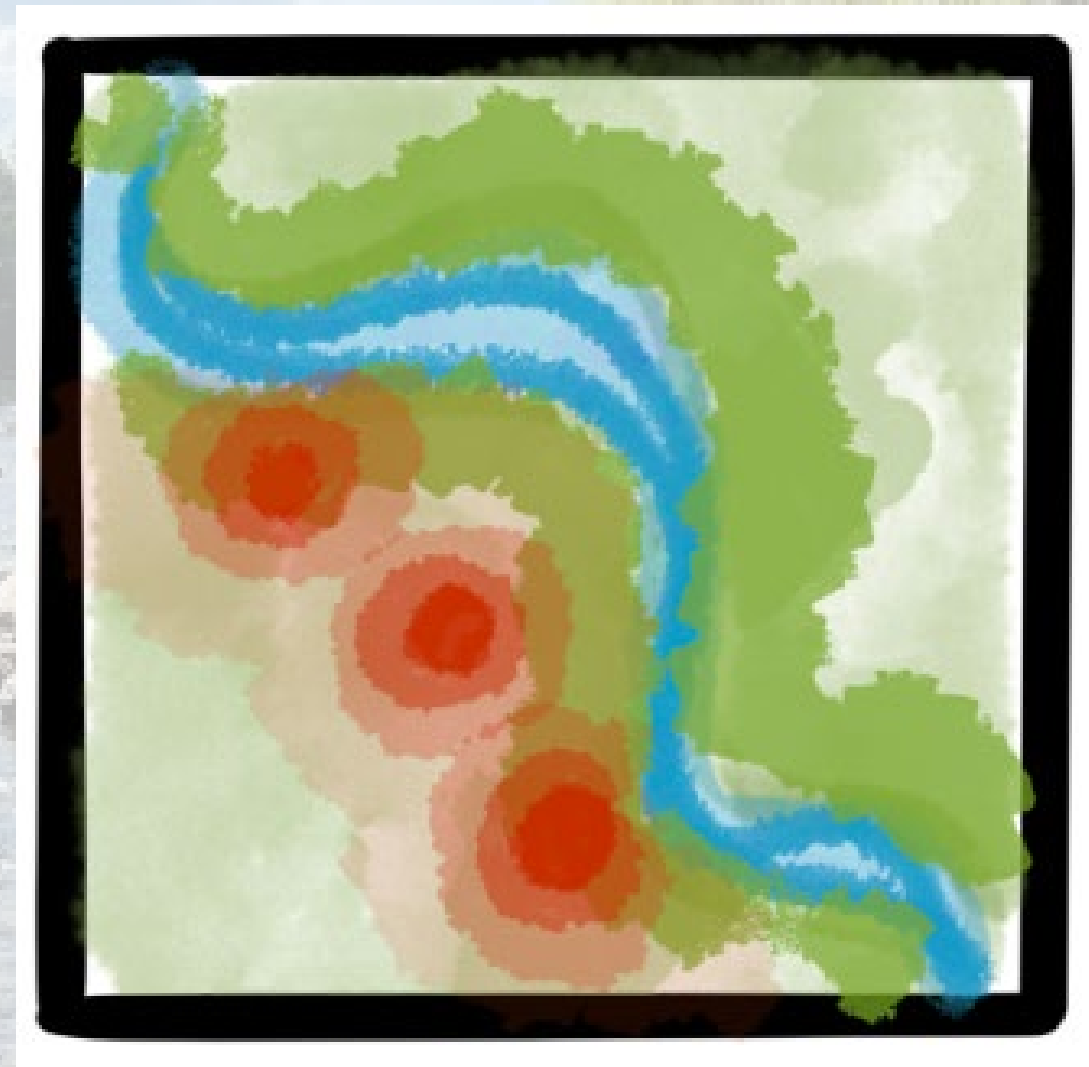
Plant trees, replacement trees/saplings, shrubs, and herbaceous perennials (flowers, grasses, ferns) to mimic natural plant communities and maximize diverse rooting systems and habitat niches. Prioritize regionally native plants – check out native plant resources and nearby undisturbed streamside plant communities for inspiration. Select local nurseries that grow natives themselves and are pesticide-free.



Be Stream Wise - 8 Steps for Streams

4) Remove or contain invasive plants

Invasive plant species outcompete native species, create a monoculture that does not stabilize streambanks as well, and do not support wildlife. See info on individual invasive species for best removal tactics. The 'island' removal method is shown here, focusing removal efforts on the most dense areas, and then working outwards.



Be Stream Wise - 8 Steps for Streams



5) Maintain your view and timber resources and protect vegetation

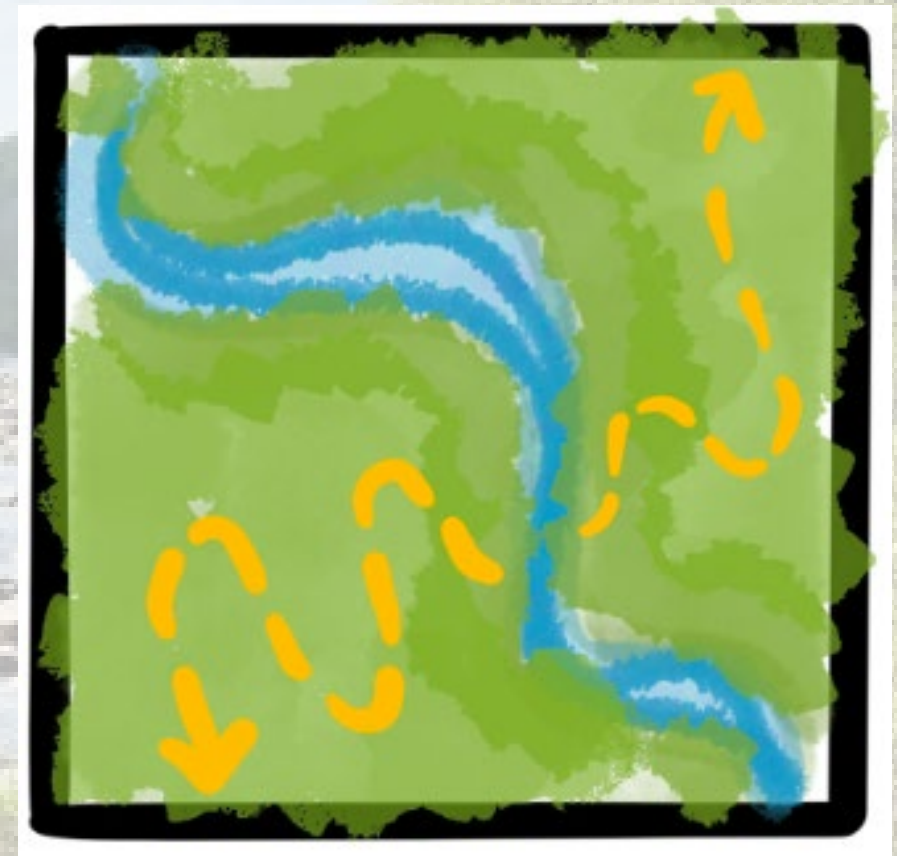
If necessary, practice selective cutting within the buffer, but no closer than 15' to your stream.

Instead of cutting entire trees for a view, limb up and cut the bottom 1/3 of branches to open up view windows and frame your beautiful view! Timber harvest only in dense stands of forest. Do not remove anything below 3' to protect streambank stability and prevent land loss.

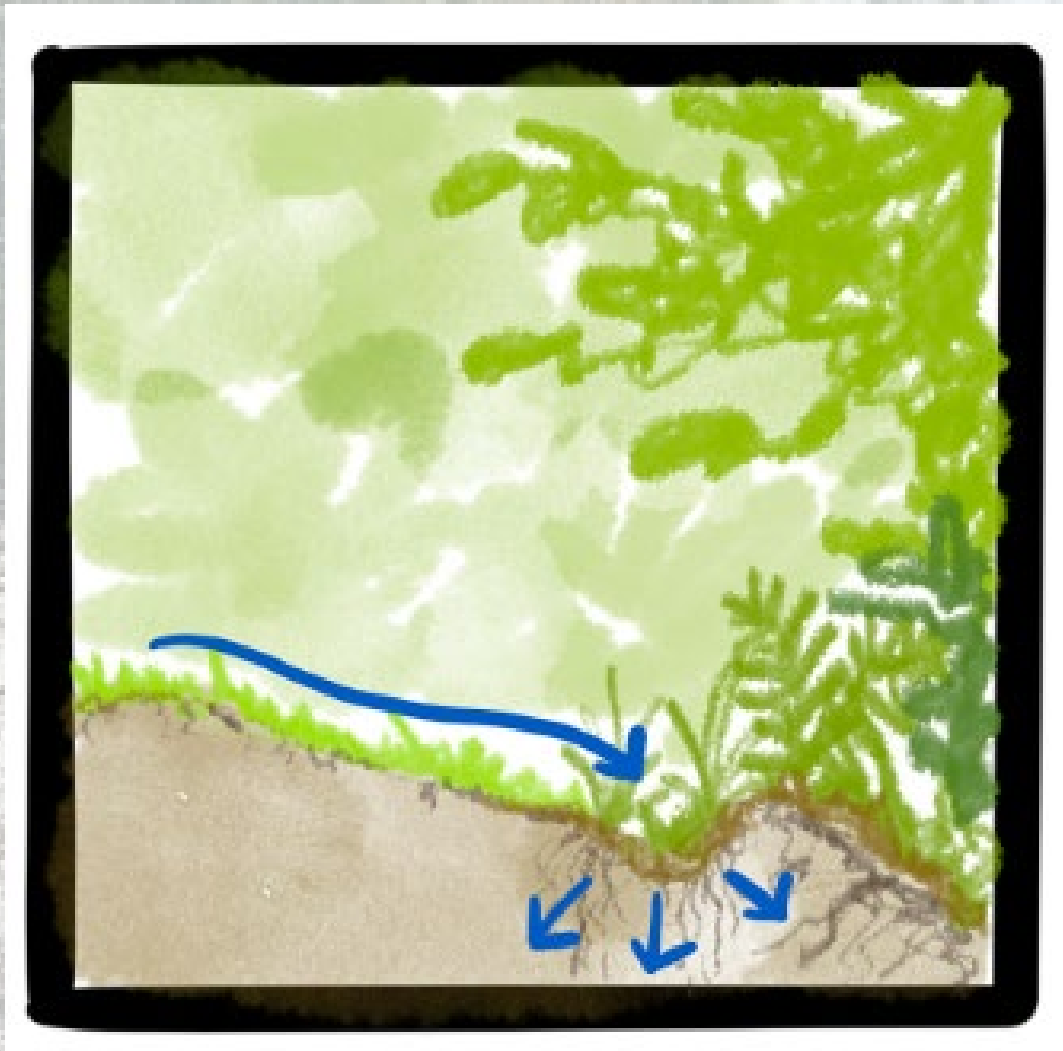
Be Stream Wise - 8 Steps for Streams

6) Minimize and plan for pathways

Stream access is important to enjoy the beauty and benefits, but wise access is even more important! Prevent erosion and gullies created by straight pathways down a slope – make pathways run across contour (e.g., switch-back paths), divert water runoff with water bars, and make pathway material pervious.



Be Stream Wise - 8 Steps for Streams



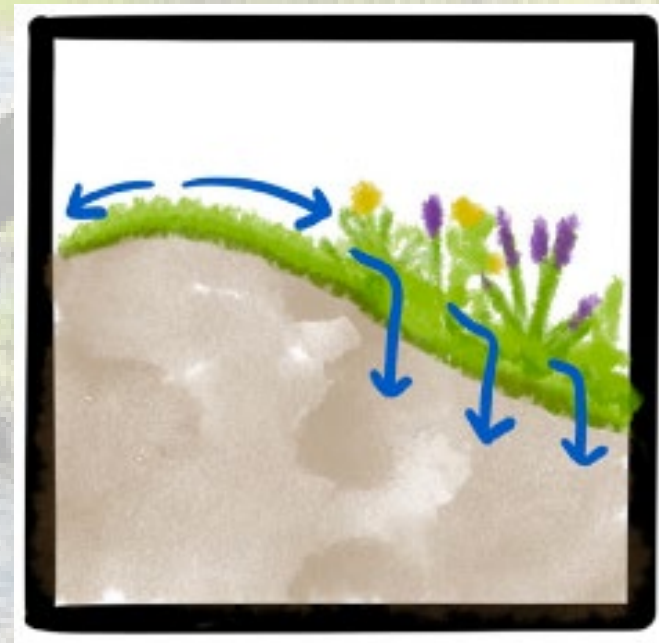
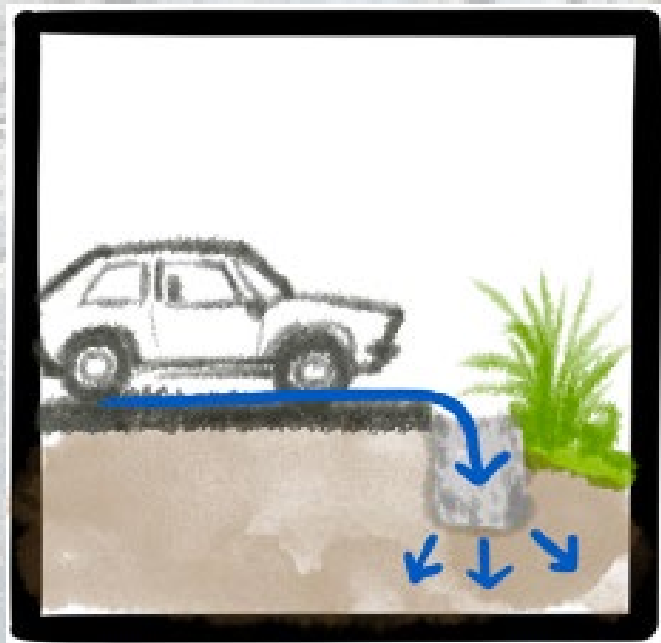
7) Capture and soak water runoff

Direct water runoff from lawns, decks, patios, pathways, and other impervious or semi-impervious areas in the buffer to vegetated areas that can slow water down, hold it, and allow it to soak in slowly, thereby filtering water and preventing erosion and pollution from entering your stream! Green infrastructure practices such as vegetated swales, infiltration trenches, and rain gardens can be used to treat water runoff and protect our vital water re-sources.

Be Stream Wise - 8 Steps for Streams

8) Convert channelized runoff to dispersed sheet flows

All water runoff reaching the vegetated buffer should be dissipated into sheet flow and not concentrated to protect the buffer from erosion and maximize its efficacy. Meadow filter strips, vegetated swales, rain gardens, dry wells, infiltration trenches and basins, level spreaders, and other green infrastructure practices can be used to achieve this.



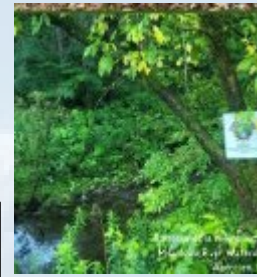
What participants have said:



"For us, It took a couple of hours of my time. That's really that's all it took. And I learned something"
– Rich, Saranac, NY

"It was a pleasant experience, and it was good to know that we were living within the margins of keeping the property natural. And that that's important to us"
– Dawn, Saint-Ignace, QC

"It's been lovely to work with real experts. Before, we were just kind of looking on the internet and doing all we thought was best. But to have people who are as expert and as nice, it's really a pleasure to work with them."
– Sarah, Au Sable Forks, NY



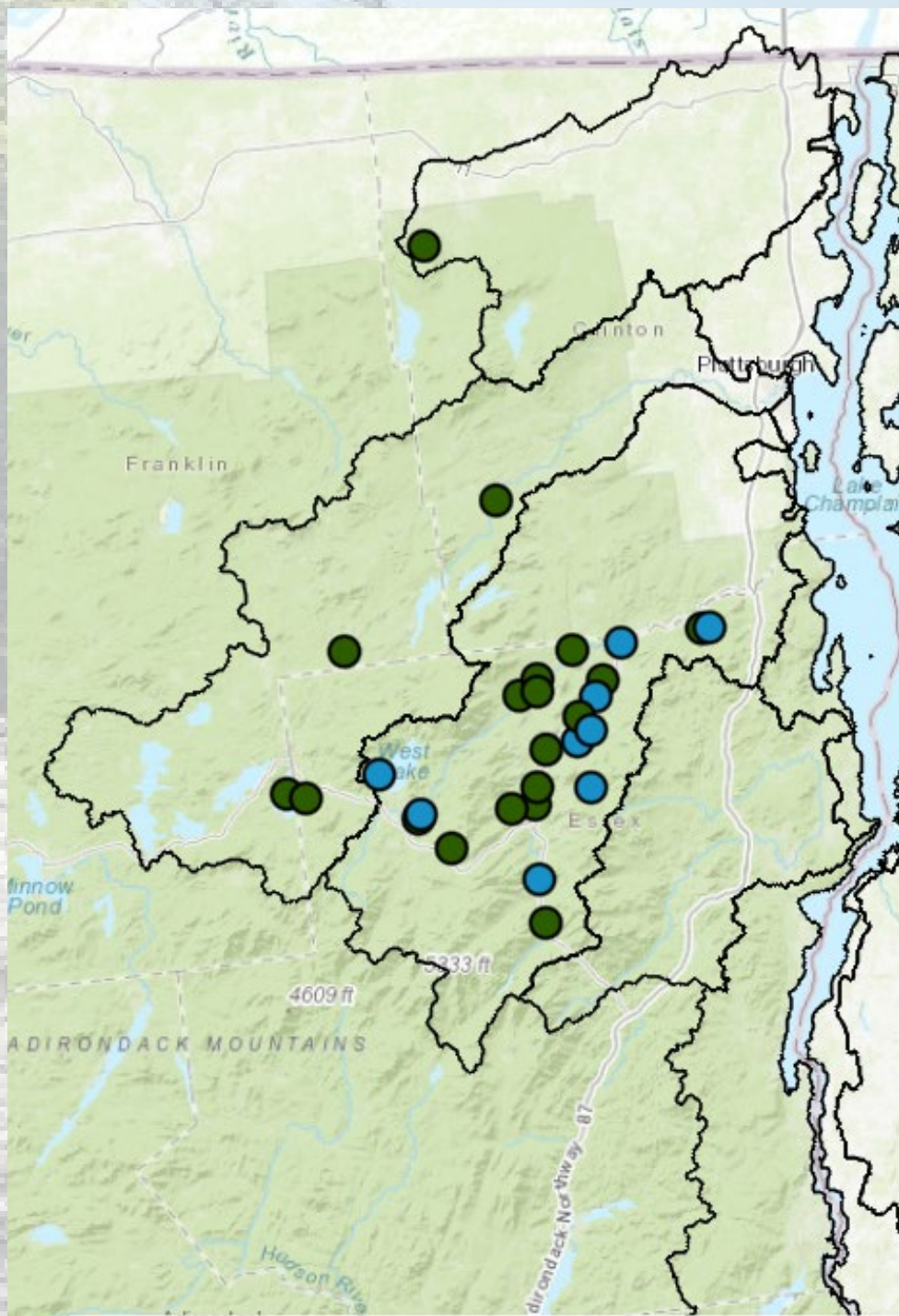
"Mel was super pleasant and lovely to walk the land with. It was an enjoyable experience and it's nice to know things that are working well and one area of concern".
– Annette, Richford, VT



**"The assessment went very well;
We enjoyed a good walk in the woods!"**
– John, Marshfield, VT

"The staff were very nice and professional. I always value field verification and felt the staff did a good job of that"
– Richard, Vermontville, NY





YOUR

Stream Wise Assessors:

- Ausable River Association (7-8)

Carrienne Pershyn

Liz Metzger

Krista Kennedy

AsRA River Steward

- Paul Smith's College AWI (5-7)

Bill Brosseau

Tom Collins



THANK YOU!

QUESTIONS?

Streamwisechamplain.org

