

Testimony of Rose Paul, Director of Science and Freshwater Programs

The Nature Conservancy in Vermont

February 6, 2019

VT House Natural Resources, Fish and Wildlife Committee

### **Ecosystem Services of River Corridors and What Happens When Things Go Wrong**

Shane Jaquith's testimony ended on this note: *If we are to solve our water quality problems, increase our flood resiliency and foster robust fish and wildlife habitats, we absolutely have to protect our river corridors.*

On January 18, 2019, I presented testimony to this committee on the ecosystem services that rivers and their floodplains provide. Collectively this area is called the river corridor. As a review, healthy, functioning and connected river corridors provide ecosystem services to people and communities. They offer flood protection to downstream properties if they are allowed to spill out onto undeveloped floodplains. They filter pollutants out of our waters when the sediment carried by floodwaters settles onto the floodplain instead of being carried downstream. They are highly productive fish and wildlife habitat. And they provide a host of recreation opportunities and scenic beauty that enhances our lives. Our recent research, done in collaboration with UVM's Gund Institute, shows that restoring floodplains in strategic, targeted places can help reduce damage to downstream properties, with a benefit to cost ratio of 5:1. The value of averted property damage downstream outweighs the cost of restoring the floodplain upstream by 5:1.

Shayne clearly laid out how a river functions in its natural condition. Many of our rivers have been destabilized by unwise management activities that have been occurring for over 200 years. This has created the present situation where we have come to think of rivers as harmful places, or sometimes just nuisances, and we keep trying to pin the river in place with large stones called riprap. We don't want or expect the rivers to move from exactly where they are today, and we rush to put the river back in its place after a major storm when it changes its course. The thing we have to come to terms with is that the river will keep jumping its course over time, and rivers will do so more often and more drastically with climate change and increasing severe storms.

So we are learning to be fearful of our rivers, and at the same time, we have a love affair with our rivers. People want to live near them and have a view of them, and often we build too close to our rivers. Shayne has explained why armoring the river in place is a losing proposition.

I'd like to give you two recent examples of the cost to society – to taxpayers, homeowners, the safety risk to emergency rescue volunteers, and the hassle for local communities – when rivers do what comes naturally to them. There are positives that come out of this turmoil too. As a society, we are learning.

## Property Buyouts

Plainfield Residence removed 2017. Information and photo from the Barre-Montpelier Times Argus 2016 and 2017

During the flash flood storm of May 2011, a home on Cameron Road in Plainfield, VT owned by a private individual lost about 30 feet of its backyard to erosion. This left the home and its garage perilously close to falling into the brook, about a 75-foot drop. (*Picture from the Times Argus in 2016*) This home was built on a small, grandfathered lot that abutted Great Brook, a notoriously erosive brook that took out two houses in the 1980s.



*Photo credit: Barre-Montpelier Times Argus 2016*

This became a buyout using US Housing and Rural Development funds, which normally pays for 75 percent of the cost of buying the home while the homeowner is on the hook for the remaining 25 percent. The homeowner had declared bankruptcy and the town bought out the house, then worked with regional officials to complete the removal. The house was assessed at \$208,300. Ultimately the town was only on the hook for \$2,000 in removal costs. A septic tank and a utility pole also had to be removed.

The house was built in 2008 and the house was removed in September 2017 after two years of town officials working through the process. The land was considered too dangerous to turn it into a pocket park. Plainfield already had restrictions about no building in a flood zone, but not in a fluvial erosion hazard zone, which Plainfield has since adopted.

Northfield FEMA Buyouts in 2017. Information and images courtesy of presentation by Milone and MacBroom February 2019.

In 2017 the Town of Northfield and the Friends of the Winooski River, using FEMA funds, bought out eight houses in the village of Northfield that had been damaged by Tropical Storm Irene. These older

residences were located on Water Street in Northfield and were near the Dog River. While they had been there for a long time, rivers move over time and in really big storms, our attempts to pin the river in place fail. The Town had a very competent official, Michele Braun, who is widely recognized for her hard work and persistence to make this happen. The project engineers were Milone and MacBroom Inc. The homeowners were willing participants and in fact two additional houses are still in harm's way because the owners didn't want to be bought out. Our Vermont villages have many properties in this situation, and we need to do what we can to help the owners. But it is important to prevent new development from creating similar burdens on tax payers, such as the Plainfield example. In Northfield, these eight adjacent house lots are now a town park. Images below are courtesy of the consulting engineer on this project, Milone and MacBroom Inc. who has an office in Waterbury. Please see photos at end of this testimony.

### 2017 Study Of Compliance With Municipal River Corridor Zoning

In 2017 The Nature Conservancy partnered with the Conservation Law Foundation to sponsor a graduate student to investigate the question: are Vermont towns that have adopted river corridor zoning less likely than towns without such zoning to have new development in floodplains? And if a town has adopted river corridor zoning, does it do a good job of enforcing the zoning, or is there still development occurring in river corridors?

The student Matthew Halladay examined 30 towns, all affected by Tropical Storm Irene, 15 of which had adopted some form of river corridor zoning, and 15 of which had not adopted this zoning. Matt found that development in river corridors was indeed occurring less often in towns with adopted river corridor zoning. However, even in towns with adopted river corridor zoning, he found that 66 structures had been built in the river corridors since TS Irene. In towns with no such zoning, 133 structures had been built (time period 2011-2016.) Please see policy brief from 2017 on this study.

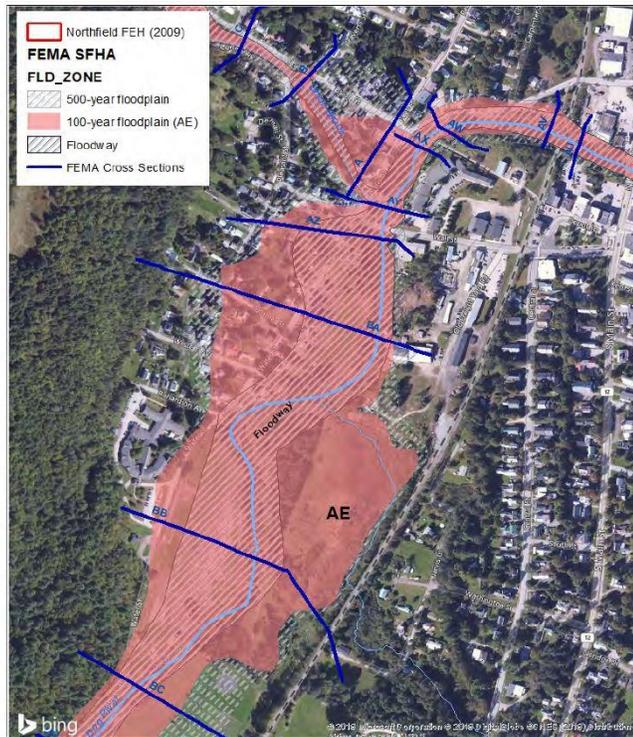
### Summary

In conclusion, rivers and river corridors are vital parts of the Vermont landscape that support our lives with the services they provide. When we interfere, mostly unknowingly, with how rivers function, this will come back over time to hurt our communities and property owners. Unstable rivers don't support healthy fish and wildlife habitat either. Phil is going to wrap up our testimony with our recommendations for how to legislatively address this challenge.

## FEMA Floodplain

Homes along Dog River in Floodplain Flooded during Irene and other storms

MILONE & MACBROOM

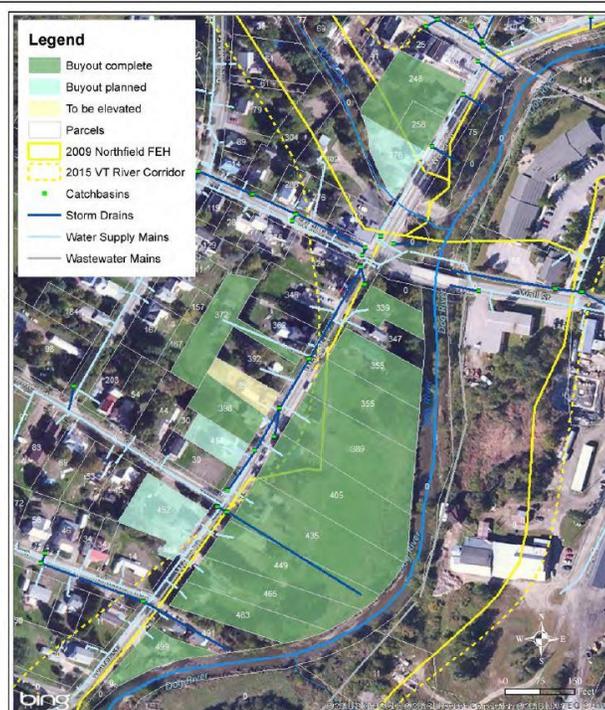


Northfield Village showing Dog River and its floodway and floodplain. Photo courtesy of Milone and MacBroom, Inc.

## FEMA Buyouts

8 Contiguous Residential Homes along the Dog River Properties along Union Brook at confluence

MILONE & MACBROOM



Northfield Village showing houses proposed for FEMA buyouts. Photo courtesy of Milone and MacBroom, Inc.



*Town park in Northfield village on site of FEMA buyouts October 2017. Photo courtesy of Milone and MacBroom, Inc.*



*Town park in Northfield village on site of FEMA buyouts. Photo courtesy of Milone and MacBroom, Inc.*